

GOLD RETURNS AND INVESTOR BEHAVIOUR IN THE INDIAN GOLD ETF MARKET: EVIDENCE OF RETURN-CHASING USING VAR ANALYSIS

Dr. Archana K¹

Associate Professor

Department of MBA

Sambhram Academy of Management studies, Bengaluru

Ms. Lata M Ambekar²

Research scholar

Suresh Gyan Vihar University

Mahal, Jayapura, Jaipur 302017, India

Ms. Rajashree Gurunayak³

Associate Professor

Don Bosco Institute of Management Studies and Computer Applications

Bengaluru – 74

ABSTRACT

This study examines the relationship between gold returns and Gold ETF AUM in India, with a focus on investor behavioral responses such as FOMO. Using monthly data from 2015–2026, the study employs Augmented Dickey–Fuller (ADF) tests, correlation analysis, OLS regression, and Vector Autoregression (VAR) models. The results indicate that gold returns exhibit a weak but statistically significant positive relationship with ETF inflows in static models. However, this relationship weakens and becomes insignificant in a dynamic VAR framework. The findings suggest that ETF inflows are primarily driven by their own past values, indicating strong persistence in investor behavior. Overall, the study finds limited but present evidence of behavioral bias (FOMO), though not strong enough to generate predictive causality. The study contributes to behavioral finance literature by integrating static and dynamic models to analyze investor behavior in emerging market ETF structures.

Keywords: *Gold returns, Gold ETF, FOMO, VAR, Investor behaviour*

1.01. Introduction

As a commodity and a strategic financial asset, gold has always held a special place in international financial markets. Gold is generally seen as a store of value, a hedge against inflation, and a safe-haven asset during times of economic and geopolitical turmoil, in contrast to traditional financial instruments. Its function has changed throughout time from being mainly a tangible item used for adornment and consumption to becoming a crucial part of contemporary financial portfolios. The financialization of gold has contributed to this trend, especially with the rise of Exchange Traded Funds (ETFs), which allow investors to be exposed to gold prices without the practical and logistical limitations of physical ownership. The world of gold investing has changed dramatically since the introduction of Gold Exchange Traded Funds, or Gold ETFs. Gold ETFs bridge the gap between commodities and financial markets by enabling investors to track the price of gold in a highly liquid, transparent, and economical manner. Due to rising demand for passive investment vehicles, portfolio diversification techniques, and increased knowledge of risk management, gold exchange-traded funds (ETFs) have grown significantly since their debut in both developed and emerging economies. For individual and institutional investors looking to gain exposure to gold without taking on the storage, purity certification, and transactional inefficiencies associated with actual gold, gold exchange-traded funds (ETFs) have emerged as a crucial tool. Over the past ten years, the expansion of Gold ETFs has been especially notable in the Indian setting. Due to growing financial literacy, the digitalization of financial markets, and legislative backing for investment products based on mutual funds, India, which has historically been one of the biggest users of physical gold, has gradually seen a change in investment preferences. With their transparency, simplicity of trading, and alignment with worldwide gold prices, gold exchange-traded funds (ETFs) have become a contemporary substitute for actual gold holdings in India.

Even with this quick expansion, little is known about how investors behave in this market, especially when it comes to how investment flows react to shifts in gold returns. In this context, a crucial question is whether investor behaviour in the Indian Gold ETF market is motivated by behavioural biases or logical investment choices. According to conventional financial theory, investors base their choices on long-term portfolio optimization, risk-return trade-offs, and basic information. However, research on behavioural finance indicates that heuristics, emotional reactions, and cognitive biases frequently affect investors. Return chasing behaviour, in which investors increase their investments after recent high results and withdraw money after poor performance, is one such well-documented pattern. Although this behaviour has been thoroughly investigated in equities mutual funds and other financial markets, its existence in commodity-linked exchange-traded fund (ETF) markets, like gold, is still largely unexplored, especially in developing nations like India. Existing literature on gold markets has predominantly focused on macroeconomic determinants of gold prices, inflation hedging properties of gold, and the role of gold as a safe-haven asset during financial crises. The connection between gold prices and macroeconomic factors including interest rates, currency

rates, and stock market performance has also been the subject of extensive investigation. However, the behaviour of gold ETF investors has received comparatively little scrutiny, especially when it comes to flow-performance correlations. Although research on mutual funds has shown compelling evidence of return chasing behaviour, it is still unclear how these findings relate to commodity-based ETFs like gold. Gold has evolved from a conventional physical asset into a highly liquid and market-driven investment tool due to the growing financialization of gold through exchange-traded funds, especially in developing nations like India. Even though gold exchange-traded funds (ETFs) have grown quickly, little research has been done on how investor behaviour reacts to price changes in this market. Not enough research has been done on the existence of return-chasing behaviour and how it dynamically interacts with ETF inflows in the Indian environment. To close this gap, the current study uses a Vector Autoregression (VAR) approach to examine the bidirectional and time-dependent interactions between gold returns and Gold ETF inflows. By doing so, the study aims to provide deeper insights into behavioral patterns of investors and the evolving dynamics of the Gold ETF market, thereby contributing to both behavioral finance literature and the practical understanding of investment flow mechanisms in commodity-linked financial instruments.

