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The impact of global price and exchange rate fluctuations on domestic gold price: An empirical study

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Abstract

Gold plays a vital role in the Indian economy as both a cultural asset and a financial instrument. Beyond its traditional significance, it is widely recognised as a haven. This paper investigates the determinants of gold price at Domestic, focusing on the Foreign Market price and exchange rate (USD/INR), over the period 1995–2024. Using a Multiple Linear Regression (MLR) model, the study analyses how these macroeconomic and financial factors influence fluctuations in gold prices. Descriptive analysis reveals that gold prices have a mean and a high standard deviation, displayed significant volatility. The findings of the regression indicate that foreign prices and exchange rates have a greater influence on domestic gold prices. There is a strong correlation between domestic gold prices and international trends, and currency movements are confirmed by the model's excellent explanatory power (R2 = 0.998). Overall, the findings confirm that gold prices in India are strongly influenced by global gold prices and exchange rate fluctuations.

Keywords: *Exchange Rate, Foreign Market, Gold Prices.*

1. Introduction

Gold holds a special place in India's economy, acting both as a cultural treasure and a financial tool. Unlike most other commodities, it plays a dual role—on one hand, it is cherished in Indian households as a symbol of prosperity and tradition, while on the other, it serves as a reliable safeguard against financial uncertainty. India ranks among the world's

largest consumers and importers of gold, accounting for nearly one-fourth of the global annual demand (World Gold Council, 2023). Since most of this demand is met through imports, domestic gold prices are highly sensitive to global market shifts and currency fluctuations.

Gold prices in India are shaped by a mix of international and domestic factors. Globally, gold is priced in U.S. dollars, influenced by worldwide demand and supply, monetary policy changes in developed economies, and geopolitical risks. As a result, movements in the USD/INR exchange rate have a direct effect on local gold prices. For example, if the Indian rupee weakens against the dollar, the cost of importing gold rises, which pushes up domestic prices—even if international gold prices remain stable. This pattern has been evident during episodes of currency volatility such as the Asian financial crisis (1997–1998), the global financial crisis (2008), and the rupee depreciation phases of 2013 and 2018.

Within India, gold is viewed as a "safe-haven" investment. In periods of inflation, economic instability, or stock market turbulence, investors often turn to gold as an alternative asset. Research shows that gold tends to move in the opposite direction of equities and bonds, making it an attractive choice for portfolio diversification (Baur & Lucey, 2010). However, while inflation is recognised as one factor influencing gold prices, evidence suggests its impact is relatively weaker in India compared to the stronger effects of global price movements and currency exchange rates (Singh & Joshi, 2017).

Gold prices in India have witnessed high volatility over the course of the past 30 years. Inflation, by contrast, has stabilised relatively well, but gold prices have fluctuated quite a few times, often reflecting market-wide changes. For example, in the 2008 global financial crisis, investors fled to gold on a global scale, leading to soaring international and Indian gold prices. A similar trend occurred during the COVID-19 pandemic, when gold hit record highs, once again proving its role as a shield against uncertainty.

The deepening of global financial market integration points to further importance of inter-rate gold markets within countries. U.S. Federal Reserve interest rate increases, trade wars, and geopolitical tensions can significantly influence world gold prices. For India — which relies heavily on gold imports these international movements easily result in changes in domestic prices. Therefore, how global price movements and exchange rate variations translate to local markets are vital issue for governments, investors, and financial institutions. This study fulfils

this desire by investigating the effect, from 1995 to 2024, which the movements in global gold prices and exchange rates have on domestic gold prices in India. It will perform the Multiple Linear Regression (MLR) test to see if any of these variables (international gold price, USD/INR exchange rate) have a significant impact on the Indian gold price. These results further provide empirical support that domestic prices are closely coupled with external ones, demonstrating that the world market dominates the Indian gold industry. The study presents a long-term study and thus adds new value to previous studies. It does more than just affirm the power of world prices and exchange rates; it underscores that, in many ways, inflation has a much less far-reaching role. This knowledge can prove to be highly useful for policymakers looking to stabilise gold markets, investors desiring stock diversification and financial institutions that need to formulate a way of hedging against the whims of price fluctuations. Spanning almost three decades, the research describes the evolving dynamics of India's gold market through a global financial lens.

