

Precious Metals Market Analysis

(Gold & Silver Price Dynamics: A statistical Analysis & its Economic Implications)

About Data Source

Key Data Overview (Jan 2, 2020 - Feb 25, 2026)

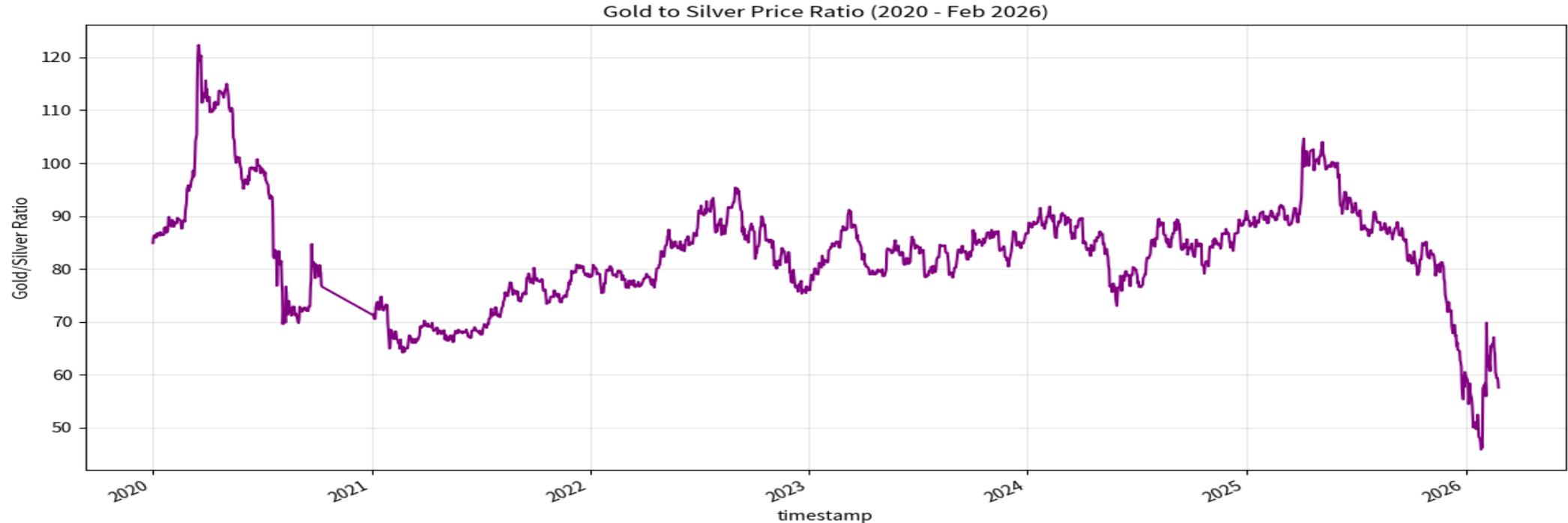
- *Dataset: 1,841 daily observations (aligned common trading days).*
- *Gold (XAU/USD per oz)*

- ❑ *Gold and silver have exhibited a very strong positive correlation (0.91 overall) since 2020, strengthening to 0.94 in the past 12 months.*
- ❑ *Silver has dramatically outperformed gold in percentage terms (+399% vs +238%), acting as a high-beta leveraged play on gold's safe-haven status while benefiting from surging industrial demand.*
- ❑ *Both metals reached record highs in 2025-2026 amid inflation hedging, central-bank purchases, and geopolitical uncertainty.*
- ❑ *Silver's dual monetary + industrial role (~50% of demand from solar, EVs, electronics) explains higher volatility and outperformance.*
- ❑ *Regression models confirm robust linear relationships across all periods, with R^2 rising markedly since 2023.*
- ❑ ***Investment verdict: Silver remains an attractive tactical overlay on gold exposure.***

Silver has significantly outperformed, especially post-2022, compressing the classic gold/silver ratio from 85 to 57.6.



Metal	Starting Price	Ending Price	Total Return
Gold	\$1,529	\$5,173	+238%
Silver	\$18.01	\$89.85	+399%



Classic valuation metric: **Gold price ÷ Silver price**

- ❑ 2020 start: 85
- ❑ Current (Feb 25, 2026): **57.6** (multi-year low)
- ❑ Long-term mean (period): 82.9
- ❑ Range: 45.9 - 122.3

How much Price of Silver & Gold are Correlated ?