1.02.Review of literature

Over the past 20 years, there has been a major increase in the amount of literature on gold markets and Exchange Traded Funds (ETFs), which reflects the growing interest in gold as a financial asset and a tool for portfolio diversification among academics and practitioners. A significant amount of previous research has concentrated on gold's safe-haven qualities during times of financial uncertainty as well as its function as a hedge against inflation, currency changes, and stock market volatility. Simultaneously, studies on ETFs have mostly focused on tracking inaccuracy, pricing efficiency, and the benefits of passive investment vehicles over actively managed funds. Understanding investor behaviour in fund markets, in particular flow-performance correlations and behavioural biases like return chasing, has steadily gained attention in recent years. Even so, the literature on gold exchange-traded funds (ETFs) is relatively dispersed, particularly in developing nations like India where investor behaviour and flow dynamics have not yet been thoroughly examined.

1.02.01. Sims, C. A. (1980)

In contrast to conventional structural macroeconomic models, this study presents the Vector Autoregression (VAR) model. Instead of making rigorous theoretical assumptions, Sims contends that economic variables should be viewed as endogenous and jointly determined. Using lagged values, the VAR framework enables researchers to examine how variables interact dynamically over time. It is especially helpful for determining feedback effects, impulse reactions, and causal linkages between several time-series variables. All things considered, this work established the groundwork for contemporary multivariate time-series analysis in finance and economics.

1.02.02. Ippolito, R. A. (1993).

This study examines mutual fund performance from 1962 to 1991 and assesses whether professionally managed funds often beat the market after taking expenditures and risk into consideration. The results demonstrate that mutual funds do not perform noticeably better than passive market benchmarks, and that any anomalous returns usually vanish when management fees and transaction expenses are considered. The study also shows that past performance is not a good indicator of future performance, indicating that fund returns are not very persistent. Overall, it supports the effectiveness of financial markets and the allure of passive investing methods by concluding that active fund management does not routinely produce greater risk-adjusted returns.

1.02.03. Barberis et al (1998)

This work develops a theoretical model to comprehend how investor sentiment impacts financial markets. It shows that instead of digesting information logically, investors often rely on psychological biases that lead them to overreact or underreact to news. According to the concept, asset prices diverge from fundamental values when investors are excessively optimistic or pessimistic, resulting in predictable patterns like momentum and reversals. The study underlines that sentiment-driven behaviour can significantly affect asset price movements and market dynamics even in the absence of new fundamental facts. All things considered, it provides a strong theoretical foundation for understanding financial market behavioural biases such herding, overreaction, and return-chasing behaviour.

1.02.04. Poterba & Shoven (2002)

The emergence of Exchange Traded Funds (ETFs) as a cutting-edge investing tool is covered in this paper. It describes how, in comparison to conventional mutual funds, ETFs provide better trading freedom, reduced expenses, and tax efficiency. The report also emphasizes how the structure of ETFs makes it easier for arbitrage mechanisms to maintain market prices around net asset value (NAV), which enhances investor outcomes and market efficiency.

1.02.05. Lütkepohl (2005)

A thorough and sophisticated framework for multivariate time-series analysis is offered with a focus on Vector Autoregression (VAR) models. Important methodological topics including model estimation, specification and selection, stationarity testing, cointegration analysis, impulse response functions, and prediction error variance decomposition are covered in detail in this work. In the fields of finance and economics, it is commonly acknowledged as a standard reference in applied econometrics. Because it directs the proper use of VAR models and makes it easier to grasp the dynamic interrelationships among economic and financial variables, the study is very helpful for empirical researchers. All things considered, it functions as a

fundamental methodological reference for research involving interconnected and time-dependent financial data.

1.02.06. Deville, L. (2008)

An extensive review of ETFs, including their background, trading strategies, and market dynamics, is given in this essay. It talks about how ETFs improve market efficiency by offering liquidity and engaging in arbitrage. Early empirical data on tracking error, pricing effectiveness, and investor adoption trends in ETF markets are also reviewed in this study.

1.02.07. Madhavan, A. (2012)

The pricing, liquidity, and trading behaviour of exchange-traded funds (ETFs) are examined in this article, particularly in relation to market structure and volatility events such as the Flash Crash. It describes how the liquidity of underlying assets affects ETF liquidity in addition to the ETF market itself. The paper emphasizes that while ETFs might facilitate market access, they may also transfer or magnify shocks during stressful times.

1.02.08. Kahneman, D., & Tversky, A. (2013)

Prospect Theory, which differs from conventional rational choice theory in explaining how people make decisions under risk, was introduced by Kahneman and Tversky in 1979. According to the study, people have loss aversion, which means that losses have a greater psychological impact than comparable gains, and they assess results in relation to a reference point rather than final wealth. It also shows that individuals tend to be risk-averse when facing gains and risk-seeking when facing losses. The idea also emphasizes how, when faced with ambiguity, humans make decisions based on mental shortcuts rather than real probability. All things considered, the research offers a fundamental explanation for behavioural biases in financial decision-making, including return-chasing and irrational investment decisions.

