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Gold Price Responses to Macroeconomic Changes in Indonesia: Short-Run Evidence within the Autoregressive Distributed Lag (ARDL) Framework

Rani Kirnawati¹, Diah Tri Pujiastuti², Sri Hartanti Sachroni³

¹ Faculty of Economics and Business, Universitas Pekalongan, Indonesia

*Corresponding author¹

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ABSTRACT

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Gold is widely regarded as a safe-haven asset that responds to economic uncertainty and financial market volatility. This study aims to examine the effects of the rupiah exchange rate, inflation, the Jakarta Composite Index (IHSG), and interest rates on gold prices in Indonesia, as well as to evaluate the role of gold as a safe-haven asset. This research employs monthly time series data covering the period October 2021 to October 2025. The Autoregressive Distributed Lag (ARDL) model is used to analyze both short-run and long-run relationships. Prior to estimation, stationarity tests are conducted to ensure that no variable is integrated at order $I(2)$, thereby validating the ARDL bounds testing approach. The results indicate the presence of cointegration, supported by a significant and negative error correction term (ECT). However, in the long run, none of the macroeconomic variables significantly affect gold prices. In contrast, in the short run, the exchange rate, lagged inflation, IHSG, and interest rates significantly influence gold price movements. These findings suggest that gold prices in Indonesia are more responsive to short-term financial dynamics rather than long-term macroeconomic fundamentals. The significant ECT further confirms that short-term disequilibria are gradually corrected toward long-run equilibrium.

INTRODUCTION

Gold is one of the most widely used investment instruments, functioning both as a hedging instrument and a safe-haven asset during periods of economic uncertainty. A safe haven is defined as an asset that is able to maintain or even increase its value during economic turbulence, financial crises, or heightened market risk. In such conditions, investors tend to shift their funds from risky assets, such as equities, to safer assets like gold.

Throughout various global crises, including the 2008 financial crisis, geopolitical tensions, and the COVID-19 pandemic, gold has proven its ability to maintain and even increase its value when financial markets are under pressure. For instance, global gold prices rose significantly from around USD 1,500 per troy ounce in early 2020 to over USD 2,000 in mid-2020, reflecting a surge in demand for safe-haven assets amid global uncertainty. These findings are consistent with studies by Baur and McDermott (2015) and Ji, Zhang, and Zhao (2020), which confirm that gold acts as a strong safe haven, particularly during periods of extreme market stress.

In the Indonesian context, similar patterns can also be observed. Domestic gold prices have shown an upward trend in recent years, especially during periods of rupiah depreciation and heightened global uncertainty. Empirical observations indicate that when the rupiah weakens against the US dollar, domestic gold prices tend to increase, as gold is traded in US dollar denominations. In addition, fluctuations in the Jakarta Composite Index (IHSG) reflect shifts in investor portfolio allocation, where declines in the stock market are often followed by increased demand for gold as a safe asset.

Recent studies further confirm that gold price dynamics are influenced by macroeconomic and global financial factors. For instance, Herley et al. (2024) highlight that the relationship between gold prices and exchange rates is dynamic and depends on monetary policy conditions. Meanwhile, Herman et al. (2025) find that the US dollar exchange rate has a significant positive effect on gold prices, whereas inflation does not always exhibit a consistent impact.

Several empirical studies in Indonesia support the relationship between macroeconomic variables and gold prices. Aprizal (2025) finds that the rupiah exchange rate significantly affects domestic gold prices, while Kesarditama et al. (2020) show that the IHSG has a negative relationship with gold prices, indicating a substitution effect between stocks and gold. Furthermore, the Bank Indonesia policy rate (BI Rate) plays an important role in shaping investor preferences. Wicaksono (2016) finds that interest rates have a significant negative effect on gold prices, while Sriwulan and Ariusni (2020) identify a long-run relationship between interest rates and gold prices.

Using an ARDL approach, Garg et al. (2025) demonstrate that macroeconomic variables such as inflation, exchange rates, and stock indices have both short-run and long-run relationships with gold prices. Similarly, Wee et al. (2024) show that inflation and interest rates can influence gold prices, although the direction and magnitude may vary across periods.

