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Global Commodity Prices, Exchange Rates, and Policy Interest Rates: ARDL Evidence from Indonesia's Stock Market, 2017–2024

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Abstract

This study examines the short- and long-run associations between global gold prices, Brent crude oil prices, the Indonesian rupiah–U.S. dollar exchange rate, the Bank Indonesia policy rate, and the Jakarta Composite Stock Price Index (JCI) over January 2017–December 2024. Monthly secondary data comprise 96 observations. Following unit-root screening, an autoregressive distributed lag (ARDL) framework is estimated, with lag orders selected by the Akaike information criterion. The preferred ARDL(1,0,0,1,0) model uses 95 effective observations. The bounds F-statistic reported in the thesis (3.942) exceeds its 5% upper critical bound (3.698), supporting a long-run level relationship. Appendix-based re-estimation finds positive and statistically significant long-run coefficients for gold prices (0.219, p = .016) and Brent oil prices (0.339, p < .001); the exchange-rate and policy-rate coefficients are not significant at 5%. In the short run, rupiah depreciation is negatively associated with stock-market movements (coefficient ≈ −0.980, p < .001). The error-correction coefficient (−0.246, p < .001) implies that approximately 24.6% of disequilibrium is corrected per month. These findings underline the importance of distinguishing persistent commodity-related co-movements from short-term currency sensitivity when assessing Indonesian equity-market conditions.

Keywords: Jakarta Composite Index; Gold Prices; Brent Crude Oil; Exchange Rate; Policy Interest Rate; ARDL; Cointegration

INTRODUCTION

Equity prices incorporate investors' expectations about future earnings, risk, liquidity, and the macroeconomic environment. For emerging markets, these expectations

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can be particularly sensitive to changes in international commodity markets and global monetary conditions because the transmission of shocks operates through exchange rates, foreign portfolio flows, financing costs, and domestic demand (Chen et al., 1986; Miranda-Agrippino & Rey, 2020). The Jakarta Composite Stock Price Index (JCI; Indonesian abbreviation: IHSG) provides an aggregate indicator of movements in the Indonesian equity market, making it a useful setting in which to examine global and domestic influences concurrently.

The January 2017–December 2024 observation window spans several distinct macro-financial conditions: the pre-pandemic expansion, the abrupt disruption of 2020, subsequent economic reopening, commodity-price volatility, and monetary tightening (Bank for International Settlements, 2023; International Monetary Fund, 2024). In the thesis dataset, the JCI rose from 5,294.10 points in January 2017 to 7,079.90 in December 2024, despite falling to 4,538.93 during March 2020. Over the same interval, the gold price increased from USD 1,192.60 to USD 2,644.10 per troy ounce. Brent crude oil fell to USD 18.38 per barrel in April 2020 and later reached USD 122.71 in June 2022. These divergent time paths illustrate why contemporaneous correlations alone cannot adequately capture market adjustment across different horizons.

Gold is frequently discussed as a portfolio hedge or safe haven. Its relationship with equities may be negative during episodes of investor flight to safety, yet the sign and duration of this association depend on market conditions and the countries examined (Baur & Lucey, 2010; Baur & McDermott, 2010; Salisu et al., 2021; Sempach et al., 2024). Oil-price changes are similarly ambiguous: supply-driven energy inflation may reduce corporate cash flows, whereas stronger oil prices associated with aggregate demand can coincide with improved earnings expectations and higher share prices (Hamilton, 2009; Kilian & Park, 2009; Degiannakis et al., 2018). A priori restrictions on the sign of these relationships may therefore be too rigid when applied to a long period containing several major shocks.

The exchange rate and domestic policy rate introduce further sources of adjustment. Rupiah depreciation, when the exchange rate is quoted as IDR per USD, can raise imported input costs and the domestic-currency burden of foreign liabilities while reducing foreign investors' returns when translated into their home currencies (Dornbusch, 1976; El-Diftar, 2023). Interest-rate changes may alter discount rates and credit conditions, but their empirical relationship with equity prices need not be immediate or uniform (Bernanke & Gertler, 1995; Bruno & Shin, 2015). Both variables must consequently be evaluated together with the external commodity indicators.