1.02.09. Israeli (2017)

This study investigates whether ETFs have unforeseen detrimental impacts on financial markets. By moving trading activity from individual equities to the ETF level, the authors discover that although ETFs increase market access and liquidity, they may also decrease the informational efficiency of underlying assets. This may make it harder for firm-specific information to be reflected in prices, which could result in mispricing and more stock co-movement. High ETF ownership may also lead to increased volatility and less effective price discovery at the individual security level, according to the study. Overall, the study draws attention to a possible "dark side" of ETFs: a rise in ETF activity could skew markets' informative function.

1.02.10. Glosten et al (2021)

This study investigates the impact of ETF trading activity on the underlying assets' informational efficiency. Increased ETF participation, according to the authors, accelerates the rate at which information is factored into stock prices, improving market efficiency overall. ETFs reduce mispricing by facilitating arbitrage and speeding up information flow between connected assets. The report does point out that excessive ETF trading might occasionally cause short-term volatility and noise. Overall, the study comes to the conclusion that ETFs have the capacity to affect short-term market dynamics while also significantly enhancing price discovery and informational efficiency.

1.02.11. Yeniley, U. (2025)

This study investigates how Gold Exchange Traded Funds (Gold ETFs) affect economic dynamics during financial crises, enhance price discovery, and guarantee market stability. The results show that by providing a transparent and liquid mechanism that closely monitors underlying gold prices, gold exchange-traded funds (ETFs) improve market efficiency. Gold ETFs typically see higher inflows during times of financial hardship, supporting gold's status as a safe-haven investment. The study also emphasizes how Gold ETFs improve the price discovery process by strengthening the connection between financial markets and actual gold. It also points out that ETF prices may experience short-term volatility due to abrupt and significant inflows during crises.

1.02.12. Pandey, P. N. (2025)

Using empirical analysis, this paper investigates the risk-return characteristics and price discovery function of ETFs in Indian financial markets during times of crisis. The results imply that ETFs act differently in normal and crisis regimes, with a notable increase in risk and return volatility during market stress. Although their efficacy may differ during times of crisis and stability, the study emphasizes that ETFs aid in the price discovery process by effectively absorbing new information into pricing. ETFs also show increased ties to underlying assets during financial volatility, suggesting their increasing significance in market transmission mechanisms. Overall, the study concludes that ETFs serve as crucial channels for price discovery in addition to providing diversification advantages, particularly in times of crisis in Indian markets.

1.02.13. Novotny, J., & Hajek, P. (2026).

This study uses market data and investor sentiment to create a hybrid adaptive trading strategy for precious metal ETFs. When opposed to relying just on price-based models, it demonstrates how investor attitude and emotions can enhance trading judgements. Better entry and exit locations for ETF trading can be found thanks to the strategy's dynamic adaptation to shifting market conditions. The findings imply that sentiment-driven signals are useful for forecasting

short-term changes in the price of precious metal ETFs, particularly in times of volatility. Overall, the study shows that trading performance and risk management in precious metal ETF markets can be improved by fusing conventional technical indicators with investor emotion.

1.02.14. Kukreja, H et al (2026)

This study uses the Fama-French Three-Factor Model to analyse the risk-adjusted performance of gold and stock investments in India. It assesses these assets' performance after taking market risk, size effect, and value effect into consideration. The findings reveal that all three risk factors have a considerable impact on stock returns, whereas gold exhibits less sensitivity to these risk factors, which is consistent with its low-correlation and defensive nature. Additionally, the report emphasizes that during times of market stress, gold offers superior diversification benefits. Overall, the results indicate that while stocks provide greater but more risk-sensitive returns, gold serves as a stabilizing asset in Indian portfolios.

1.02.15. Saini et al (2026)

This study uses an event study methodology to investigate how ETF splits impact returns and liquidity in the Indian ETF market. To determine if such corporate activities produce abnormal returns or enhance trading activity, it examines market behaviour both before and after ETF split announcements. The results indicate that while ETF splits can momentarily boost trading volume and liquidity due to increased affordability and investor engagement, they do not substantially alter the fund's underlying worth. However, aberrant returns around the event window typically have little effect on long-term performance since they are modest or transient. Overall, the analysis finds that rather than having a long-term impact on returns, ETF splits mostly affect short-term market liquidity.

1.02.16. Asikin, M. Z., & Sulistiawati, L. (2026)

This study uses a phenomenological approach to investigate how gold investors feel "psychological calm" amid times of global turmoil. It focuses on the behavioural and emotional aspects of gold investing, especially in times of crisis like geopolitical unrest or economic shocks. The results imply that investors view gold as a source of stability, security, and emotional comfort in addition to being a financial asset. In uncertain market conditions, this "safe haven" impression helps investors feel more confident and less anxious. Overall, the study shows that gold's worth extends beyond profits because, in uncertain times, it also offers psychological comfort and strengthens trust.