Objectives:

- To analyse the association between global gold prices and domestic gold prices of India from 1995 to 2024.
- To investigate how exchange rate fluctuation (USD/INR) affects the price stability within the local gold market.
- To analyse the exogenous volatility spillovers, which are the impact of external market dynamics as well as exchange rates on domestic gold market.

Statement of the problem:

India is one of the biggest buyers and sellers of gold. The domestic gold price is very sensitive to changes in exchange rates and global prices. Previous research has examined a short time or a few variables. Lacking long-term evidence, this study examines the impact of international gold prices and the USD/INR exchange rate on domestic gold prices. For households, investors, and policymakers, price volatility creates uncertainty. It is necessary to assess the direction and intensity of these external influences.

Literature review:

Tripathi, L.K. (2014), according to him, there is a long-term correlation between the price of gold in India and the different global factors that are examined in this article. India's gold

price Granger determines the price of crude oil and the exchange rate (USD), but international factors do not affect the price of gold in India. Using data from credible sources, he concluded it. Dubey (2014) conducted a study based on the trends in gold prices and the variables influencing them in India. The rise in gold prices in India between 2004 and 2013 is the paper's primary focus. Empirical evidence indicates a strong positive correlation between our nation's CPI rate and gold prices. Gireesh et al. (2015) investigated the connection between India's gold price and exchange rate value. The Johansen co-integration test was used to examine the long-term relationship between the gold spot price and the exchange rate for the years 2005–2013. According to the study, the US dollar's exchange rate has a significant impact on the price of gold in India. The price of gold fluctuates in response to changes in the value of the US dollar. Guntur Archana Raju (2016) investigated how inflation affected changes in gold prices in China, India, and the United States. The study discovered a short-term correlation between inflation and gold prices, but also a co-integration between the two variables. Co-integration and gold prices were the variables used in the study. Granger causality, VECM, and the unit root test were the instruments utilised. Nisarga M. et al. (2023) conducted a study on various factors impacting the gold price in India. The study reveals the gold prices are influenced by a variety of economic, political, and global factors. The study examines the evolution of gold prices with the factors such as BSE Sensex, crude oil, inflation, exchange rates and repo rates. Used descriptive and regression analysis. The findings revealed there is a strong correlation between variables. This study highlights how the fluctuation in the repo rate affects the gold price. And found that BSE Sensex, inflation, and interest rate are interconnected. The authors have declared that there is no competing interest. Yi Bai (2024) conducted a study to forecast the gold price for the next six months due to its increased demand from investors. Predicting the price of gold helps investors to develop strategies and to mitigate risk. The data from 2020 to 2024 was taken to predict the gold price. The Autoregressive Integrated Moving Average (ARIMA) model was used to forecast the price. The result shows the price does not change that much, and the residuals remained near diagonal as the historical prediction. The author concluded that gold investment remains increasing, and the investor can follow the gold price trend.

Research gap

Previous studies: limited period and partial variables. Need for long-term analysis (1995–2024). Focus on the external determinants of the domestic gold price. This study examines how changes in the foreign market price are reflected in the domestic gold price.

Methodology:

This study adopts a quantitative approach to investigate the impact of Global price and USD/INR exchange rate on the domestic price of Gold by analysing historical data and finding to what extent the changes in the foreign market have influenced the gold price in the domestic market. This study uses secondary data from reliable sources and websites such as RBI - Handbook of statistics of the Indian economy, World Bank and International Monetary Fund. Descriptive statistics and multiple regression analysis are used. Data is taken from 1995 to 2024.