Prior research has often concentrated on individual channels, specific country groups, or volatility spillovers. The literature documents notable differences across net oil importers

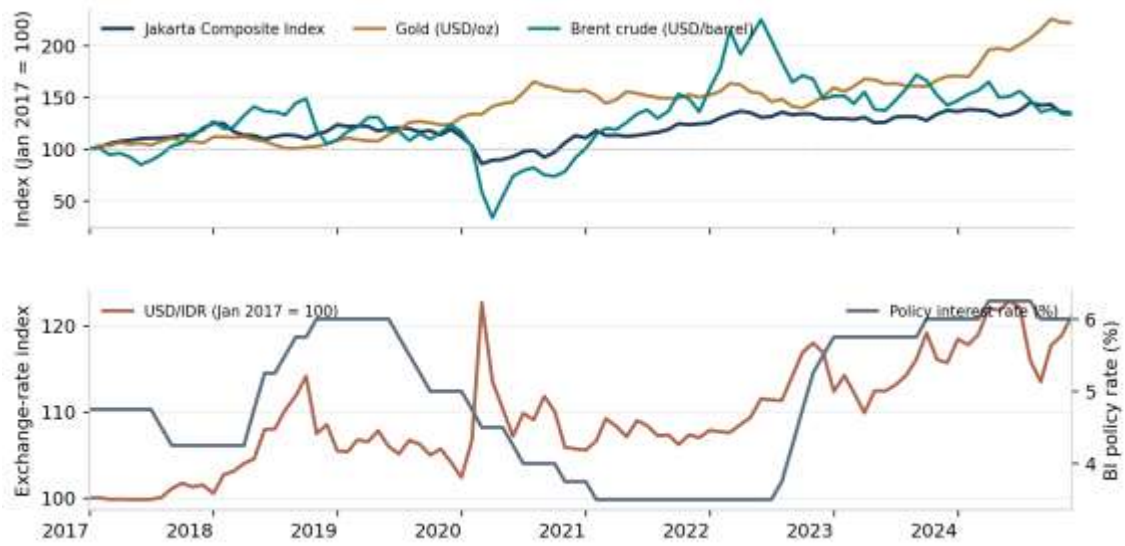
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and exporters, across normal and crisis conditions, and across models that distinguish levels from returns (Degiannakis et al., 2018; Robiyanto et al., 2020; El-Diftar, 2023). The unresolved issue for Indonesia is not simply whether a particular macroeconomic factor correlates with the JCI, but whether the four selected factors share a long-run equilibrium relationship with the index and which disturbances are most visible over the monthly short run.

This article therefore evaluates the role of world gold prices, Brent crude oil, IDR/USD exchange rates, and the Bank Indonesia policy interest rate in JCI movements between 2017 and 2024. It uses the thesis' 96-month dataset and the autoregressive distributed lag (ARDL) framework to differentiate short-run adjustments from long-run relationships. Its contribution is a unified, time-horizon-sensitive assessment of external commodities and domestic monetary indicators for an emerging equity market, together with a transparent cross-check of the reported results against the thesis' appended observations.

Figure 1. Market and macroeconomic dynamics, January 2017–December 2024



Source: Authors' visualization of the 96 monthly observations reported in the thesis appendix. Series indexed to January 2017 = 100 where indicated; the policy rate is in percent.

THEORETICAL REVIEW AND HYPOTHESES

Asset Pricing, Market Information, and Macroeconomic Transmission

Arbitrage Pricing Theory (APT) models expected asset returns as functions of multiple systematic sources of risk (Ross, 1976). Empirical work by Chen et al. (1986) shows

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why macroeconomic shocks deserve attention when explaining capital-market performance. The present study does not estimate the cross-sectional risk premia required for a direct test of APT; instead, it uses its multifactor logic to motivate the inclusion of commodity and monetary conditions in an aggregate market-index equation. The Efficient Market Hypothesis (EMH) further suggests that publicly available macroeconomic information can be reflected in prices, although a cointegration finding does not independently establish informational efficiency (Fama, 1991).