Correlation Analysis of Price Movement of Silver & Gold Since 2020

Pearson Correlation (daily closes)

Period	Correlation	Strength	Observations
Overall 2020–2026	0.91	Very Strong	1,841
2020–end 2022	0.73	Moderate	861
2023–Feb 2026	0.91	Very Strong	980
Last 12 months (Feb25–Feb26)	0.94	Extremely Strong	311

Finding : Gold and silver have exhibited a very strong positive correlation (0.91 overall) since 2020, strengthening to 0.94 in the past 12 months.

How much Price of Silver changed due to Change in Price of Gold ?

Regression Analysis – Silver as Dependent Variable

Model: Silver Price = α + β × Gold Price (OLS, daily closes)

Period	Equation	Slope (β)	R ²	Interpretation
Overall 2020–2026	Silver = -6.21 + 0.0151 × Gold	0.0151	0.8369	Strong baseline
2020–2022	Silver = -24.53 + 0.0262 × Gold	0.0262	0.5416	Higher volatility
2023–Feb 2026	Silver = -11.81 + 0.0167 × Gold	0.0167	0.8407	Tight bull alignment
Feb 2025–Feb 2026	Silver = -60.81 + 0.0291 × Gold	0.0291	0.8904	Highest beta & fit

Finding : Silver rises 1.51-2.91 cents per \$1 move in gold.

How much Price of Gold changed due to Change in Price of Silver ?

Regression Analysis - Gold as Dependent Variable

Model: Gold Price = $\alpha + \beta \times$ Silver Price

Period	Equation	Slope (β)	R ²	Key Takeaway	Interpretation
Overall	Gold = 714.48 + 55.30 × Silver	55.30	0.8369	Strong linkage	Silver explains 83.7% of the variation in gold prices
2020–2022	Gold = 1,324.33 + 20.63 × Silver	20.63	0.5416	More noise Weaker Relationship	Silver explains only 54.2% of the variation in gold prices due to COVID
2023–Feb 2026	Gold = 1,024.77 + 50.31 × Silver	50.31	0.8407	Reliable transmission	Silver explains 84.1% of the variation in gold prices
Feb 2025–Feb 2026	Gold = 2,272.29 + 30.59 × Silver	30.59	0.8904	Tightest recent fit	Silver explains 89.0% of the variation in gold prices

Finding : Across the entire period (2020–2026), every \$1 move in silver was associated with \$55 move in gold

Macro Drivers (high correlation):

- ✓ Inflation hedging & real yield environment
- ✓ USD weakness / monetary policy divergence
- ✓ Geopolitical risk & central-bank gold buying
- ✓ Safe-haven flows during uncertainty

Silver-Specific Tailwinds (explaining outperformance):

- ✓ Explosive industrial demand: solar PV, electric vehicles, 5G/electronics (50–60% of total use)
- ✓ Supply constraints & mining economics
- ✓ Green energy transition megatrend

Observation : Silver behaves as gold + industrial beta → higher volatility but superior returns in growth/inflation regimes.

For Investors & Portfolio Managers:

- 1. Core allocation:** Gold for pure monetary hedge; add silver for leveraged exposure + growth tilt.
- 2. Ratio trades:** Buy silver / sell gold when ratio <65 (current regime); reverse when >90.
- 3. Risk management:** Expect 1.5-2x beta in silver during gold rallies.
- 4. ETFs:** GLD / IAU for gold; SLV / SIVR or physical for silver.

Risks: Higher storage/insurance costs for silver; industrial slowdown could cause short-term decoupling.

Outlook (as of Feb 2026): Structural bull market intact. Silver likely to continue outperforming if energy transition accelerates and inflation remains above target.

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Economic Research Vertical

Samir kumar (Senior Manager)
Madhavankutty G (Chief Economist)

For Suggestions and views please contact, Economic Research Vertical

 080-2222 3169 (Chief Economist)
080-2227 3275 (Section)

 chiefeconomist@canarabank.com
hoersection@canarabank.com