More recent evidence also suggests that gold's role as an inflation hedge is time-varying and depends on economic conditions (2026 study). These findings indicate that gold price movements are complex and influenced by both domestic and global factors, reinforcing the need for a comprehensive empirical model.

However, despite the growing body of literature on gold prices, several important research gaps remain insufficiently addressed. First, previous studies exhibit empirical inconsistencies. Some studies find that inflation has a positive effect on gold prices as an inflation hedge, while others report negative or insignificant effects. This inconsistency suggests that the relationship between macroeconomic variables and gold prices is not stable and may depend on the time horizon of analysis.

Second, most prior studies tend to focus on partial relationships, such as the effect of exchange rates on gold prices or the relationship between stock indices and gold, without examining the four key variables (exchange rates, inflation, IHSG, and interest rates) simultaneously within an integrated analytical framework. As a result, the understanding of gold price dynamics remains incomplete.

Third, many studies do not explicitly distinguish between short-run and long-run dynamics, even though gold prices are highly dynamic and may respond differently across time horizons. The econometric approaches commonly used, such as simple regression or VAR/VECM, often lack the flexibility to capture relationships among variables with different orders of integration.

Fourth, there is still limited research in Indonesia that applies the Autoregressive Distributed Lag (ARDL) model to analyze gold prices, despite its advantage in capturing both short-run and long-run relationships simultaneously, even when variables are integrated at different orders ($I(0)$ and $I(1)$).

Based on these research gaps, this study aims to provide a more comprehensive analysis by examining the simultaneous effects of the rupiah exchange rate, inflation, IHS, and interest rates on gold prices in Indonesia using the ARDL approach. This method allows for a deeper understanding of both short-run dynamics and long-run relationships, which are crucial in explaining gold price movements.

Moreover, this study is particularly relevant given that, in recent years, gold price movements in Indonesia have become increasingly sensitive to macroeconomic and global conditions. Therefore, a more comprehensive understanding of the determinants of gold prices is expected to contribute not only to the academic literature but also to provide practical insights for investors and policymakers in responding to evolving economic dynamics.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Gold prices reflect macroeconomic conditions and global financial market dynamics. In economic and financial literature, several major theories explain the determinants of gold prices, particularly in relation to exchange rates, inflation, interest rates, and stock markets.

Demand and Supply Theory

Fundamentally, gold prices are determined by the interaction between demand and supply. Demand for gold arises not only from the jewelry and industrial sectors but also from investment needs and central bank reserves. When economic uncertainty increases, demand for gold as a hedging asset tends to rise, thereby pushing gold prices upward (Baur & McDermott, 2010).

Inflation Hedge Theory

This theory states that gold functions as a hedge against inflation. An increase in the general price level reduces purchasing power, leading investors to shift their assets into gold to preserve wealth. In the long run, there is a positive relationship between inflation and gold prices (Fisher, 1930; Ghosh et al., 2004).

Interest Rate Theory

According to interest rate theory, gold is a non-yielding asset. Therefore, an increase in interest rates raises the opportunity cost of holding gold, reducing its demand and price. Conversely, a decline in interest rates tends to increase gold prices (Barsky & Summers, 1988).

Exchange Rate Theory

Gold is traded globally in US dollar denominations. A depreciation of the domestic currency against the US dollar increases gold prices in local currency terms. In addition, exchange rate depreciation reflects rising economic risk, which encourages demand for gold as a hedging asset (Sjaastad, 2008).

Safe Haven Theory

Gold is often regarded as a safe-haven asset, meaning that it can maintain or increase its value during periods of financial market stress. When stock markets weaken or volatility increases, investors tend to shift their funds into gold, leading to higher gold prices (Baur & Lucey, 2010).

Portfolio Balance Theory

This theory explains that investors allocate their portfolios based on relative risk and return across assets. Gold serves as an alternative investment to stocks and bonds. Changes in interest rates, exchange rates, and stock indices influence investor preferences in selecting gold as part of their portfolio (Capie et al., 2005).