In an integrated market, commodity shocks, monetary conditions, and currency adjustments may influence stock valuations through several overlapping channels. Changes in expectations and global uncertainty can encourage portfolio reallocations, while energy prices can affect operating costs, revenue, inflation, and aggregate activity (Bloom, 2009; Caldara & Iacoviello, 2022). Monetary shocks may also travel internationally through leverage, exchange rates, and cross-border liquidity (Bruno & Shin, 2015; Miranda-Agrippino & Rey, 2020). These mechanisms motivate allowing both lagged responses and a potential longer-run relationship in the empirical model.

Gold Prices and the Indonesian Equity Market

Gold is commonly used for diversification and crisis protection. Baur and Lucey (2010) define a hedge as an asset with low or negative average association with another asset, whereas a safe haven retains this property during extreme market stress. Baur and McDermott (2010) find that the effectiveness of gold as a haven varies across advanced and emerging markets. Such findings justify examining whether gold co-moves inversely with Indonesian equities, while recognizing that a positive level relationship is possible when common macroeconomic forces influence both markets. The thesis originally anticipated a negative association in both horizons.

H1: World gold prices are negatively associated with the JCI in the short run and the long run.

Crude Oil Prices and the Indonesian Equity Market

Crude oil is both an important input to production and an indicator of world demand. An increase in oil prices can reduce the margins of energy-intensive firms, yet oil-sector revenues and the information content of demand-driven shocks can produce positive equity responses. Kilian and Park (2009) show that the source of an oil-price change matters for the direction of its impact on stock returns. Degiannakis et al. (2018) likewise emphasize differences by market aggregation and importer–exporter status. The initial thesis hypothesis, which reflects the cost and inflation channel, anticipated a negative sign.

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H2: Brent crude oil prices are negatively associated with the JCI in the short run and the long run.

The Rupiah Exchange Rate and the Indonesian Equity Market

The exchange rate links global financial conditions with domestic balance sheets. When USD/IDR rises, the rupiah depreciates: importers and foreign-currency borrowers may incur higher costs, and international investors face currency-conversion risk. These channels can place downward pressure on equities, particularly in the near term. Dornbusch (1976) provides a theoretical basis for rapid exchange-rate adjustment, while El-Diftar (2023) documents heterogeneous exchange-rate effects across the Emerging 7 economies, including an adverse relationship in Indonesia. The expected sign is negative under the IDR-per-USD quotation used here.

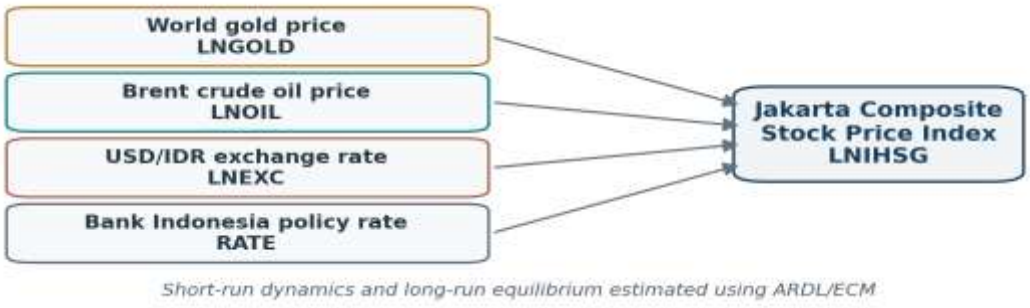
H3: A depreciation of the rupiah (a rise in USD/IDR) is negatively associated with the JCI in the short run and the long run.

Policy Interest Rates and the Indonesian Equity Market

Higher policy rates can raise financing costs and investors' required rates of return, reducing the present value of expected corporate cash flows. The credit and balance-sheet channels described by Bernanke and Gertler (1995), as well as international risk-taking effects (Bruno & Shin, 2015), indicate how policy-rate changes may propagate through the financial system. Nonetheless, an observed rate change may also be an endogenous response to inflation, currency pressures, and growth, so its reduced-form coefficient need not be negative or statistically significant in every period.

H4: An increase in the Bank Indonesia policy interest rate is negatively associated with the JCI in the short run and the long run.

