AN EMPIRICAL STUDY ON THE IMPACT OF MACROECONOMIC ANNOUNCEMENTS ON GOLD PRICES (XAU/USD) IN THE FOREX MARKET AND HOW IT AFFECTS TO THE INVESTORS

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Abstract

This paper investigates the impact of macroeconomic announcements on gold prices (XAU/USD) in the forex market and the corresponding behavioral responses of retail investors, with particular focus on the Indian market. Using a mixed-methods approach combining a primary survey of 100 respondents with secondary data analysis, the study finds that interest rate decisions by the U.S. Federal Reserve and inflation data (CPI) are the most influential drivers of gold price volatility. Correlation analysis yielded r = 0.76, confirming a strong positive relationship between macroeconomic news and gold price movements. Both hypotheses of the study are accepted: macroeconomic announcements significantly affect gold price volatility, and investor awareness of such announcements significantly influences trading behavior. The study also reveals that 40% of retail traders rely primarily on social media for financial information, underscoring the need for structured financial literacy programs. The findings contribute to bridging macroeconomic theory with behavioral finance in the context of Indian forex gold trading.

Keywords: *BaaS, Financial Inclusion, UPI, FinTech, Embedded Finance, India*

Introduction

Gold has historically occupied a central role in global financial markets, functioning simultaneously as a store of value, an inflation hedge, and a safe-haven asset. In modern forex markets, gold is traded as XAU/USD, reflecting the price of one troy ounce in U.S. dollars. The gold market is acutely sensitive to macroeconomic announcements, including interest rate decisions, inflation figures, employment reports, and GDP data, which provide investors with critical signals about the health of major economies.

The Indian financial landscape presents a distinctive context for this study. India ranks among the world's largest gold consumers, with a cultural affinity for the metal that extends into investment portfolios. The proliferation of online trading platforms such as MetaTrader and

TradingView has democratized access to forex gold trading for retail participants. However, despite increasing participation, many retail traders lack systematic frameworks for interpreting macroeconomic events, often reacting emotionally rather than analytically.

This paper analyzes how macroeconomic announcements affect XAU/USD price dynamics and examines the awareness levels and behavioral responses of Indian retail investors. The findings are relevant for investors, financial educators, and policymakers seeking to strengthen financial literacy in an era of digitally enabled retail trading.

Background and Conceptual Framework

Macroeconomic Drivers of Gold

Gold prices are primarily driven by the following macroeconomic indicators:

- U.S. Federal Reserve Interest Rate Decisions: An inverse relationship exists between interest rates and gold. Rising rates strengthen the U.S. dollar, reducing gold's appeal as a non-yielding asset.
- Inflation Data (CPI / PPI): Gold is widely held as an inflation hedge. Elevated CPI readings increase demand for gold as investors seek to preserve purchasing power.
- Employment Data (Non-Farm Payroll): Strong NFP data signals economic health, typically strengthening the dollar and suppressing gold prices; weak data has the opposite effect.
- GDP Growth Rate: Slower growth or recessionary signals heighten demand for safe-haven assets including gold.
- U.S. Dollar Index (DXY): A negative correlation exists between the DXY and gold, as a stronger dollar makes gold more expensive for non-dollar investors.

Theoretical Foundations

The study is grounded in three theoretical frameworks. The Efficient Market Hypothesis (Fama, 1970) posits that all available information is reflected in asset prices; macroeconomic announcements test this by introducing new information that causes short-term deviations. Safe Haven Theory explains investor migration to gold during episodes of uncertainty and financial stress. Behavioral Finance Theory (Kahneman & Tversky, 1979) accounts for irrational decision-making driven by fear, overconfidence, loss aversion, and herd behavior, which amplify price volatility around announcement events.

Review of Literature

International Studies

Baur and Lucey (2010) established that gold provides protection during extreme market conditions, demonstrating its safe-haven and hedging properties. Narayan, Sharma, and Thuraisamy (2014) confirmed statistically significant effects of inflation, interest rates, and money supply on gold returns across multiple countries. Wang, Lee, and Lee (2019) demonstrated that unexpected macroeconomic outcomes exert a stronger influence on gold volatility than expected ones, and that investor sentiment jointly amplifies price movements. Reboredo (2013) used time-series econometric models to confirm gold's role as a hedge against the U.S. dollar and global equity markets, with the relationship becoming more pronounced during periods of elevated uncertainty. Ibrahim (2012) found that the magnitude of gold's reaction to macroeconomic shocks depends on announcement type: inflation data produces longer-term effects while employment figures generate short-term volatility.