Exchange Rate (Rupiah to US Dollar) and Gold Prices

According to general economic references, the exchange rate is one of the key macroeconomic variables affecting commodity prices, including gold. In much of the literature, a depreciation of the domestic currency (e.g., the rupiah against the US dollar) tends to increase domestic gold prices because gold is priced in foreign currency. The overshooting theory (Dornbusch) explains how exchange rates may fluctuate sharply in the short run before returning to long-run equilibrium.

The rupiah exchange rate against the US dollar is crucial in analyzing domestic gold prices, as gold is traded globally in US dollars. Aprizal (2025) finds that the rupiah exchange rate significantly affects gold prices in Indonesia. Similarly, Rahmansyah (2020) shows that exchange rate movements have a real impact on local gold price dynamics.

Wisnu Yuwono et al. (2023) find that macroeconomic factors such as interest rates and inflation influence gold prices in Indonesia, although the effect of exchange rates is not always significant across all periods. Meanwhile, in the context of IHSG, Indah Puspa Dewi (2020) shows that exchange rates have a negative and significant effect on the stock index.

H1: The rupiah exchange rate has a positive effect on gold prices in Indonesia.

Inflation and Gold Prices

Inflation measures the general increase in the prices of goods and services over time and serves as an indicator of purchasing power stability. In the context of gold, classical theory suggests that gold acts as an inflation hedge: when inflation rises, the real value of money declines, prompting investors to purchase gold to preserve their wealth. Additionally, the Fisher effect explains the relationship between nominal interest rates, real interest rates, and inflation.

Inflation is also considered an important factor influencing gold prices. Theoretically, high inflation reduces purchasing power, leading investors to shift toward gold as a hedge. However, empirical evidence in Indonesia remains inconsistent. Kesarditama, Haryadi, and Amzar (2020) find that inflation has a negative and significant effect on domestic gold prices, contradicting the common assumption that inflation drives gold prices upward.

Other studies present different findings. Laily and Hashim (2022), as well as Khuong et al. (2022), Lastri (2021), and Rahmansyah et al. (2021), find a positive relationship between inflation and gold prices. When inflation rises sharply, gold prices tend to increase (Prasetyo et al., 2020), as investors prefer gold due to its stability and safety during inflationary periods (Rismala, 2019).

Wisnu Yuwono et al. (2023) find that inflation has a negative effect on gold prices in Indonesia, although the results are not always statistically significant. On the other hand, Soekapdjo (2021) finds that inflation has a positive and significant effect on demand for Rahn (Islamic gold pawn financing), indirectly confirming the role of inflation in gold investment behavior.

H2: Inflation has a positive effect on gold prices in Indonesia.

Jakarta Composite Index (IHSG) and Gold Prices

The IHSG, as a stock market indicator, reflects the performance of the domestic capital market. In portfolio theory, gold and stocks may act as substitute assets: when stock markets decline, investors may shift to gold as a safe-haven asset. Conversely, when stock markets perform well, investors may allocate more funds to stocks due to higher return potential.

IHSG reflects investor sentiment in Indonesia's capital market. When IHSG declines (indicating higher market risk), investors tend to shift from risky assets to safer ones such as gold. Kesarditama et al. (2020) find that IHSG has a significant effect on gold prices in Indonesia. Aprizal (2025) also confirms that IHSG is an important variable in explaining gold price movements.

Darmawan and Saiful Haq (2022), using an ARDL model, find that in the short run, exchange rates and inflation negatively affect IHSG, while global gold prices and global stock indices have a positive effect. Additionally, Silalahi and Sihombing (2021) find that exchange rates, inflation, and interest rates significantly influence IHSG, indicating that the index is sensitive to macroeconomic variables.

H3: IHSG has a negative effect on gold prices in Indonesia.

Interest Rates and Gold Prices

Interest rates are an important financial indicator representing the return on lending over a certain period (Yunita et al., 2018). Generally, interest rates serve as a benchmark in financial markets and influence the pricing of various financial instruments.