1.02.17. Vaidheeswaran, S. (2026)

Investor awareness, perception, and investment patterns regarding Gold Exchange Traded Funds (Gold ETFs) in Puducherry are examined in this study. It focuses on figuring out how well-informed investors are regarding Gold ETFs and how their opinions affect their choices.

The results show that participation in Gold ETFs is highly influenced by knowledge levels, with many investors still favoring traditional physical gold because of familiarity and cultural preferences. The study also emphasizes how important elements like returns, safety, and liquidity are in determining investment behavior. Overall, it concludes that raising investor awareness and financial literacy can increase the adoption of Gold ETFs and change investor preferences toward more contemporary financial products.

1.03. Review of literature Gaps

The literature on gold investments, exchange-traded funds (ETFs), and investor behaviour is expanding, but there are still a lot of unanswered questions about gold ETFs in India. The majority of prior research has mostly concentrated on the safe-haven function of gold, ETF pricing efficiency, liquidity, and risk-return characteristics; the connection between gold ETF fund flows and returns has received less attention. Particularly in the Indian context, behavioural factors including return-chasing behaviour, investor attitude, and investor response to market volatility in Gold ETFs have not received enough attention. Furthermore, there is no empirical support for Indian Gold ETFs using sophisticated econometric techniques like Vector Autoregression (VAR) to study dynamic interactions among returns, flows, and volatility because most studies focus on developed markets. Thus, the current study intends to analyse the relationship between Gold ETF returns and investor fund flows in India, investigate how investor behaviour and market volatility affect Gold ETF investment patterns, and use VAR analysis to investigate the dynamic interaction among returns, fund flows, and volatility.

1.04. Objectives

1. To examine the causal relationship between gold prices and investment demand using time series data.
2. To test whether increases in gold prices lead to FOMO-driven investment behaviour using the Granger causality approach.

1.05. Research Methodology

The study is using secondary time series data to examine the relationship between gold price movements and investment demand, and to identify the presence of FOMO-driven investor behaviour in the gold market.

1.05.1 Source of Data

- Gold Price Data: Obtained from publicly available financial databases such as Investing.com / World Gold Council.
- Investment Demand Data: Measured using monthly Gold ETF Assets Under Management (AUM) data collected from the Association of Mutual Funds in India and supplementary ETF holdings data from the World Gold Council.

1.05.2 Period of Study

- The study covers a period of **10 years**, from **January 2015 to December 2024**, using monthly observations to ensure sufficient data points for time series analysis.

1.05.3. Variables Used in the Study

Table No: 1.01 Showing the details of the variables used in the study

Variable	Proxy Used	Description
Gold Price Returns (GR)	Log returns of gold prices	Independent variable
Investment Demand (ID)	Gold ETF AUM	Dependent variable

Source: Authors Calculation

1.06. Tools and Techniques

1.06.01 Descriptive Statistics

Basic descriptive statistics such as mean, standard deviation, minimum, and maximum values are used to understand the distribution and volatility of the variables.

1.06.02 Augmented Dickey-Fuller (ADF) Test

The ADF unit root test is employed to examine the stationarity of the time series variables.

- **Null Hypothesis (H_0):** The series contains a unit root (non-stationary).
- **Alternative Hypothesis (H_1):** The series is stationary.

Variables are differenced wherever necessary to achieve stationarity.

1.06.03 Vector Autoregression (VAR) Model

A VAR model is used to analyze the dynamic interaction between gold price returns and investment demand. The optimal lag length is selected using Akaike Information Criterion (AIC).

1.06.04 Granger Causality Test

The Granger causality test is employed to determine whether gold price returns predict changes in investment demand.

- If gold price returns Granger-cause investment demand, it indicates that investors respond to rising prices, suggesting the presence of Fear of Missing Out (FOMO) behaviour.
- The analysis is conducted using **Gretl econometric software**, which supports time series modelling, unit root testing, VAR estimation, and Granger causality analysis.

1.06.05 Hypotheses of the Study

1.06.05.01 Hypothesis

- **H₀**: Gold price returns do not Granger-cause investment demand.
- **H₀**: Investment demand does not Granger-cause gold price returns.

1.07. Analysis and Interpretation

1.07.01 Descriptive Statistics

Table No: 1.02 Showing the details of Descriptive statistics of the variables

Particulars	Mean	Median	Minimum	Maximum	Std. Dev.	Skewness	kurtosis
Gold Returns	2.424 2	1.7500	-63.380	171.39	16.618	7.5486	80.584
ETF Inflows	499.4 2	-9.7000	-456.75	11647	1516.2	5.0694	29.181

Source: Authors Calculation

The descriptive statistics indicate that both Gold Returns and ETF Inflows are positively skewed and exhibit high kurtosis values, suggesting deviation from normal distribution and the presence of extreme observations. Such non-normality is commonly observed in financial time-series data due to market volatility and sudden economic fluctuations. However, the study employed heteroskedasticity-robust standard errors in the VAR estimation, which improves the reliability of statistical inference despite the presence of non-normality. Furthermore, the diagnostic tests confirmed the absence of serial correlation, indicating that the estimated VAR

model remains statistically adequate for analysing the dynamic relationship between gold returns and Gold ETF inflows.