Major determinants of gold price:

Dependent variable

Domestic gold price: Gold price is the dependent variable. Gold is a culturally and economically significant precious metal, not only an investment asset but a traditional indicator of prosperity. The cost of gold in the nation is determined by a mix of international and local factors. While the global price of gold, determined in US dollars, is the main catalyst, that of the Indian Rupee with respect to the dollar is also a pivotal factor. A depreciating rupee raises the cost of gold imports, thus driving the local price higher. The huge demand for gold, especially during the festive and wedding periods, also plays a role in its price behaviour.

Independent variables

- **Exchange rate**: The exchange rate in India is the price of the Indian Rupee (INR) compared to another currency, e.g., the US Dollar. India has a floating exchange rate regime, under which the rupee's value is determined by the demand and supply conditions in the foreign exchange market. The exchange rate is a critical economic indicator, and its movement directly affects the import bill and export competitiveness. Events like the economic growth of the country, interest rates, and

balance of trade have the potential to appreciate or depreciate the rupee relative to other currencies.

- **International rate**: The international rate refers to the global determinants of gold prices, primarily the international gold price and the foreign exchange rate (INR/USD). The international gold price, usually quoted in US dollars per ounce, reflects worldwide demand and supply conditions, geopolitical tensions, and macroeconomic factors. Changes in this price directly influence domestic gold prices, as India imports a significant portion of its gold. Meanwhile, the exchange rate of the Indian Rupee against the US dollar acts as a multiplier: a depreciation of the rupee increases the domestic cost of gold, even if international prices remain stable, whereas an appreciation reduces it. Together, these factors form the "international rate" that serves as a crucial predictor of domestic gold price movements.

Results and discussions

For Analysis data for the gold price at the Domestic and Foreign Market and the exchange rate (in rupees per US dollar) from 1995 to 2024. Between 1995 and 1996, domestic gold prices across India surged from Rs.4,957 to Rs.75,842, representing an increase, while international prices rose from Rs.4,188 to Rs.70,315, indicating that movement domestically aligned closely with global trends. With that same alignment, domestic prices had remained consistently higher, as India had become heavily reliant on imports, with customs and taxes being imposed by the government and huge household demand. When the Indian rupee fell from Rs.31.37/USD during 1995–96 to Rs.82.60/USD in 2024–25, these effects were further amplified, with global movements amplified in the Indian market due to the depreciation of the Indian rupee. For example, in 2012–13, if we take the rupee depreciation to Rs.46.67/USD, the same domestic gold prices rose to Rs.30,163 compared to Rs.28,919 in the international price. Similarly, the rupee at Rs.70.42/USD during COVID-19 uncertainty in 2020–21 brought domestic prices to Rs.48,723, up from Rs.43,541 internationally. These trends show gold's duality in India as a global commodity and as a safe-haven financial asset during crises like the 2008 financial crash, the 2012–13-rupee crisis and the 2020 pandemic. Overall, it suggests that international prices set the baseline, while the rupee's weakness becomes a multiplier, increasing price rises and making the domestic gold market exceedingly sensitive to both global shocks and domestic macroeconomic conditions.

Table 1: Descriptive statistics of the Domestic Gold Price and influence of global factors (1995-2024)

Particulars	N	Minimum	Maximum	Mean	Std. Deviation
Domestic Gold price	30	4268.17	75841.87	22513.907	19390.77479
International Price	30	3775.92	70315.41	20637.44	17423.68974
Exchange rate	30	31.3742	82.5993	52.83716	14.30485

Source: Calculated values

The price of gold in the country fluctuated a lot over that time from Rs.4,268.17 to Rs.75,841.87. The gold price on average at Rs.22,513.91 proved to be a long-lasting, steady upward trend. (SD = 19,390.77) The high standard deviation indicates that domestic gold prices are highly volatile and are affected by both currency changes and the governments of world markets. The foreign exchange rate varied between Rs.3,775.92 and Rs.70,315.41. It seems there is a good correlation between domestic and foreign gold prices, looking at average global price of Rs.20,637.44, right on par with the domestic average. (17,423.69 SD) Again, such notable deviation highlights the international volatility of gold prices, which is often over macroeconomic uncertainty, geopolitical risks, and global demand. The long-term decline of the Indian rupee was reflected in the exchange rate which ranged from Rs.31.37 to Rs.82.60. For example, over the past 30 years the rupee's value has eroded against the dollar, an average exchange rate of Rs.52.84/USD. SD is 14.30. It has moderate but significant impact on the domestic gold price relative to fluctuations in gold prices.