Figure 2. Conceptual framework for the ARDL analysis



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Source: Authors' adaptation of the thesis conceptual framework. Arrows denote hypothesized associations, not estimated causal pathways.

RESEARCH METHOD

Research Design, Data, and Variable Construction

The study applies a quantitative explanatory time-series design to monthly secondary observations from January 2017 through December 2024 (n = 96). The JCI is the dependent series. Its four explanatory series are the world gold spot price (USD per troy ounce), Brent crude oil price (USD per barrel), the Bank Indonesia JISDOR exchange rate (IDR per USD), and the Bank Indonesia policy interest rate (percentage points, reported in the thesis as the BI 7-Day Reverse Repo Rate). Source institutions identified in the thesis include Investing.com, the World Gold Council (2025), the U.S. Energy Information Administration, and Bank Indonesia (2023). Alignment is by calendar month.

For reproducibility, the raw appendix values were used to reconstruct natural logarithms for the JCI, gold, Brent oil, and USD/IDR series; the policy rate was maintained in percentage-point units. Consequently, the elasticity interpretation applies to the logged price variables, while the policy-rate coefficient is a semi-elasticity per one percentage-point increase. Because one lag of the dependent series is included, the preferred ARDL estimation sample contains 95 monthly observations. The model coefficients reported below were cross-checked against the original monthly appendix rather than inferred solely from descriptive tables.

Table 1. Variables, Measurement, and Data Sources

Variable	Symbol	Measurement / transformation	Source
Composite stock index	LNIHSG	Natural log of monthly JCI level (points)	Investing.com
World gold price	LNGOLD	Natural log of spot USD per troy ounce	World Gold Council
Brent crude oil	LNOIL	Natural log of USD per barrel	U.S. EIA
USD/IDR exchange rate	LNEXC	Natural log of IDR per USD (JISDOR)	Bank Indonesia
Policy interest rate	RATE	Rate level, percentage points	Bank Indonesia

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Source: Operational definitions and data sources in the original thesis; logarithms reconstructed from Appendix 1.

ARDL Specification and Estimation

An ARDL model was selected because the thesis' augmented Dickey–Fuller results classified the series as integrated of order one, I(1), with no evidence of I(2) integration in the reported tests. Bounds testing can evaluate a lagged-level relationship in an ARDL setting when regressors are I(0) or I(1), but is not valid in the presence of I(2) series (Pesaran et al., 2001). Lag lengths were selected using the Akaike information criterion (AIC). The thesis selected ARDL(1,0,0,1,0), with one lag on the JCI, one on the exchange rate, and zero additional lags on gold, oil, and the policy rate.

In the estimated specification, the natural log of the JCI at time t is regressed on its own one-period lag, contemporaneous log gold prices, log Brent prices, contemporaneous and lagged log USD/IDR, and the contemporaneous policy rate. Conditional on the existence of a level relationship, long-run multipliers are calculated by dividing each predictor's cumulative dynamic coefficient by one minus the lagged dependent-variable coefficient. The adjustment dynamics are summarized using the error-correction term and the first difference of the exchange rate, as reported in the thesis' ECM table.

An ARDL bounds F-test was compared with the reported 5% lower and upper critical values. Residual behavior was evaluated using the Jarque–Bera normality test, the Breusch–Godfrey serial-correlation test, and the Breusch–Pagan–Godfrey heteroskedasticity test. The thesis additionally reported cumulative-sum (CUSUM) and cumulative-sum-of-squares (CUSUMSQ) stability checks. All hypothesis decisions below use a two-sided 5% threshold. Because this is an observational time-series analysis, the coefficients are interpreted as conditional associations, not experimental causal effects.

RESULTS

Descriptive Statistics and Stationarity

Table 2 summarizes the untransformed monthly observations. The index averaged 6,344.09 points over the sample, whereas Brent prices ranged from USD 18.38 to USD 122.71 per barrel. Interest-rate values in the raw appendix ranged from 3.50 to 6.25 percentage points. These figures are calculated directly from the original monthly data to maintain consistency between the stated measurement units, charts, and econometric input series.