1.07.2 Augmented Dickey-Fuller (ADF) Test

Table No: 1.03 Showing the Results of the Augmented Dickey- Fuller Test

Variable	Form	Test Statistic	p-value	Result	Order of Integration
Gold Returns	First Difference	-12.2281	1.887E-026	Stationary	I(1)
ETF Inflows	First Difference	-3.41945	0.01035	Stationary	I(1)

Source: Authors Calculation

From the table no:1.03 we can see that the variables Gold Returns and ETF Inflows were tested for stationarity using the Augmented Dickey-Fuller (ADF) test. The findings show that following the initial differencing, both variables became stationary. The ADF test result for Gold Returns was -12.2281 with a p-value of $1.887E-026$, which is much less than the significance criterion of five percent. As a result, it was determined that the differenced series is stationary, rejecting the null hypothesis that there is a unit root. In a similar vein, ETF Inflows generated an ADF test statistic of -3.41945 with a p-value of 0.01035 , both of which are less than 0.05 . The differenced ETF Inflows series is stationary as a result of the null hypothesis being rejected. Since both variables became stationary only after first differencing, they are integrated of order one, denoted as $I(1)$. The stationarity condition confirms that the data are appropriate for further econometric analyses such as correlation, regression, ARDL, VAR, or cointegration analysis.

1.07.03 VAR Model

A Vector Autoregression (VAR) model with 6 lags was estimated using monthly data from August 2015 to January 2026 (126 observations) to examine the dynamic relationship between changes in gold returns ($d_GoldReturns$) and changes in Gold ETF inflows ($d_ETFInflows$).

1.07.03.01 Selection of Lag Length

The optimal lag length was determined using Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (BIC), Hannan-Quinn Criterion (HQC), and the Likelihood Ratio (LR) test.

Table No:1.04 Showing the Results of AIC BIC & HQC

Lag	AIC	BIC	HQC
5	23.8845	24.3797	24.0857
6	23.8056	24.3909	24.0434

Source: Authors Calculation

The AIC and HQC values are lower for lag 6 compared to lag 5, indicating better model fit. The likelihood ratio test is significant (Chi-square = 17.9406, $p = 0.0013$), rejecting the null hypothesis that lag 5 is sufficient. Therefore, the VAR (6) model was selected as the appropriate specification. The negative coefficients suggest short-term reversal or correction behaviour in gold prices, meaning an increase in gold returns in previous months tends to be followed by a decline in subsequent months.

Table No:1.05 Showing the results of the Portmanteau, Durbin-Watson Test

Diagnostic Test	Statistic	p-value	Interpretation
Portmanteau Test	LB (31) = 115.944	0.1316	No serial correlation
Durbin-Watson (Gold Returns Equation)	2.0599	-	No autocorrelation
Durbin-Watson (ETF Inflows Equation)	2.2115	-	No autocorrelation

Source: Authors Calculation

The diagnostic test results confirm the adequacy and stability of the VAR (6) model. The Portmanteau test produced a p-value of 0.1316, which is greater than the 5 percent significance level, indicating absence of serial correlation in the residuals. This suggests that the residuals behave like white noise and the model is properly specified. Furthermore, the Durbin-Watson statistics for both the gold returns equation (2.0599) and ETF inflows equation (2.2115) are close to 2, indicating that there is no serious autocorrelation problem in the estimated equations. Therefore, the VAR (6) model satisfies the necessary diagnostic conditions and is considered statistically reliable for further analysis and interpretation.

1.07.03.02 VAR (6) Estimation Results for Equation 1: Dependent Variable – d_GoldReturns

Table no 1.04 presents the estimated results of the VAR (6) model for the gold returns equation, where d_GoldReturns is treated as the dependent variable. The equation examines the influence of lagged values of gold returns and Gold ETF inflows on current gold returns. The coefficients, significance levels, and overall model statistics are reported to analyses the short-run dynamic relationship between the variables during the study period.

Table no: 1.06 Showing the details of the variables used in the study

Variable	Co efficient	P-Value	Significance
d_GoldReturns_1	−1.58927	0.0000	***
d_GoldReturns_2	−1.56716	0.0000	***
d_GoldReturns_3	−1.46772	0.0000	***
d_GoldReturns_4	−0.89566	0.0019	***
d_GoldReturns_5	−0.14147	0.4219	NS
d_GoldReturns_6	−0.08157	0.5063	NS
d_ETFIInflows_1	0.00272	0.2810	NS
d_ETFIInflows_2	0.01539	0.0081	***
d_ETFIInflows_3	0.00892	0.0335	**
d_ETFIInflows_4	0.00664	0.0809	*
d_ETFIInflows_5	0.00978	0.0272	**
d_ETFIInflows_6	0.00452	0.1076	NS

Source: Authors Calculation

The model summary statistics indicate that the VAR (6) gold returns equation has strong explanatory power. The R^2 value of 0.8448 implies that approximately 84.48 percent of the variation in gold returns is explained by the lagged values included in the model. The adjusted R^2 value of 0.8284 further confirms the robustness of the model after adjusting for the number of explanatory variables. The overall F-statistic is statistically significant with a probability value less than 0.01, indicating that the model as a whole is highly significant and suitable for analyzing the dynamic relationship between gold returns and Gold ETF inflows.