One key macroeconomic variable affecting gold prices is the interest rate. Theoretically and empirically, when interest rates decline, gold prices tend to increase. This occurs because lower interest rates reduce the attractiveness of interest-bearing assets such as deposits and bonds, prompting investors to shift toward gold as a more stable investment (Melyani et al., 2021).

Several studies support this relationship. Youvan (2024) finds that gold price movements are strongly influenced by interest rate fluctuations. Similar findings are reported by Xu (2024) and Qader Yaqub (2023), who show that changes in interest rates directly affect gold prices due to shifts in investor preferences.

H4: Interest rates have a significant effect on gold prices in Indonesia.

RESEARCH METHODOLOGY

This study uses secondary data at the national level (Indonesia) with a monthly frequency over 49 months, from October 2021 to October 2025. Data sources include Bank Indonesia for interest rates and exchange rates (bi.go.id), Statistics Indonesia Statistics Indonesia (bps.go.id), and id.investing.com for gold prices and IHSG data.

The dependent variable is gold price (rupiah per gram), while the independent variables include the rupiah exchange rate, inflation, IHSG, and interest rates. This research adopts a quantitative approach using time series data. Time series data are chronologically arranged based on time to analyze relationships over a specific period (Kuncoro, 2007).

Relevance of the ARDL Model

The relationship between gold prices and macroeconomic variables is dynamic and not always symmetric in the short run and long run. Therefore, the Autoregressive Distributed Lag (ARDL) model is appropriate, as it can capture both short-term and long-term relationships among variables, even when they have different orders of integration (Pesaran et al., 2001).

Data processing is conducted using EViews version 13. The analysis includes Stationarity test, Optimal lag selection, Cointegration test (Bounds Test), and ARDL model estimation.

RESULTS AND DISCUSSION

Stationarity Test

The stationarity test is conducted using a unit root test. If the data are not stationary at level, the test is continued by examining the degree of integration through the first difference of the variables. In this study, the Phillips-Perron unit root test is employed, as suggested by Nulhanuddin (2020).

If the p-value is less than the significance level (α), it indicates that the data do not contain a unit root and are therefore stationary. The significance level used in this study is 5%. The results of the test are presented in Table 1.

Table 1. Results of Unit Root Test Model Philips-Perron (PP)

Variabel	Unit Root	Probability Philips-Perron (PP)	Result
Gold	level	0,0000	stasionary
Exchange Rate	level	0,7584	non-stasionary
	first diff	0,0000	stasionary
Inflation Rate	level	0,0193	stasionary
IHSG	level	0,0000	stasionary
Interest Rate	level	0,9120	non-stasionary
	first diff	0,0416	stasionary

Source: Secondary data processed (2025)

Based on the results, it can be observed that the variables of gold price, inflation, and IHSG are stationary at level at the 5% and 10% significance levels, as indicated by their Phillips-Perron (PP) values being smaller than the significance level (α). However, the exchange rate and interest rate variables are stationary at the first difference. Therefore, the Autoregressive Distributed Lag (ARDL) model is appropriate for this study.

Optimal Lag Selection

The determination of the optimal lag length is based on several criteria, including the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz

Information Criterion (SIC), and Hannan-Quinn Information Criterion (HQ), as outlined by Juliansyah (2024).

Table 2. Results of Optimal Lag Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-603.296	NA	5.70E+10	27.60438	27.76658	27.66453
1	-516.269	154.2761	1.14E+09	23.69403	23.89678*	23.76922*
2	-516.122	0.25379	1.19E+09	23.73281	23.97611	23.82304
3	-516.12	0.002349	1.25E+09	23.7782	24.06205	23.88347
4	-514.366	2.871137	1.21E+09	23.7439	24.0683	23.8642
5	-511.658	4.307957*	1.12e+09*	23.66627*	24.03122	23.80161

Source: Secondary data processed (2025)

The selection of the optimal lag is carried out by examining the number of asterisks (*) across the lag criteria. The ARDL model is estimated using various lag combinations, and the lag with the highest number of asterisks is selected as the optimal lag.