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Table 2. Descriptive Statistics of the Original Monthly Series (n = 96)

Variable	Mean	SD	Minimum	Maximum
JCI	6,344.08	697.49	4,538.93	7,670.73
Gold	1,702.28	376.50	1,192.60	2,690.10
Brent crude	70.73	18.73	18.38	122.71
USD/IDR	14,598.78	813.86	13,319.00	16,394.00
BI policy rate	4.87	0.97	3.50	6.25

Source: Authors' calculations from the 96 rows of the thesis' raw-data appendix (2017M01–2024M12).

Table 3. Augmented Dickey–Fuller Unit-Root Test Results

Series	Level p	First-difference p	Integration order
LNIHSG	0.3739	< 0.001	I(1)
LNGOLD	0.9539	< 0.001	I(1)
LNOIL	0.2428	< 0.001	I(1)
LNEXC	0.2540	< 0.001	I(1)
RATE	0.5787	0.0001	I(1)

Source: ADF results reported in the thesis (Table 4.2); entries reported as 0.0000 are shown as p < .001.

The reported ADF results do not reject unit roots at level for any series but reject the unit-root null after first differencing. Each was therefore classified as I(1). These results satisfy the integration-order screen needed for the chosen ARDL bounds-testing approach. The AIC criterion selected the ARDL(1,0,0,1,0) specification, with the original EViews report giving AIC = −4.327441.

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Selected ARDL Model and Model Fit

Table 4. Re-estimated ARDL(1,0,0,1,0) Coefficients

Regressor	Coefficient	Std. error	t	p
LNIHSG(−1)	0.753627	0.064068	11.763	< 0.001
LNGOLD	0.054014	0.025023	2.159	0.0336
LNOIL	0.083614	0.020498	4.079	< 0.001
LNEXC	-0.980379	0.123974	-7.908	< 0.001
LNEXC(−1)	0.806171	0.134716	5.984	< 0.001
RATE	0.006595	0.004490	1.469	0.1455

Source: Authors' OLS re-estimation of the specified ARDL model from the thesis' 96 raw monthly observations; effective n = 95.

The re-estimated model explains a large fraction of the conditional variation in logged JCI levels (R^2 = 0.9474; adjusted R^2 = 0.9438; F = 264.19, p < .001; Durbin–Watson = 1.831). The one-month lagged JCI coefficient (0.754) indicates persistence in monthly index levels. Gold and Brent prices show positive contemporaneous coefficients, the current USD/IDR coefficient is negative while its lag is positive, and the policy-rate coefficient is positive but not statistically significant. The model-fit R^2 is conditional and should not be interpreted as evidence that each regressor causes an equivalent share of stock-market changes.

Bounds Test and Long-Run Multipliers

Table 5. ARDL Bounds Test and Critical Values

Test / significance	Statistic / I(0)	Upper bound I(1)	Decision
F-statistic (k = 4)	3.941990	—	95 effective observations
10% critical values	2.303	3.220	F above upper bound

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Test / significance	Statistic / I(0)	Upper bound I(1)	Decision
5% critical values	2.688	3.698	Cointegration supported
1% critical values	3.602	4.787	Inconclusive at 1%

Source: Thesis Bounds Test and critical-value tables (Tables 4.6–4.7); interpretation at the corresponding thresholds.

The bounds F-statistic of 3.941990 exceeds the stated upper critical value of 3.698 at the 5% level. Accordingly, the thesis rejects the null of no level relationship at that threshold. The same F-statistic is below the 1% upper bound of 4.787, so evidence at the stricter level is not conclusive. With this qualification, long-run multipliers are presented below as conditional equilibrium associations.

Table 6. Appendix-Based Long-Run Multipliers

Predictor	Coefficient	Std. error	t	p	5% result
LNGOLD	0.219236	0.089228	2.457	0.0160	Significant
LNOIL	0.339379	0.042702	7.948	< 0.001	Significant
LNEXC	-0.707091	0.415838	-1.700	0.0926	Not significant
RATE (per 1 pp)	0.026767	0.015199	1.761	0.0817	Not significant

Source: Authors' calculation of long-run multipliers from the appendix-reestimated ARDL coefficients. Standard errors and p-values use the delta method; RATE uses one percentage-point units.

