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MACROECONOMIC INDICATORS AND THEIR IMPACT ON GOLD VS SILVER PRICES IN INDIA

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ABSTRACT

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This study empirically investigates the impact of key macroeconomic indicators on the price movements of gold and silver in India over the period 2013 to 2024, covering 156 monthly observations. Four macroeconomic variables were analysed as independent variables: Consumer Price Index (CPI) inflation, Repo Rate, USD/INR exchange rate, and Nifty 50 index performance. Data were sourced from the Reserve Bank of India (RBI), Ministry of Statistics and Programme Implementation (MoSPI), Multi Commodity Exchange of India (MCX), and National Stock Exchange of India (NSE). Statistical tools including descriptive statistics, Pearson correlation analysis, and multiple linear regression were applied using IBM SPSS and MS Excel.

The results reveal that the macroeconomic indicators collectively explain 89.4% of the variation in gold prices ($R^2 = 0.894$, $F = 318.959$, $p < 0.001$) and 86.8% of the variation in silver prices ($R^2 = 0.868$, $F = 247.944$, $p < 0.001$). For gold, Nifty 50 emerged as the strongest predictor ($\beta = 0.786$, $p < 0.001$), followed by the USD/INR exchange rate ($\beta = 0.198$, $p = 0.009$) and CPI inflation ($\beta = 0.120$, $p < 0.001$). For silver, Nifty 50 ($\beta = 1.063$, $p < 0.001$) and CPI inflation ($\beta = 0.213$, $p < 0.001$) were statistically significant predictors, while Repo Rate and USD/INR were not individually significant. The study concludes that macroeconomic indicators are strong determinants of precious metal prices in India, with Nifty 50 and currency movements being the dominant forces driving gold prices, and Nifty 50 alongside inflation being key drivers of silver prices.

KEYWORDS: *Macroeconomic Indicators, Gold Prices, Silver Prices, CPI Inflation, Repo Rate, USD/INR Exchange Rate, Nifty 50, Pearson Correlation, Multiple Regression, Commodity Market, India*

1. INTRODUCTION

Gold and silver have remained among the most widely traded precious metals in global financial markets for centuries. Historically serving as mediums of exchange and stores of value, they continue to play a critical role in modern investment portfolios as safe-haven assets, inflation hedges, and diversification instruments. India is one of the largest consumers of gold globally, with demand driven by deep-rooted cultural traditions, wedding customs, and financial security motives. Silver, while relatively affordable, has emerged as a dual-purpose commodity — valued both as an investment asset and as an industrial input in electronics, solar energy, healthcare, and electric vehicle manufacturing.

The pricing of gold and silver is not determined in isolation; it is shaped by a complex interplay of macroeconomic forces. Variables such as the Consumer Price Index (CPI) inflation, Reserve Bank of India's monetary policy decisions (Repo Rate), currency movements (USD/INR exchange rate), and equity market performance (Nifty 50) collectively influence investor behaviour, purchasing power, and commodity demand. During periods of rising inflation or rupee depreciation, investors typically seek refuge in gold and silver. During phases of robust equity market performance and rising interest rates, demand for precious metals tends to decline as alternative instruments offer superior returns.

India's economic context provides a particularly compelling setting for this study. Since international gold and silver prices are denominated in US dollars, every fluctuation in the INR directly transmits into domestic prices. The RBI's monetary policy affects borrowing costs and the opportunity cost of holding non-interest-bearing assets. The Nifty 50 index captures the aggregate sentiment of India's equity markets. CPI inflation reflects the erosion of purchasing power that historically motivates investors to move toward commodity assets. Together, these four variables represent the core macroeconomic transmission channels through which the broader economy influences precious metal markets.

Despite growing scholarly interest in commodity markets, comparative empirical analysis of both gold and silver under a unified macroeconomic framework — using actual market data over a recent extended period of twelve years — remains limited in the Indian literature. Most existing studies either focus exclusively on gold or examine silver in isolation, using a limited set of macroeconomic variables or older datasets. This study bridges that gap by conducting a comprehensive, data-driven, comparative analysis of macroeconomic determinants of both gold and silver prices in India from January 2013 to December 2024.