Indian Studies

Sinha and Mathur (2022) found that most Indian retail investors have limited awareness of how macroeconomic announcements affect gold prices, though those actively following financial news demonstrate greater preparedness for volatility. Chittedi (2012) documented gold's role as a hedge against inflation and rupee depreciation in the Indian market. Bhunia and Das (2015) showed that rupee depreciation against the USD directly lifts gold prices in India given dollar-denominated pricing. Srivastava (2020) found that Indian traders react more strongly to international macroeconomic events, particularly U.S. Federal Reserve meetings and NFP releases, than to domestic data.

Behavioral Finance and Investor Psychology

Barber and Odean (2001) documented how overconfidence leads investors to take excessive risks, particularly in volatile conditions. Banerjee (1992) introduced herd behavior as a driver of sharp price swings in the absence of independent analysis. Studies by Sharma and Mehta (2019) and Patel and Shah (2020) confirmed that Indian retail traders disproportionately rely on social media and financial influencers, increasing vulnerability to misinformation and emotional trading.

Research Gap

The reviewed literature reveals a gap in awareness-focused, behavioral research on Indian retail participants in the forex gold market (XAU/USD). Most prior work concentrates on institutional investors or statistical price modelling, leaving the retail investor experience and the role of digital information sources understudied. This paper addresses that gap.

Research Methodology

Research Design

The study employs a descriptive and empirical mixed-method design. The descriptive component characterizes investor awareness and behavior, while the empirical component tests hypotheses using survey data. The research is primarily quantitative, supplemented by qualitative insights from open-ended responses.

Data Collection

Primary data was collected via a structured questionnaire administered through Google Forms to 100 respondents comprising retail forex traders, gold investors, and finance students across India. The questionnaire covered: (i) demographic profile and trading experience; (ii) awareness of macroeconomic announcements; (iii) behavioral responses during high-volatility events; and (iv) opinion-based items on a 5-point Likert scale. Secondary data was drawn from research journals, the World Gold Council, RBI publications, IMF working papers, and financial databases including Investing.com and ForexFactory. The study period covers gold price movements and investor reactions from 2022 to 2025.

Hypotheses

H_{01}: There is no significant relationship between macroeconomic announcements and gold price volatility (XAU/USD).

H_{11}: There is a significant relationship between macroeconomic announcements and gold price volatility (XAU/USD).

H_{02}: Investor awareness of macroeconomic announcements does not significantly influence trading decisions.

H_{12}: Investor awareness of macroeconomic announcements significantly influences trading decisions.

Analytical Techniques

Data was analyzed using percentage analysis, weighted mean score analysis, and Pearson correlation. Graphical tools including pie charts and bar graphs were used for visualization. Qualitative responses were analyzed through content analysis to identify common behavioral themes.

Findings and Analysis

Demographic Profile

The sample was predominantly young (45% below 25 years; 35% aged 25–35), male (70%), with most respondents being working professionals (45%) or students (40%). Trading experience was moderate: 45% had 1–3 years of experience, 35% less than one year, and 20% more than three years, reflecting a nascent but growing retail trading cohort.

Investor Awareness of Macroeconomic Announcements

Awareness Level	No. of Respondents	Percentage (%)
Fully Aware	30	30%
Somewhat Aware	50	50%
Not Aware	20	20%

Only 30% of respondents reported full awareness of macroeconomic announcements and their impact on gold prices. While 80% possess at least some awareness, the depth of understanding remains limited. This is consistent with Sinha and Mathur (2022), who identified a significant knowledge gap among Indian retail traders.

Information Sources

Source	Respondents	Percentage
YouTube / Social Media	40	40%
Financial Websites (e.g., Investing.com)	35	35%
Telegram / WhatsApp Groups	15	15%

Financial Advisors or Mentors	10	10%

Social media and YouTube are the dominant information channels (40%), indicating that retail traders are increasingly learning through informal digital sources. Only 10% consult qualified financial advisors, raising concerns about the quality of market intelligence underpinning trading decisions.

Investor Reaction During Announcements

Behavioral Response	Respondents	Percentage
Trade Actively During Announcements	25	25%
Avoid Trading Due to High Volatility	50	50%
Monitor Markets but Do Not Trade	25	25%

Half of respondents adopt risk-averse behavior by avoiding trading during major announcements. A quarter of traders, typically more experienced participants, actively seek opportunities in heightened volatility. This behavioral divide aligns with Thakur and Rao (2021), who identified fear and overconfidence as the two dominant emotional biases in high-impact event trading.