1.07.03.03 Model Summary – VAR (6) Gold Returns Equation

Table no: 1.06 Showing the details of the variables used in the study

Statistic	Value
R ²	0.8448
Adjusted R ²	0.8284
F-statistic	23.2007
Prob (F-statistic)	0.0000

Source: Authors Calculation

1.06.03.04 Joint Significance Tests – Equation 1

Table no: 1.07 Showing the details of the Joint Significance Test

Null Hypothesis	F-statistic	p-value	Interpretation
All lags of d_GoldReturns = 0	24.757	0.0000	Significant
All lags of d_ETFInflows = 0	1.3750	0.2307	Not Significant
All variables at lag 6 = 0	1.7734	0.1744	Not Significant

Source: Authors Calculation

The joint significance tests for Equation 1 of the VAR (6) model, which treats changes in gold returns (d_GoldReturns) as the dependent variable, are shown in Table 5. With an F-statistic of 24.757 and a p-value of 0.0000, the joint F-test for all lagged values of gold returns revealed that the lagged gold return variables are jointly significant in explaining present gold returns. This result verifies the existence of short-run dynamic adjustments in the gold market and implies that historical changes in gold returns have a significant impact on current gold price behaviour. The joint test for all lagged ETF inflow factors, on the other hand, produced an F-statistic of 1.3750 with a p-value of 0.2307, which at the five percent level is statistically insignificant. This suggests that current gold returns are not significantly impacted by lagged ETF inflows taken as a whole. The joint test for all variables at lag 6 is likewise statistically insignificant, suggesting that the sixth lag does not significantly increase the equation's explanatory power on its own. Overall, the findings imply that historical ETF inflow changes had less of an impact on gold returns than their own previous values.

1.07.03.05 VAR (6) Estimation Results for the ETF Inflows Equation (Dependent Variable: d_ETFInflows)

Table no: 1.09 Showing the Results for the ETF Inflows Equation

Variable	Coefficient	p-value	Significance
d_GoldReturns_1	50.6036	0.0000	***
d_GoldReturns_2	36.5515	0.0419	**
d_GoldReturns_3	15.4426	0.4227	NS
d_GoldReturns_4	11.8404	0.4973	NS
d_GoldReturns_5	−8.96039	0.5366	NS
d_GoldReturns_6	12.7230	0.1061	NS
d_ETFInflows_1	−0.13268	0.4501	NS
d_ETFInflows_2	−0.56959	0.0000	***
d_ETFInflows_3	−0.09726	0.7169	NS
d_ETFInflows_4	−0.21010	0.1509	NS
d_ETFInflows_5	−0.17338	0.1927	NS
d_ETFInflows_6	−0.49424	0.1381	NS

Source: Authors Calculation

The dependent variable is significantly impacted in the short term by lagged gold returns, according to the VAR estimate results. With a p-value of 0.0000 and a strong positive coefficient of 50.6036, the first lag of gold returns (d_GoldReturns_1) demonstrates significance at the one percent level. With a coefficient of 36.5515 and a p-value of 0.0419, the second lag (d_GoldReturns_2) is also positive and statistically significant. These results point to the existence of short-term momentum and persistence in gold price movements by suggesting that past changes in gold returns have a beneficial impact on present market behaviour. The statistical insignificance of the third to sixth lagged values of gold returns, however, suggests that the impact of previous gold return shocks diminishes over time.

With a negative coefficient of −0.56959 and a p-value of 0.0000, only the second lag of ETF inflows (d_ETFInflows_2) is statistically significant. ETF inflows from two prior periods may have a reversal or correction effect in the present period, according to this negative association. It appears that ETF inflows do not consistently affect the dependent variable throughout all lag periods because the other lagged ETF inflow variables are statistically insignificant. Overall, the findings show that the interaction

between the variables is mostly concentrated in the early lag periods and that gold returns have a greater short-term influence than ETF inflows.

1.07.03.06 Model Summary

Table no: 1.10 Showing the details of Model Summary

Statistic	Value
R ²	0.6118
Adjusted R ²	0.5705
F-statistic	41.6699
Prob (F-statistic)	7.32e ⁻³⁶

Source: Authors Calculation

The VAR (6) equation for Gold ETF inflows have adequate explanatory power and overall statistical significance, according to the model summary statistics. The lagged values of gold returns and ETF inflows included in the model account for about 61.18 percent of the variation in Gold ETF inflows, according to the R² value of 0.6118. Similarly, even after accounting for the number of explanatory variables, the model's adjusted R² value of 0.5705 shows that it still has significant explanatory power.