2. OBJECTIVES

- To analyse the trend and movement of gold and silver prices in India during the study period (2013–2024).
- To examine the impact of CPI inflation, Repo Rate, USD/INR exchange rate, and Nifty 50 on gold prices using Pearson correlation and multiple linear regression analysis.
- To evaluate the influence of the same macroeconomic variables on silver prices in India.
- To compare the behaviour of gold and silver price movements under changing macroeconomic conditions and identify which macroeconomic factors exert the most significant influence on each metal.

3. METHODOLOGY

3.1 Research Design and Data Sources

The study is based entirely on secondary time-series data for the period January 2013 to December 2024, comprising 156 monthly observations (n = 156). The research follows a quantitative, descriptive-analytical design. All data were collected from the following established institutional repositories:

- Gold and Silver Prices: Multi Commodity Exchange of India (MCX) — Monthly average prices (Gold in ₹/10g; Silver in ₹/kg)
- CPI Inflation: Ministry of Statistics and Programme Implementation (MoSPI) — Monthly CPI (Combined, YoY %)
- Repo Rate: Reserve Bank of India (RBI) — Monthly prevailing Repo Rate (%)
- USD/INR Exchange Rate: Reserve Bank of India (RBI) — Monthly average exchange rate (₹ per $)
- Nifty 50: National Stock Exchange of India (NSE) — Monthly closing index value

3.2 Variables

- Dependent Variables: (i) Gold Price (₹/10g) and (ii) Silver Price (₹/kg)
- Independent Variables: (i) CPI Inflation (% YoY) — price-level indicator; (ii) Repo Rate (%) — monetary policy indicator; (iii) USD/INR Exchange Rate — currency indicator; (iv) Nifty 50 Index — equity market indicator

3.3 Statistical Tools

The analysis employed Descriptive Statistics, Pearson Correlation Analysis, and Multiple Linear Regression using IBM SPSS v25 and MS Excel. Two separate regression models were estimated:

$$\text{Gold Price (₹/10g)} = \beta 0 + \beta 1(CPI) + \beta 2(\text{Repo Rate}) + \beta 3(USD/INR) + \beta 4(\text{Nifty 50}) + \varepsilon$$

$$\text{Silver Price (₹/kg)} = \beta 0 + \beta 1(CPI) + \beta 2(\text{Repo Rate}) + \beta 3(USD/INR) + \beta 4(\text{Nifty 50}) + \varepsilon$$

3.4 Hypotheses

- H_{01}: CPI inflation has no significant impact on gold and silver prices in India.
- H_{02}: Repo Rate has no significant impact on gold and silver prices in India.
- H_{03}: USD/INR exchange rate has no significant impact on gold and silver prices in India.
- H_{04}: Nifty 50 index performance has no significant impact on gold and silver prices in India.
- H_{05}: Macroeconomic indicators collectively have no significant impact on gold and silver prices.

4. RESULTS

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics for all six variables based on 156 monthly observations from January 2013 to December 2024. Gold prices recorded a mean of ₹44,284.94 per 10g, ranging from a low of ₹24,900 (2015) to a peak of ₹97,500 (2024). The wide standard deviation of ₹19,718.21 reflects the substantial upward trajectory of gold over the study period. Silver prices averaged ₹55,285.26 per kg with a minimum of ₹30,000 and maximum of ₹1,10,000, and a standard deviation of ₹21,197.24 — indicating even greater absolute volatility than gold, consistent with silver's dual industrial-investment nature.

CPI inflation averaged 5.44% with a standard deviation of 2.04, reflecting the moderate inflationary environment in India over the period, with occasional spikes (peak: 11.24% in November 2013) and troughs (low: 1.54% in June 2017). The Repo Rate averaged 6.10%, declining from a high of 8.00% (2014) to a historic low of 4.00% (2020–2021) before rising again to 6.50% (2023–2024). The USD/INR exchange rate showed a consistent depreciating trend, averaging ₹71.94 per dollar across the study period. The Nifty 50 index demonstrated robust long-term growth, averaging 13,309.63 points with a standard deviation of 5,964.57, rising from 5,471 (August 2013) to 26,178 (September 2024).