Table 2: Coefficient of Variation

Variables	**Coefficient of Variation (CV)**	**Levels of Variability**	**Interpretation of Homogeneity**
Domestic Gold Price	0.8613	High Variability	Low Homogeneity
Foreign Market Price	0.8443	High Variability	Low Homogeneity
Exchange Rate	0.2707	Low Variability	High Homogeneity

Source: Calculated values

In this study, we calculated the CV for three variables, such as domestic gold price, foreign market price, and exchange rate, to measure the relative stability and consistency over the period under consideration. The domestic gold price had a CV of 0.8613, showing low

homogeneity and a high degree of variability. It implies that some irregular behaviour in the domestic gold market and economic variables have impacted the domestic gold market, and domestic gold prices have fluctuated significantly over time with respect to their mean. Similarly, the overseas market price had a CV of 0.8443, representing high fluctuation and low uniformity in international gold prices. Global supply and demand variability, inflationary pressures, and international investment trends may largely be ascribed to this variability. Conversely, the exchange rate registered a CV value of 0.2707, suggesting low variability and high homogeneity. This finding suggests that the exchange rate stayed fixed during the period, with slight differences from the average, compared to gold prices. The stability in the exchange rate suggests that fluctuations in domestic gold prices are more likely to reflect international market trends than significant currency movements. Overall, both the case of domestic and foreign prices for gold show that while both exhibit high heterogeneity and market sensitivity, the exchange rate shows more homogeneity and stability.

Table 4: Correlation Matrix

	Domestic Price	Foreign Market Price (at Rs. Per 10 Grms)	Exchange Rate
Domestic Price	1		
Foreign Market Price (at Rs. Per 10 Grms)	0.998754027	1	
Exchange Rate	0.917385432	0.910308434	1

Source: Calculated values

There is an extremely strong positive correlation, very close to +1.0 (0.9987540269). It suggests that the Domestic Price and the international price (in Rupees per 10 grams) are highly linked. When the international price increases, the domestic price almost always increases by a similar proportion, and vice versa. This is a very strong positive correlation (0.9173854317). It indicates a substantial relationship where an increase in the Exchange Rate is strongly associated with an increase in the Domestic Price. This is also a very strong positive correlation. This suggests that when the Exchange Rate increases, the international price (converted to Rs. per 10 grams) also tends to increase. This is expected, as a higher exchange rate (e.g., more Rupees per US dollar) would automatically raise the rupee-denominated price of a commodity priced internationally in another currency.

Table 5: Regression analysis

Particulars	Coefficients	Standard Error	t Stat	P-value	R Square	Adj R Square	F	Sign F
Intercept	-2855.3083	1111.3166	-2.5693	0.01603				
Global price (at Rs. per 10 grams)	1.0629	0.023693	44.8626	0				
Exchange Rate	64.9627	28.8595	2.2509	0.03273	0.99790	0.99774	6424.637	0

Source: Calculated values

Domestic gold price = –2855.31 + 1.0629(Global Price) + 64.9627(Exchange Rate)