In the long run, a 1% higher gold price is associated with approximately a 0.219% higher JCI, holding the other included variables constant; the corresponding Brent elasticity is approximately 0.339. Both coefficients are positive and significant at 5%, contrary to the negative directions specified in H1 and H2. The estimated exchange-rate elasticity is negative (approximately −0.707) but fails to reach the 5% threshold. The policy-rate multiplier is also positive and statistically indistinguishable from zero at 5%; this corrected

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coefficient is expressed for a one percentage-point change in the rate, rather than for a rescaled interest-rate variable.

Short-Run Adjustment and Model Diagnostics

Table 7. Key ECM Adjustment Parameters

ECM component	Coefficient	p	Interpretation
ΔLNEXC (current period)	-0.980379	< 0.001	Negative, significant
Error-correction term (t−1)	-0.246373	< 0.001	Convergence to equilibrium

Source: Short-run exchange-rate and error-correction parameters implied by the re-estimated ARDL; values agree closely with the thesis ECM table.

The short-run coefficient on the change in USD/IDR is approximately −0.980 and highly significant. Under an IDR-per-USD quotation, a rupiah depreciation is associated with a decline in the index over the same month, conditional on the modeled dynamics. The error-correction coefficient is negative (approximately −0.246) and significant, indicating that about 24.6% of the preceding period's departure from the estimated long-run equilibrium is adjusted within one month. The negative sign is consistent with convergence, but it does not imply instantaneous completion of adjustment.

Table 8. Reported Residual Diagnostics and Stability Assessment

Diagnostic	Value	p	Assessment at 5%
Jarque–Bera normality	JB = 0.9248	0.6298	Normality not rejected
Breusch–Godfrey LM	Obs×R^2 = 0.7760	0.3784	No significant serial correlation
Breusch–Pagan–Godfrey	Obs×R^2 = 7.3398	0.2906	No significant heteroskedasticity
CUSUM stability	Within 5% bounds	—	Stable in thesis plot
CUSUMSQ stability	Within 5% bounds	—	Stable in thesis plot

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Source: Thesis Jarque–Bera graphic, Breusch–Godfrey and Breusch–Pagan–Godfrey tables, and CUSUM/CUSUMSQ figures.

The residual diagnostic tests reported in the thesis do not flag non-normality, serial correlation, or heteroskedasticity at 5%. Its CUSUM and CUSUMSQ charts are described as remaining within their respective 5% stability boundaries. These diagnostics lend support to the fitted model but cannot rule out omitted macroeconomic shocks, measurement problems, endogeneity, or breaks that more specialized tests could detect.

DISCUSSION

Gold Prices: Positive Long-Run Co-movement Rather Than a Simple Substitution Effect

The positive long-run gold coefficient conflicts with H1, which predicted a negative relationship based on the conventional portfolio-substitution argument. This outcome does not invalidate gold's role as a safe haven: Baur and Lucey (2010) and Baur and McDermott (2010) describe the haven property primarily in particular stress conditions and across specific market relationships, not as a universal requirement that long-horizon asset-price levels move in opposite directions. Across 2017–2024, common global liquidity conditions, inflation expectations, and post-pandemic recovery may have contributed to periods in which both asset markets increased. Because the analysis does not identify the source of gold-price shocks or investor flows, these mechanisms remain potential explanations rather than directly established mediators. The finding is best read as a positive conditional long-run co-movement in the model.

Brent Crude Oil: Demand Conditions and the Heterogeneity of Equity Exposure

Brent crude oil also has a positive significant multiplier, rejecting the negative sign specified in H2. This result contrasts with the supply-cost perspective in which higher oil prices compress margins for importing sectors. Kilian and Park (2009), however, emphasize that the impact of oil-price shocks on stocks depends on whether higher prices reflect supply restrictions or stronger aggregate demand. Degiannakis et al. (2018) similarly find that the relationship changes with national energy exposure and level of market aggregation. As the JCI includes firms with heterogeneous energy dependence, commodity-linked revenue, and business cycles, an aggregate positive coefficient can coexist with negative effects for energy-consuming subsectors. The present regression cannot identify individual oil-shock types or separate sector-level transmission; these should be investigated directly in subsequent studies.