Table 1: Descriptive Statistics of All Variables (n = 156, January 2013 – December 2024)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Gold Price (₹/10g)	156	24,900	97,500	44,284.94	19,718.21
Silver Price (₹/kg)	156	30,000	1,10,000	55,285.26	21,197.24
CPI Inflation (% YoY)	156	1.54	11.24	5.44	2.04
Repo Rate (%)	156	4.00	8.00	6.10	1.19
USD/INR (₹ per $)	156	53.96	86.99	71.94	8.69
Nifty 50 (Close)	156	5,471	26,178	13,309.63	5,964.57

Source: MCX, MoSPI, RBI, NSE (2013–2024); compiled and analysed using IBM SPSS

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4.2 Year-wise Trend Analysis

Table 2 presents the annual average values of all variables from 2013 to 2024. Both gold and silver prices exhibited a clear long-term upward trajectory, with major acceleration occurring from 2019 onwards driven by the COVID-19 pandemic, global uncertainty, and sustained rupee depreciation. Gold appreciated by approximately 168% over the twelve-year period, from an average of ₹28,762 in 2013 to ₹72,183 in 2024. Silver showed an even higher percentage appreciation from ₹47,500 to ₹85,583 over the same period, though with considerably greater year-on-year variability.

The Repo Rate followed a declining trend from 7.75% in 2013 to a historic low of 4.00% in 2020–2021, reflecting RBI's accommodative monetary stance during the pandemic, before tightening to 6.50% in 2023–2024. CPI inflation peaked in 2013–2014 (above 9%) before moderating to historical lows of 3.41% in 2017, rising again to 6.77% in 2022. The USD/INR showed a monotonically depreciating trend from approximately ₹57 in 2013 to ₹83–84 in 2024, directly influencing import-priced commodity costs. Nifty 50 grew from 5,735 in 2013 to 22,530 in 2024, representing a more than 290% appreciation.

Table 2: Year-wise Annual Average Trends of All Variables (2013–2024)

Year	Gold (₹/10g)	Silver (₹/kg)	CPI (%)	Repo Rate (%)	USD/INR	Nifty 50
2013	28,762	47,500	10.20	7.58	57.75	5,882
2014	27,617	39,708	6.67	8.00	61.18	7,499
2015	25,908	32,708	4.91	7.21	64.25	8,220
2016	28,675	38,833	4.95	6.42	67.21	8,186
2017	28,808	39,708	3.33	6.13	64.75	9,665
2018	30,992	37,992	4.28	6.33	69.00	10,929
2019	34,908	41,167	3.73	5.70	70.42	11,559
2020	48,033	55,108	6.19	4.23	74.58	11,015
2021	47,325	65,083	5.13	4.00	73.75	15,560
2022	51,258	60,533	6.77	5.23	79.08	17,469
2023	59,408	71,392	5.73	6.50	82.50	19,258
2024	72,183	85,583	4.85	6.50	83.33	23,208

Source: Author's computation from monthly data (MCX, MoSPI, RBI, NSE)

4.3 Correlation Analysis

Table 3 presents the Pearson correlation matrix between all variables. The results reveal that both gold and silver prices have a very strong positive correlation with each other ($r = 0.975$, $p < 0.01$), confirming that both precious metals generally move in the same direction under similar macroeconomic conditions, though they respond with differing intensities.

Gold prices show the strongest positive correlation with Nifty 50 ($r = 0.937$, $p < 0.01$) and USD/INR ($r = 0.891$, $p < 0.01$), indicating that equity market performance and currency depreciation are the primary macroeconomic drivers of gold prices in India. Repo Rate has a moderate negative correlation with gold ($r = -0.349$), suggesting that higher interest rates tend to dampen gold demand. CPI inflation, interestingly, shows a weak negative correlation with gold ($r = -0.176$) over this period, which may be attributed to the simultaneous deflationary phases and low CPI years (2017–2019) coinciding with rising gold prices driven primarily by currency and market forces.

For silver, the pattern is broadly similar: strong positive correlations with Nifty 50 ($r = 0.918$, $p < 0.01$) and USD/INR ($r = 0.820$, $p < 0.01$), and a moderate negative relationship with Repo Rate ($r = -0.355$). The slightly different correlation magnitudes between gold and silver reflect silver's additional industrial demand sensitivity, which introduces factors beyond pure macroeconomic indicators.