At lag 5, there are three criteria marked with asterisks, namely the Likelihood Ratio (LR), Final Prediction Error (FPE), and Akaike Information Criterion (AIC). At the same lag, there are also two criteria marked with asterisks, namely the Schwarz Information Criterion (SIC) and the Hannan-Quinn Information Criterion (HQ). Based on these results, it can be concluded that the optimal lag is lag 5. This implies that the response between variables occurs within the next five months.

Cointegration Test (Bounds Test)

Cointegration is a concept in time series analysis that indicates the existence of a long-run equilibrium relationship among two or more variables that are inherently non-stationary. In this study, the cointegration test is conducted using the ARDL approach through the Bounds Testing Cointegration method.

This test is performed by comparing the F-statistic obtained from the estimation with the critical bounds values. If the F-statistic is lower than the lower bound, it indicates that there is no cointegration relationship. Conversely, if the F-statistic exceeds the upper bound, it can be concluded that the variables are cointegrated. However, if the F-statistic falls between the lower and upper bounds, the test results are inconclusive, and the presence of cointegration cannot be determined with certainty.

Table 3. Results of Bound Test

Test Statistic	Value
F-statistic	9.487655

Source: Secondary data processed (2025)

Table 4. Bound Critical Value

Sample Size	10%		5%		1%	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
40	2.427	3.395	2.893	4	3.967	5.455
45	2.402	3.345	2.85	3.905	3.892	5.173
Asymptotic	2.2	3.09	2.56	3.49	3.29	4.37

Source: Primary data processed (2025)

Based on the Bound Test results in Table 3, the F-statistic value of 9.487655 is higher than the 5% critical value of I(1) in Table 4, namely 4, 3.905, and 3.49. Therefore, it can be concluded that there is a cointegration relationship among the variables in the model.

ARDL Model Estimation Results

The ARDL model is chosen because it is capable of capturing both the dynamic relationship between dependent and independent variables over time, as well as the influence of past values of the dependent variable on its current value. As cited in Zaretta (2019), the ARDL model is a combination of the Autoregressive (AR) model and the Distributed Lag (DL) model.

Short Run Estimation

Table 5. Result of ARDL Short Run Model Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
COINTEQ*	-0.074	0.009009	-8.21388	0.0000
D(D_Kurs)	71.82123	17.48603	4.107348	0.0003
D(Inflasi(-2))	-85.4632	19.03894	-4.48887	0.0001
D(IHSG(-2))	-47232.6	12582.42	-3.75385	0.0007
D(IHSG(-3))	-45317.1	10332.38	-4.38594	0.0001
D(IHSG(-4))	-45130.4	9717.287	-4.64435	0.0001
D(D_Sukubunga)	67590.38	31438.79	2.149904	0.0392
D(D_Sukubunga(-1))	65105.05	29468.36	2.20932	0.0344

Source: Primary data processed (2025)

The short-run effects are identified from variables in their differenced form, indicated by the notation D followed by the variable name. Based on Table 5, all variables have p-values below 5%, indicating that all variables, namely the exchange rate, inflation, IHSG, and interest rates, have a significant effect on gold prices in the short run. The ARDL short-run model is specified as follows:

$$D(\text{Gold})_t = -0,074 \text{ COINTEQ}^*_{t-1} + 71,82123 D(\text{Exchange Rate})_t - 85,4632 D(\text{Inflation Rate})_{t-2} - 47232,6 D(\text{IHSG})_{t-2} - 45317,1 D(\text{IHSG})_{t-3} - 45130,4 D(\text{IHSG})_{t-4} + 67590,38 D(\text{Interest rate})_t + 65105,05 D(\text{Interest rate})_{t-1} + \varepsilon_t$$

The ARDL estimation results in Table 5 show that the COINTEQ* variable has a coefficient of -0.074 with a p-value of 0.0000. This coefficient is negative and significant at the 1% level. The ECT/COINTEQ (-1) coefficient of -0.074 indicates the existence of a long-run relationship between gold prices and the macroeconomic variables examined. The negative sign implies that any deviation from equilibrium will be corrected, while the magnitude of the coefficient suggests that approximately 7.4% of short-run disequilibrium is corrected each month. This indicates a relatively slow but stable adjustment process toward long-run equilibrium.