The negative intercept implies that the domestic gold price would be negative if the global price and exchange rate were both hypothetically zero. This is a statistical result with no real significance. It demonstrates that the explanatory variables are the main drivers of gold prices. The negative intercept implies that the domestic gold price would be negative if the global price and exchange rate were both hypothetically zero. This is a statistical result with no real significance. It demonstrates that the explanatory variables are the main drivers of gold prices. According to the coefficient, the domestic price of gold rises by 1.06 units for every unit increase in the international price of gold (Rs. per 10 grammes). With t = 44.86 and p = 0.000, the effect is extremely significant. This demonstrates how closely domestic gold prices follow global price trends. The domestic price of gold increases by roughly Rs.65 (per 10 grammes) for every rupee increase in the exchange rate (Rs. per USD). Exchange Rate (p = 0.0327, Coefficient = 64.96). Although it is not as strong as the impact of global prices, this effect is statistically significant. The model provides an excellent fit, explaining 99.8% of the variation in domestic gold prices (R^2 = 0.9979, Adj. R^2 = 0.9977). The model's overall high significance is confirmed by the F-statistic = 6424.637, p = 0.000.

Suggestions:

- The effect of interest rates, GDP growth, or other variables, including geopolitical events, as well as their impact on gold prices or other economic determinants, which might bring good and effective outcomes.

- Research more on gold price and its effect on economic crises, such as covid pandemics and wars, as gold demand is increasing.
- With gold's price sensitivity to global markets and exchange rates, the government should promote: Encourage gold bonds (SGBs) and digital gold to curb physical gold demand.
- Broaden financial literacy programs to focus public attention on other financial instruments instead of gold.
- An upcoming research needs to compare and contrast developing vs developed countries to gain valuable insights into shaping policies.

Conclusion:

The present research dealt with the role of international influences, particularly the Global Price (previously called International Price) of gold and the Exchange Rate (Rupees per US Dollar), on the Indian Domestic Price of Gold for the years 1995-2024. Here, the analysis unambiguously confirms a strong, positive, statistically significant relationship, validating that global economic international factors are the determining forces shaping the domestic price of gold. The findings unequivocally reach the conclusion that the Domestic Gold Price is essentially affected structurally by international elements. The nearly perfect prediction of the model thus says policy makers, investors, and the public must primarily rely on the International Price of Gold and the Rupee-Dollar Exchange Rate to understand domestic price movements and forecast them. This suggests that domestic supply/demand dynamics are secondary to the transmission of global price movements and currency valuation.

References

Baur, D. G., & McDermott, T. K. (2010). Is gold a safe haven? International evidence. *Journal of Banking & Finance*, 34(8), 1886–1898. https://doi.org/10.1016/j.jbankfin.2009.12.008

Board of Governors of the Federal Reserve System (U.S.). (n.d.). *Indian rupees to U.S. dollar spot exchange rate (EXINUS).* Federal Reserve Bank of St. Louis. https://fred.stlouisfed.org/series/EXINUS

Chandra Shekar, B. M., & Ravikumar, B. V. (2024). An empirical study on the relationship between stock market performance and gold prices in India. *International Journal of Research in Finance and Management,* 7(2), 391–395.

Nisarga, M., & Marisetty, N. (2023). A study on various factors impact on the gold price in India. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.4587897

Nisarga, M., & Marisetty, N. (n.d.). *Study on various factors impact on the gold price in India.* REVA Business School, REVA University.

Reserve Bank of India. (n.d.). *Database on Indian economy (DBIE).* https://data.rbi.org.in

Reserve Bank of India. (n.d.). *RBI publications.* https://m.rbi.org.in/Scripts/PublicationsView.aspx?id=23212

Sharma, S. (2018). Determinants of gold prices in India. *International Journal of Research and Analytical Reviews,* 5(4), 909–914.

Trabelsi, N., Gozgor, G., Tiwari, A. K., & Hammoudeh, S. (2021). Effects of price of gold on Bombay Stock Exchange sectoral indices: New evidence for portfolio risk management. *Research in International Business and Finance, 55,* Article 101316. https://doi.org/10.1016/j.ribaf.2020.101316

World Bank. (n.d.). *World development indicators.* World Bank DataBank. https://databank.worldbank.org

Yi, B. (2024). *Research on gold price prediction based on the ARIMA model*. ResearchGate. https://www.researchgate.net/publication/383924529