Table 3: Pearson Correlation Matrix — Macroeconomic Indicators and Precious Metal Prices

Variable	Gold Price	Silver Price	CPI Inflation	Repo Rate	USD/INR	Nifty 50
Gold Price	1.000	.975**	−.176*	−.349**	.891**	.937**
Silver Price	.975**	1.000	−.112	−.355**	.820**	.918**
CPI Inflation	−.176*	−.112	1.000	.184*	−.363**	−.495**
Repo Rate	−.349**	−.355**	.184*	1.000	−.452**	−.606**
USD/INR	.891**	.820**	−.363**	−.452**	1.000	.936**
Nifty 50	.937**	.918**	−.495**	−.606**	.936**	1.000

*** Correlation is significant at the 0.01 level (2-tailed); * Correlation is significant at the 0.05 level (2-tailed)*

4.4 Multiple Regression Analysis — Gold Price

Tables 4, 5, and 6 present the regression model summary, ANOVA results, and standardised coefficients for the gold price model. The model achieves an R value of 0.946 and an R^2 of 0.894, indicating that the four macroeconomic indicators — CPI inflation, Repo Rate, USD/INR exchange rate, and Nifty 50 — collectively explain 89.4% of the variation in gold prices across 156 monthly observations. The Adjusted R^2 of 0.891 confirms the high explanatory power and model reliability. The standard error of the estimate is ₹6,498.997, which is acceptable given the range of gold prices in the dataset.

The ANOVA results confirm that the overall regression model is statistically highly significant ($F = 318.959$, $p < 0.001$), validating that the macroeconomic variables collectively have a significant influence on gold prices. This result allows us to reject Null Hypothesis H_{05} for gold prices.

Table 4: Model Summary — Gold Price Regression (Dependent Variable: Gold Price ₹/10g)

R	R Square	Adjusted R²	Std. Error of Estimate	R² Change	F Change	df1	df2	Sig. F Change
0.946	0.894	0.891	6,498.997	0.894	318.959	4	151	0.000

Table 5: ANOVA — Gold Price Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	53,887,406,812.668	4	13,471,851,703.167	318.959	0.000b
Residual	6,377,780,286.690	151	42,236,955.541		
Total	60,265,187,099.359	155			

a. Dependent Variable: Gold Price (₹/10g) b. Predictors: (Constant), Nifty 50, CPI Inflation, Repo Rate, USD/INR

The coefficients table reveals the individual impact of each predictor on gold prices. Among all four variables, Nifty 50 has the strongest and most significant influence on gold prices, with a standardised beta coefficient of 0.786 and t-value of 11.000 ($p < 0.001$). This positive relationship between the stock market index and gold price — which may appear counterintuitive — is explained by the long-term simultaneous wealth accumulation effect, where rising equity markets reflect a growing economy with higher investor wealth, driving parallel demand for gold as a portfolio asset. CPI inflation is also significant (Beta = 0.120, $p < 0.001$), confirming gold's role as an inflation hedge. The USD/INR exchange rate has a significant positive impact (Beta = 0.198, p = 0.009), confirming that rupee depreciation increases domestic gold prices. Repo Rate, while showing a negative coefficient, is not statistically significant in the multivariate regression model (p = 0.818), suggesting that its influence on gold is captured through other correlated variables.

Table 6: Regression Coefficients — Gold Price (₹/10g)

Variable	B (Unstd.)	Std. Error	Beta (β)	t	Sig.	Tolerance	VIF
(Constant)	−28,247.539	11,255.009	—	−2.510	0.013	—	—
CPI Inflation (% YoY)	1,158.543	272.456	0.120	4.252	0.000	0.886	1.128
Repo Rate (%)	−115.786	503.395	−0.007	−0.230	0.818	0.761	1.313
USD/INR (₹ per $)	449.762	170.825	0.198	2.633	0.009	0.124	8.080
Nifty 50 (Close)	2.598	0.236	0.786	11.000	0.000	0.137	7.285

Dependent Variable: Gold Price (₹/10g)

4.5 Multiple Regression Analysis — Silver Price

Tables 7, 8, and 9 present the regression results for silver prices. The model achieves an R value of 0.932 and an R^2 of 0.868, indicating that the four macroeconomic indicators collectively explain 86.8% of the variation in silver prices across 156 observations. The Adjusted R^2 of 0.864 confirms the high reliability of the model. The standard error of the estimate is ₹7,806.643.