Additionally, the model as a whole is confirmed to be extremely significant by the F-statistic value of 41.6699 with a probability value of 7.32e⁻³⁶, which is much lower than the 1 percent significance criterion. This suggests that the behaviour of Gold ETF inflows can be explained by the independent variables working together. Overall, the model summary findings show that the VAR (6) specification is suitable for evaluating the dynamic link between gold returns and gold ETF investment flows across the research period and is statistically trustworthy.

1.07.03.07 Joint Significance Tests – Equation 2

Table no: 1.11 Showing the Results for the ETF Inflows Equation

Null Hypothesis	F-statistic	p-value	Interpretation
All lags of d_GoldReturns = 0	9.0339	0.0000	Significant
All lags of d_ETFInflows = 0	6.6339	0.0000	Significant
All variables at lag 6 = 0	2.2538	0.1097	Not Significant

Source: Authors Calculation

The joint significance tests for Equation 2 of the VAR (6) model, which treats changes in Gold ETF inflows (d_ETFInflows) as the dependent variable, are shown in Table 7. With an F-statistic of 9.0339 and a p-value of 0.0000, the joint F-test for all lagged values of gold returns showed that lagged gold returns are jointly significant in explaining present ETF inflows. This result implies that investors' decisions about investing in gold ETFs are significantly influenced by the historical performance of gold prices. Following positive gold market returns, investors typically increase their ETF investments, which is indicative of momentum-driven or return-chasing investing behaviour.

Similarly, the joint significance test for all lagged ETF inflow variables yielded an F-statistic of 6.6339 with a p-value of 0.0000, suggesting that current ETF inflows were significantly influenced by prior ETF inflows. This implies that over time, ETF investing habits show both adaptability and persistence. The joint test for all variables at lag 6 is statistically insignificant with a p-value of 0.1097, suggesting that the sixth lag by itself does not significantly boost the model's explanatory power. Overall, the results demonstrate that current gold ETF inflows are significantly impacted in the short term by past gold returns and ETF inflows.

1.07.03.08 Overall Interpretation of VAR Results

A significant dynamic link between gold returns and gold ETF inflows during the study period is revealed by the overall VAR (6) results. The results show that ETF inflows are significantly impacted by gold returns, indicating that investors react favorably to shifts in the performance of the gold market. Investors typically raise their stakes in gold exchange-traded funds (ETFs) in following times when gold

prices produce positive returns. This illustrates momentum-driven investing behaviour, in which investor participation in financial assets is influenced by historical market performance.

Table no: 1.12 Showing the Results of Overall Interpretation

Relationship	Result	Interpretation
Gold Returns → ETF Inflows	Significant	Investors react to gold price performance
ETF Inflows → Gold Returns	Weak/Insignificant	ETF flows do not strongly drive gold prices
Gold Returns Own Lags	Significant	Presence of short-run adjustment/reversal
ETF Inflows Own Lags	Significant	Investor flow persistence/correction behaviour

Source: Authors Calculation

However, it is discovered that ETF inflows have a negligible and statistically insignificant impact on gold returns. This suggests that while investors respond to changes in gold prices, ETF investment flows do not significantly influence changes in gold prices. The findings also demonstrate the statistical significance of the lagged values of gold returns, suggesting the existence of short-term adjustments and reversal behaviour in gold prices. In a similar vein, the importance of lagged ETF inflows indicates that investor fund flows exhibit persistence and correction behaviour across time. Overall, the results lend credence to the idea that investors in gold exchange-traded funds (ETFs) are primarily responsive to trends in the gold market rather than the main forces behind changes in gold prices.

1.08. Findings and Suggestions

Using a VAR (6) model based on monthly data from August 2015 to January 2026, the study investigated the dynamic link between gold returns and Gold ETF inflows in India. Because diagnostic tests verified the lack of serial correlation and the model's overall relevance, the empirical results show that the chosen VAR (6) model is statistically appropriate.

The findings show that inflows into gold ETFs are significantly impacted by lagged gold performance. Following positive gold market performance, investors typically increase their holdings in gold exchange-traded funds (ETFs), a sign of momentum-driven or return-chasing investment behaviour. In contrast, ETF inflows were found to have a weak and statistically insignificant impact on gold returns at the system level, suggesting that Gold ETF investments do not substantially drive gold price movements.

Significant short-run dynamics in both variables were also found by the study. Indicating short-term adjustment and reversal behaviour in the gold market, the lagged values of gold returns were statistically significant in explaining present gold returns. In a similar vein, lagged ETF inflows had a substantial impact on current ETF inflows, indicating the durability and corrective behaviour of investor fund flows across time. Overall, the results imply that rather than being a major factor affecting the performance of the gold market, Gold ETF investors are mainly reactive to changes in gold prices.