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Exchange Rate: Immediate Exposure but Weaker Long-Run Evidence

The exchange-rate results reveal a marked difference between horizons. The highly significant negative contemporaneous term suggests that rupiah depreciation is associated with near-term equity-market pressure. This direction is economically consistent with imported input costs, foreign-currency debt exposure, and portfolio outflows, and it resembles the negative exchange-rate association reported for Indonesia in El-Diftar (2023). However, the estimated long-run coefficient, although negative, is not statistically significant at 5%. One interpretation is that companies and investors gradually adjust import sourcing, hedging, capital structures, and currency expectations; another is simply that long-run precision is insufficient in the available sample. Neither explanation is separately tested here. H3 is therefore supported for the short-run relationship, but not for a statistically established long-run effect.

Policy Interest Rates and the Limits of Reduced-Form Interpretation

The policy-rate association does not attain 5% significance in the long-run multiplier or the contemporaneous ARDL coefficient, and its estimated sign is positive rather than the negative direction proposed in H4. This result should not be interpreted as demonstrating that monetary policy is irrelevant to Indonesian equities. The monetary transmission described by Bernanke and Gertler (1995) operates through multiple lags and intermediate variables; policy rates themselves respond to inflation, currency conditions, and the business cycle. The model contains a limited lag structure for the rate and does not control for policy surprises, global rates, inflation, or foreign portfolio flows. Consequently, the reported result indicates a lack of statistically detectable partial association in this specification, not a general absence of a monetary-policy channel.

Theoretical and Managerial Implications

The findings are consistent with a multifactor macro-financial perspective: no single global or domestic indicator captures all dimensions of Indonesian equity-market conditions. APT provides a useful motivation for examining several sources of systematic risk (Ross, 1976; Chen et al., 1986), while EMH offers a perspective on the speed of information incorporation without being directly tested by the model (Fama, 1991; Malkiel, 2011). Most importantly, the ARDL framework reveals that long-run commodity co-movement and short-run exchange-rate sensitivity should not be conflated.

For investors and risk managers, the evidence suggests monitoring currency exposure around short-horizon portfolio decisions while interpreting gold and oil trends in a wider

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macroeconomic context. For listed firms, exchange-rate hedging and scenario analysis remain relevant where costs or liabilities are dollar denominated; commodity exposure likewise differs across issuers. For policymakers, the estimates support integrated market monitoring rather than responses based on a single variable. These are risk-management considerations, not mechanical trading signals or causal policy estimates.

CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

Using 96 monthly observations for 2017–2024, the study identifies an ARDL(1,0,0,1,0) specification with evidence of a long-run level relationship under the thesis' 5% bounds-test criterion. Gold and Brent crude oil have statistically significant positive long-run multipliers, contrary to the originally hypothesized negative signs. Rupiah depreciation is negatively associated with contemporaneous JCI changes, but the exchange-rate multiplier is not statistically significant in the long run. The policy-rate coefficient is not significant at 5%. An error-correction parameter near −0.246 indicates gradual monthly convergence toward the estimated equilibrium.

The study has several limitations. First, the sample includes only eight years and spans exceptional pandemic and post-pandemic conditions; the fitted relationship should not be assumed stable outside this window. Second, gold and oil prices are not decomposed into demand, supply, monetary, or geopolitical shocks, and the model does not estimate sectoral heterogeneity. Third, the observational design and jointly determined macroeconomic variables restrict causal claims. Fourth, the thesis contains discrepancies between certain published summary values and its appended interest-rate and log-index data; the article therefore reports appendix-reconstructed descriptive statistics and coefficients expressed in the stated units. Finally, the CUSUM findings do not replace formal tests for multiple structural breaks or nonlinear dynamics.

Further research could extend the sample, incorporate inflation, global policy rates, risk-aversion indicators, foreign investor flows, and sector indices, and compare the baseline ARDL with nonlinear ARDL, structural-break-aware cointegration, or volatility models. Such extensions would help establish when global commodity movements and domestic monetary conditions become particularly influential for Indonesia's equity market.

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