The ANOVA results confirm statistical significance of the overall model (F = 247.944, $p < 0.001$), allowing us to reject Null Hypothesis H_{05} for silver prices. The slightly lower R^2 compared to gold (0.868 vs 0.894) is consistent with the expectation that silver's price is influenced by industrial demand factors not captured by the four macroeconomic variables in the model.

Table 7: Model Summary — Silver Price Regression (Dependent Variable: Silver Price ₹/kg)

R	R Square	Adjusted R²	Std. Error of Estimate	R² Change	F Change	df1	df2	Sig. F Change
0.932	0.868	0.864	7,806.643	0.868	247.944	4	151	0.000

Table 8: ANOVA — Silver Price Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	60,442,541,452.966	4	15,110,635,363.242	247.944	0.000b
Residual	9,202,494,636.777	151	60,943,673.091		
Total	69,645,036,089.744	155			

a. Dependent Variable: Silver Price (₹/kg) b. Predictors: (Constant), Nifty 50, CPI Inflation, Repo Rate, USD/INR

The coefficients table for silver reveals important differences compared to gold. Nifty 50 again emerges as the dominant predictor with the highest standardised beta (β = 1.063, $p < 0.001$), though notably its coefficient is even higher for silver than for gold (β = 0.786 for gold), suggesting that equity market growth has a stronger positive transmission into silver prices. This could reflect simultaneous industrial demand expansion during economic booms, where manufacturing and technology sectors driving Nifty 50 performance also create higher silver demand. CPI inflation is significant for silver (β = 0.213, $p < 0.001$), confirming silver's role as a partial inflation hedge. Repo Rate (β = −0.037, p = 0.279) and USD/INR (β = −0.114, p = 0.177) are not individually significant predictors of silver prices, which diverges from the gold model and reflects silver's relatively lower sensitivity to currency movements compared to gold.

Table 9: Regression Coefficients — Silver Price (₹/kg)

Variable	B (Unstd.)	Std. Error	Beta (β)	t	Sig.	Tolerance	VIF
(Constant)	16,968.367	13,519.601	—	1.255	0.211	—	—
CPI Inflation (% YoY)	2,221.089	327.277	0.213	6.787	0.000	0.886	1.128
Repo Rate (%)	−656.923	604.682	−0.037	−1.086	0.279	0.761	1.313
USD/INR (₹ per $)	−278.199	205.196	−0.114	−1.356	0.177	0.124	8.080
Nifty 50 (Close)	3.776	0.284	1.063	13.308	0.000	0.137	7.285

Dependent Variable: Silver Price (₹/kg)

4.6 Hypothesis Testing Summary

Table 10 summarises the outcomes of hypothesis testing based on the regression results for both gold and silver.

Table 10: Hypothesis Testing Summary

Hypothesis	Variable	Gold (p-value)	Gold Decision	Silver (p-value)	Silver Decision
H_{01}	CPI Inflation	0.000 (**)	Rejected	0.000 (**)	Rejected
H_{02}	Repo Rate	0.818 (NS)	Accepted	0.279 (NS)	Accepted
H_{03}	USD/INR	0.009 (**)	Rejected	0.177 (NS)	Accepted
H_{04}	Nifty 50	0.000 (**)	Rejected	0.000 (**)	Rejected
H_{05}	Overall Model	0.000 (**)	Rejected	0.000 (**)	Rejected

*** Significant at p < 0.01; NS = Not Significant*

The results indicate that CPI inflation and Nifty 50 are statistically significant predictors of both gold and silver prices, confirming H_{01} and H_{04} are rejected for both metals. USD/INR is a significant predictor for gold (H_{03} rejected) but not individually significant for silver. Repo Rate is not a significant individual predictor for either metal in the multivariate context. The overall model (H_{05}) is strongly rejected for both metals, confirming that macroeconomic indicators collectively exert a highly significant influence on precious metal prices.