A number of recommendations for investors, fund managers, and legislators may be made in light of the study's conclusions. Prior to making investment decisions in gold exchange-traded funds (ETFs), investors should keep a careful eye on gold market trends and return movements because historical gold returns have a big impact on investor involvement. Increased knowledge of market timing and risk diversification is necessary to prevent illogical investing decisions during times of high market volatility, as investor behaviour seems to be momentum-driven.

When it comes to Gold ETF performance and related risks, fund managers and financial institutions may prioritise timely market information, investor education, and open communication. To improve informed participation in the gold investment market, policymakers and market authorities might also promote more financial literacy about exchange-traded instruments. To gain a more comprehensive knowledge of the factors influencing Gold ETF investments and gold returns, future study may include additional macroeconomic variables such as inflation, interest rates, exchange rates, stock market volatility, and global gold prices. In order to investigate long-term linkages and market behaviour in more detail, future research may potentially make use of sophisticated econometric tools including volatility models, impulse response analysis, and VECM.

1.09. Conclusion

The current study used a VAR (6) model based on monthly data from August 2015 to January 2026 to evaluate the dynamic link between gold returns and gold ETF inflows in India. The model's statistical dependability and suitability for analyzing the variables' short-term interactions were validated by the empirical findings. The results showed that historical gold returns have a considerable impact on Gold ETF inflows, suggesting that investors typically increase their investments in Gold ETFs after positive gold market performance. This illustrates

the significance of gold price patterns in influencing investor choices and represents momentum-driven investment behaviour. In contrast, Gold ETF inflows were found to have a weak and statistically insignificant impact on gold returns, suggesting that ETF investment activity does not substantially determine gold price movements. The study also identified short-run adjustment and persistence effects in both gold returns and ETF inflows, indicating the presence of dynamic interactions over time. Overall, the study concludes that Gold ETF investors in India are largely reactive to movements in the gold market rather than acting as a major force influencing gold prices. The findings contribute to the understanding of investor behaviour in Gold ETFs and provide useful insights for investors, fund managers, and policymakers in the Indian financial market.

Reference

1. **Asikin, M. Z., & Sulistiawati, L. (2026).** The Meaning of Psychological Calm for Gold Investors in the Midst of Global Uncertainty: A Phenomenological Study of Safe Haven Assets. *Journal of Management Economic and Financial*, 4(1), 1-9.
2. **Barberis, N., Shleifer, A., & Vishny, R. (1998).** A model of investor sentiment. *Journal of financial economics*, 49(3), 307-343.
3. **Deville, L. (2008).** Exchange traded funds: History, trading, and research. In *Handbook of financial engineering* (pp. 67-98). Boston, MA: Springer US.
4. **Glosten, L., Nallareddy, S., & Zou, Y. (2021).** ETF activity and informational efficiency of underlying securities. *Management Science*, 67(1), 22-47.
5. **Ippolito, R. A. (1993).** On studies of mutual fund performance, 1962–1991. *Financial Analysts Journal*, 49(1), 42-50.
6. **Israeli, D., Lee, C. M., & Sridharan, S. A. (2017).** Is there a dark side to exchange traded funds? An information perspective. *Review of Accounting Studies*, 22(3), 1048-1083.
7. **Kahneman, D., & Tversky, A. (2013).** Prospect theory: An analysis of decision under risk. In *Handbook of the fundamentals of financial decision making: Part I* (pp. 99-127).
8. **Kukreja, H., Pandey, A. K., & Jagetia, A. (2026).** Risk-adjusted performance of equity and gold in India using Fama-French Three-Factor Model. In *Empowering Inclusive Innovation* (pp. 627-635). Routledge.
9. **Lütkepohl, H. (2013).** *Introduction to multiple time series analysis*. Springer Science & Business Media.

10. **Madhavan, A. (2012).** Exchange-traded funds, market structure, and the flash crash. *Financial Analysts Journal*, 68(4), 20-35.
11. **Novotny, J., & Hajek, P. (2026).** A hybrid adaptive trading strategy integrating investor sentiment for precious metal ETFs. *Financial Innovation*, 12(1), 74.
12. **Pandey, P. N. (2025).** ETF Risk-Return, and Price Discovery in Crisis Regimes: Evidence from Indian Markets. *Available at SSRN 5899923*.
13. **Poterba, J. M., & Shoven, J. B. (2002).** Exchange-traded funds: A new investment option for taxable investors. *American Economic Review*, 92(2), 422-427.
14. **Saini, C., Sharma, I., & Verma, B. (2026).** How do ETF splits impact return and liquidity in India? Unveiling the effects through event study. *International Journal of Indian Culture and Business Management*, 37(3), 300-315.
15. **Sims, C. A. (1980).** Macroeconomics and reality. *Econometrica: journal of the Econometric Society*, 1-48.
16. **Vaidheeswaran, S. (2026).** Unlocking Investor Perspectives: Awareness, Perception, And Investment Patterns of Gold ETFS in Puducherry.
17. **Yeniley, U. (2025).** The role of gold ETFs in market stability, price discovery, and economic dynamics during crises. *Asian Journal of Economics, Business and Accounting*, 25(1), 60-74.