The significance of all independent variables in influencing gold prices occurs across different time periods. For the exchange rate, the effect is positive, and gold prices respond directly to changes in the exchange rate in the current period. In contrast, inflation shows a different pattern. Based on Table 5, changes in inflation two months earlier have a significant negative effect on current gold prices.

For the IHSG variable, significant p-values are observed at three lag periods, namely two to four periods earlier. This indicates that IHSG has a strong short-run effect, but its impact is only realized after two to four months. The effect is negative, suggesting that an increase in IHSG in the previous two to four months tends to reduce gold prices in the current period.

In contrast, interest rates exhibit a positive and significant short-run effect on gold prices, as shown in Table 5. Interest rates in the current period and the previous month both influence gold prices.

The coefficient of the exchange rate in the current period is positive and significant, indicating that a one-unit increase in the exchange rate (rupiah per USD) increases the change in gold prices by 71.82123 units in the same period. This suggests that gold prices are highly responsive to exchange rate movements in the short run.

The coefficient of inflation at lag 2 is negative and significant, implying that a 1% increase in inflation two months earlier reduces the change in gold prices by 85.4632 units. This indicates that the effect of inflation is lagged and moves in the opposite direction in the short run.

An increase in IHSG within the past two to four months leads to a decrease in gold prices in the current period. This reflects a pattern in which, when the stock market strengthens (IHSG rises), demand for gold declines, leading to lower gold prices in subsequent months. In other words, in the short run, gold acts as a substitute for stocks, and investors shift from gold to equities when IHSG increases.

The coefficient of interest rates in the current period is positive and significant. This finding contradicts classical theory, which typically predicts a negative relationship. However, this result may occur if rising interest rates increase economic uncertainty or reflect economic pressure, prompting investors to continue choosing gold as a safe-haven asset. Additionally, an increase in interest rates in the previous month also raises gold prices in the current period. This indicates that the effect of interest rates on gold prices persists over two periods (current and previous month) and remains positive.

Long Run Estimation

Table 6. Result of ARDL Long Run Model Estimation

Variable *	Coefficient	Std. Error	t-Statistic	Prob.
D_ExchangeRate(-1)	428.39	453.1286	0.945405	0.3503
InflationRate(-1)	466.6901	299.9826	1.555724	0.1279
IHSG(-1)	81608.29	410941.4	0.198589	0.8436
D_InterestRate(-1)	-221448	539520.3	-0.41045	0.6837
C	-2481628	2183605	-1.13648	0.2627

Source: Primary data processed (2025)

Based on Table 6, the estimated long-run model is as follows:

$$\text{Gold}_t = 428,39 \text{ ExchangeRate}_{t-1} + 466,6901 \text{ InflationRate}_{t-1} + 81608,29 \text{ IHSG}_{t-1} - 221448 \text{ InterestRate}_{t-1} - 2481628$$

Although the ARDL model confirms the existence of cointegration, indicating a long-run equilibrium relationship among variables, the estimation results reveal that none of the macroeconomic variables—exchange rate, inflation, IHSG, and interest rates—have a statistically significant effect on gold prices in the long run. This finding suggests that the long-run relationship exists at a system level, but the individual contribution of each variable is not sufficiently strong to explain gold price movements over time.

One possible explanation is that gold prices in Indonesia are more strongly driven by external or global factors rather than domestic macroeconomic fundamentals. As gold is a globally traded commodity priced in US dollars, its long-term movements are largely influenced by international gold prices, global financial market conditions, geopolitical risks, and global inflation expectations. Therefore, domestic variables such as exchange rates and inflation may only play a limited role in shaping long-term gold price dynamics.

The positive but insignificant coefficient of the exchange rate suggests that, while theoretically a depreciation of the rupiah should increase domestic gold prices, this relationship is not stable over time. This may indicate that exchange rate movements are already incorporated into global gold pricing mechanisms, or that their effects are overshadowed by stronger global determinants.

Similarly, the positive but insignificant effect of inflation implies that gold does not consistently function as a long-term inflation hedge in the Indonesian context. This finding contrasts with classical theory, which posits that gold preserves purchasing power over time. One possible interpretation is that inflation in Indonesia during the study period may have been relatively stable or not sufficiently volatile to drive sustained increases in gold demand.