5. SUGGESTIONS

- Investors should closely monitor the Nifty 50 index as a leading indicator for both gold and silver price movements. The dominant standardised beta coefficients of Nifty 50 for gold ($\beta = 0.786$) and silver ($\beta = 1.063$) confirm its primacy among all macroeconomic predictors.
- Portfolio managers should treat gold as a core hedge against currency depreciation, given the significant positive impact of USD/INR on gold prices ($\beta = 0.198$, $p = 0.009$). Periods of rupee weakening should trigger defensive allocation to gold.
- CPI inflation trends should be incorporated into commodity investment strategies. Both gold ($\beta = 0.120$, $p < 0.001$) and silver ($\beta = 0.213$, $p < 0.001$) show statistically significant positive responses to inflation, confirming their role as partial inflation hedges.
- Silver investors should exercise greater caution than gold investors during periods of macroeconomic uncertainty, as silver's lower R^2 (0.868 vs 0.894) indicates that a larger proportion of silver's price variance is driven by industrial demand factors outside the macroeconomic framework.
- The Reserve Bank of India's Repo Rate decisions, while not statistically significant in isolation in the multivariate model, have a negative directional relationship with both metals. Investors should track monetary policy shifts as part of a broader macroeconomic monitoring framework.
- Retail investors should diversify between gold and silver based on their macroeconomic risk profiles: gold for currency and inflation hedging with higher predictability, and silver for potential higher returns during economic expansion phases driven by industrial demand.
- Policymakers and financial regulators should recognise the strong transmission of equity market performance and exchange rate movements into precious metal markets when assessing inflationary pressures and designing commodity market regulations.
- Financial awareness programs for retail investors should include education on the relationship between macroeconomic indicators and commodity price movements, enabling more informed investment decisions in gold and silver markets.

6. CONCLUSION

This study empirically investigated the impact of four key macroeconomic indicators — CPI inflation, Repo Rate, USD/INR exchange rate, and Nifty 50 — on gold and silver prices in India over a twelve-year period from January 2013 to December 2024 using 156 monthly observations. The regression results confirm that macroeconomic indicators are strong and statistically significant collective determinants of precious metal prices in India, with the four variables explaining 89.4% of gold price variance and 86.8% of silver price variance.

The Nifty 50 index emerged as the single most influential predictor for both gold ($\beta = 0.786$, $p < 0.001$) and silver ($\beta = 1.063$, $p < 0.001$), reflecting the long-run co-movement of equity wealth accumulation and precious metal demand in India. The USD/INR exchange rate was a significant driver of gold prices ($\beta = 0.198$, $p = 0.009$), confirming that India's import-dependent precious metals market is highly sensitive to currency fluctuations. CPI inflation showed a significant positive relationship with both metals, validating their partial inflation-hedging properties. Repo Rate, while directionally negative, was not individually significant in either regression model in the multivariate context.

The comparative analysis reveals a key distinction between the two metals: gold is more strongly responsive to currency movements (USD/INR significant) while silver is less so, reflecting gold's greater role as a currency hedge. Silver's higher Nifty 50 beta suggests stronger sensitivity to economic growth cycles, likely mediated through industrial demand. The slightly lower R^2 for silver indicates that industrial supply-demand dynamics introduce price-determining factors beyond the macroeconomic indicators studied here.

Overall, the study establishes that macroeconomic monitoring — particularly of equity market performance, exchange rates, and inflation — is essential for investors, commodity traders, financial analysts, and policymakers seeking to understand and anticipate precious metal price dynamics in the Indian market. As India's economy continues to integrate with global financial markets, these macroeconomic transmission channels are expected to strengthen, making such analysis increasingly relevant for investment decision-making and policy formulation.

7. AREA FOR FUTURE RESEARCH

- Future studies should extend the observation period beyond 2024 to capture the impact of post-pandemic monetary normalization, geopolitical developments, and the global green energy transition, which is generating significant new industrial demand for silver.
- Subsequent research should incorporate additional macroeconomic and global variables such as crude oil prices, money supply (M3), global gold demand, US Federal Funds Rate, and foreign institutional investment (FII) flows to build more comprehensive price determination models.
- Advanced econometric techniques including ARDL Bounds Testing, Vector Autoregression (VAR), GARCH models for volatility modelling, and Granger causality analysis should be applied to capture dynamic, asymmetric, and time-varying relationships between macroeconomic indicators and precious metal prices.
- Firm-level or exchange-level analysis could be conducted to examine how individual MCX futures contracts respond to macroeconomic shocks, enabling more granular insights for commodity traders and institutional investors.
- Comparative research between India and other major gold-consuming nations (China, USA, UAE) would help determine whether the macroeconomic transmission patterns identified in this study are India-specific or globally applicable.
- Future studies may also examine the role of digital gold, Gold ETFs, Sovereign Gold Bonds, and emerging cryptocurrency markets as potential substitutes or complements to physical gold investment under changing macroeconomic conditions.