Perceived Impact of Key Announcements

Announcement Type	Perceived Impact (%)
U.S. Interest Rate Decision (Fed)	35%
Inflation Data (CPI)	25%
Non-Farm Payroll (NFP)	20%
GDP Growth Report	10%
Geopolitical Events	10%

Respondents identified interest rate decisions and CPI data as the most impactful announcements for gold prices, which is consistent with global market behavior. This confirms the theoretical inverse relationship between interest rates and gold and gold's established role as an inflation hedge.

Hypothesis Testing

Hypothesis 1 — Macroeconomic Announcements and Gold Price Volatility

Respondents were asked whether macroeconomic announcements influence gold prices. A total of 80% (45% Strongly Agree + 35% Agree) affirmed this relationship, with only 10% expressing disagreement. A simplified Pearson correlation between the frequency of following macroeconomic announcements (variable X) and self-reported observation of gold price changes (variable Y) yielded:

Calculated Correlation (r) = 0.76

This indicates a strong positive relationship. Given that 80% of respondents agree and r = 0.76, H_{01} is rejected. H_{11} is accepted: macroeconomic announcements significantly affect gold price volatility.

Hypothesis 2 — Investor Awareness and Trading Behavior

Respondents rated the influence of macroeconomic awareness on their trading decisions on a 5-point Likert scale. The weighted mean was calculated as:

Weighted Mean = [(40×5) + (35×4) + (15×3) + (6×2) + (4×1)] / 100 = 4.01 / 5

A mean score of 4.01 confirms strong agreement that awareness influences trading behavior. With 75% of respondents (40% Strongly Agree + 35% Agree) affirming this relationship, H_{02} is rejected. H_{12} is accepted: investor awareness significantly influences trading decisions and behavior.

Summary of Hypothesis Testing

Hypothesis	Statement	Result
H_1	Significant relationship between macroeconomic announcements and gold price volatility (XAU/USD)	Accepted
H_2	Investor awareness of macroeconomic announcements significantly influences trading behavior	Accepted

Discussion

The findings align closely with the existing international and Indian literature. The strong correlation between macroeconomic announcements and gold volatility (r = 0.76) corroborates Baur and Lucey (2010) and Narayan et al. (2014), confirming that gold price dynamics in the

forex market are systematically linked to macroeconomic information flows rather than random noise.

The behavioral findings are equally significant. The dominance of social media as a primary information source (40%) echoes Patel and Shah (2020) and Sharma and Mehta (2019), who documented Indian retail traders' reliance on informal digital channels. This dependence creates vulnerability to misinformation, herd behavior, and emotionally driven decisions — consistent with Banerjee's (1992) herd behavior theory and Kahneman and Tversky's (1979) loss aversion framework.

The bifurcation of investor behavior during announcements — 50% avoiding trading versus 25% actively trading — reflects the heterogeneity of risk tolerance and experience levels in the retail trader population. Experienced traders who interpret macroeconomic calendars systematically appear better equipped to exploit volatility rather than be victimized by it, consistent with Agarwal and Gupta (2020).

India's unique position as a major gold consumer adds a domestic layer to this globally driven market. The rupee-dollar dynamic amplifies gold price sensitivity for Indian investors: rupee depreciation raises the INR-denominated gold price independently of XAU/USD movements (Bhunia & Das, 2015), creating a compounded exposure that many retail traders may not fully appreciate.

Conclusion

This study demonstrates that macroeconomic announcements, particularly U.S. Federal Reserve interest rate decisions and CPI inflation data, exert a statistically significant and economically meaningful influence on XAU/USD price volatility. A correlation coefficient of $r = 0.76$ confirms the strength of this relationship. Investor awareness of these events significantly shapes trading behavior: traders with higher awareness report better consistency and lower emotional reactivity, while those relying on informal information sources exhibit higher vulnerability to impulsive decisions.

Both hypotheses of the study are accepted, contributing empirical support to the intersection of macroeconomic theory and behavioral finance in the context of Indian forex gold trading. The study further identifies an awareness and literacy gap among retail investors, with social media dominating as an information source in the absence of structured financial education.

For policymakers, regulators, and educators, these findings underscore the importance of accessible financial literacy programs, improved transparency in economic data communication, and the promotion of verified, analytical information platforms. For traders, the study recommends systematic use of economic calendars, integration of both fundamental and technical analysis, and disciplined risk management strategies during high-impact announcement periods. Future research should employ larger, more representative samples, advanced econometric models, and comparative analysis across asset classes to deepen understanding of these dynamics.

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