The IHSG variable also shows a positive but insignificant coefficient, which contradicts the conventional safe-haven theory that predicts an inverse relationship between stock markets and gold prices. This result suggests that, in the long run, gold and equities in Indonesia may not act as strict substitutes. Instead, investors may diversify their portfolios across both asset classes, reducing the strength of the substitution effect over time.

For interest rates, the negative but insignificant coefficient aligns with theoretical expectations, where higher interest rates increase the opportunity cost of holding gold. However, the lack of significance indicates that this mechanism does not operate consistently in the long run. This may be due to the relatively controlled monetary policy environment or the dominance of global interest rate trends over domestic rates.

Overall, these findings imply that the long-run dynamics of gold prices in Indonesia are weakly linked to domestic macroeconomic variables and are likely dominated by global influences. The presence of cointegration, combined with insignificant individual coefficients, suggests that the equilibrium relationship is maintained through a complex interaction of factors beyond those included in the model.

This result highlights an important implication: while domestic macroeconomic variables may provide short-term signals for gold price movements, they are insufficient to explain long-term trends. Therefore, future research should incorporate global variables—such as

international gold prices, global interest rates, exchange rate indices, and measures of global uncertainty to better capture the structural determinants of gold prices in Indonesia.

CONCLUSION

The ARDL model indicates the existence of cointegration, as evidenced by the ECM(-1) coefficient of -0.074 , which is significant at the 1% level. This suggests that there is a stable long-run relationship between gold prices and the independent variables. However, the long-run estimation results show that none of the variables have a statistically significant effect on gold prices.

In contrast, in the short run, several variables such as the exchange rate, inflation at lag 2, IHSG, and interest rates at various lags are found to significantly affect gold prices. This implies that gold price dynamics are better explained by short-term movements rather than long-run relationships among variables.

Based on the empirical results, several important conclusions can be drawn. First, the short-run estimation shows that the exchange rate and interest rates have a significant effect on gold prices. Changes in the rupiah exchange rate against the US dollar directly affect gold prices in the short term, meaning that a depreciation of the rupiah tends to increase domestic gold prices. Meanwhile, changes in the Bank Indonesia policy rate trigger a rapid response in gold prices, as investors adjust their portfolios between gold and interest-bearing instruments. These findings confirm that gold price dynamics in Indonesia are more influenced by short-term financial factors.

Second, inflation and IHSG do not have a significant effect on gold prices in the short run. This suggests that monthly inflation changes are not strong enough to influence investor preferences for gold. Additionally, movements in IHSG do not have an immediate impact on gold prices, indicating that investors in gold and equities do not rapidly reallocate their assets. As a result, gold does not appear to function as a safe-haven asset in the short run against stock market volatility.

Third, the long-run results indicate that all independent variables do not have a significant effect on gold prices. This finding suggests that the structural relationship between domestic factors—such as exchange rates, inflation, IHSG, and interest rates—and gold prices is not stable over the long term. Therefore, gold price movements in Indonesia are likely to be more influenced by global factors such as international gold prices, global market volatility, and global risk sentiment. However, further research is needed to confirm this.

Fourth, the negative and significant Error Correction Term (ECT) indicates that, although there is no strong long-run effect of individual variables, the adjustment mechanism within the system functions properly. This means that when short-term disequilibrium or shocks occur, gold prices tend to return to their equilibrium in subsequent periods.

Based on these conclusions, several recommendations can be proposed. Monitoring short-term factors such as exchange rate movements and interest rates should be strengthened, as they have been shown to have the most significant impact on gold prices in the near term. Investors are also advised to focus more on short-term financial dynamics rather than long-term macroeconomic variables when making decisions related to gold, as gold prices in Indonesia are more sensitive to short-term changes. Furthermore, future research is recommended to incorporate global factors such as international gold prices and global market sentiment, as domestic variables do not exhibit significant long-run effects and gold price movements in Indonesia are likely to be driven more by global conditions.

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