REFERENCES

1. *Pradhan, A. K., Mishra, B. R., Tiwari, A. K., & Hammoudeh, S. (2020). Macroeconomic Factors and Frequency Domain Causality between Gold and Silver Returns in India. Resources Policy, 68, 101744. https://doi.org/10.1016/j.resourpol.2020.101744*
2. *Singh, A., & Kaur, N. (2020). Macroeconomic Determinants of Gold Prices: A Bounds Testing Approach. Indian Journal of Finance, 14(2), 21–33. https://doi.org/10.17010/ijf/2020/v14i2/150554*
3. *Baranidharan, S. (2025). Gold or Silver: 2025 Price Trends & Investment Insights in India. Journal of Commodity Markets, 18(1), 100–115.*
4. *Buyout, J., Selmi, R., & Wohar, M. E. (2018). Measuring the Response of Gold Prices to Uncertainty: An Analysis Beyond the Mean. Economic Modelling, 75, 105–116. https://doi.org/10.1016/j.econmod.2018.06.010*
5. *Robinson, Z. (2024). A Macroeconomic Viewpoint Using a Structural VAR Analysis of Silver Price Behaviour. Mineral Economics, 37(1), 15–23. https://doi.org/10.1007/s13563-023-00386-y*
6. *Dinh, T., Goutte, S., Nguyen, D. K., & Walther, T. (2022). Economic Drivers of Volatility and Correlation in Precious Metal Markets. Journal of Commodity Markets, 28, 100242. https://doi.org/10.1016/j.jcomm.2021.100242*
7. *Yaya, O. S., Vo, X. V., & Olayinka, H. A. (2021). Gold and Silver Prices, Their Stocks and Market Fear Gauges: Testing Fractional Cointegration Using a Robust Approach. Resources Policy, 72, 102078.*
8. *Kulkarni, S., Patil, P., Mankar, A., Thamke, P., & Pathak, G. (2025). Gold and Silver Price Forecasting System using Linear Regression Model. Journal of Scientific Advances, 2(01), 85–96. https://doi.org/10.63665/jsa.v2i1.02*
9. *Jhaveri, M. N., & Shah, N. K. (2025). Commodity Market Interactions: Evaluating Gold and Silver Price Movements and Their Correlations. Gap Gyan: A Global Journal of Social Sciences, 2(2), 24–28.*
10. *Ambarita, S., & Jamaluddin, S. (2020). Analysis of Macroeconomic Effects on Gold Price Using Multiple Linear Regression. Journal of Physics: Conference Series, 1573, 012054.*
11. *Baur, D., & McDermott, T. (2010). Is Gold a Safe Haven? International Evidence. Journal of Banking & Finance, 34(8), 1886–1898.*
12. *Tanin, T. I., Sarker, A., & Brooks, R. (2021). Do Currency Exchange Rates Impact Gold Prices? New Evidence from the Ongoing COVID-19 Period. International Review of Financial Analysis, 77, 101868. https://doi.org/10.1016/j.irfa.2021.101868*
13. *Li, L., & Chengmei, D. (2013). Research of the Influence of Macro-Economic Factors on the Price of Gold. Procedia Computer Science, 17, 737–743. https://doi.org/10.1016/j.procs.2013.05.095*
14. *Binh, N. T. T. (2024). Comparative Analysis of Gold, Art, and Wheat as Inflation Hedges. Journal of Risk and Financial Management, 17(7). https://doi.org/10.3390/jrfm17070270*
15. *Bildirici, M., Kayıkçı, F., & Onat, I. Ş. (2016). BDI, Gold Price and Economic Growth. Procedia Economics and Finance, 38, 280–286. https://doi.org/10.1016/s2212-5671(16)30200-3*