

Investigating the Impact of Investor Sentiment and Volatility on Investment Behavior in the Gold Market

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Abstract:

Background and Aim: The gold market has emerged as a prominent financial sector in Iran, attracting numerous investors since its inception in recent years. Consequently, a thorough understanding of investor behavior within this market is essential for informed decision-making and effective policy formulation. This study aims to investigate whether variables such as investor sentiment and volatility influence investor behavior in the gold market.

Methods: This study employs a quantitative methodology to explore the research topic. A cross-sectional survey design was utilized to gather primary data from individual investors in the gold market. Participants were 384 individual investors participating in the gold market. Data collection regarding investor sentiment and investment behavior was carried out using a structured questionnaire. Furthermore, the study assessed the volatility of the gold market by calculating the standard deviation of daily returns over a one-month period. The structural equation modeling approach was utilized for data analysis.

Results: The findings reveal that investment sentiment exerts a considerable influence on investment behavior, evidenced by a T-value of 5.553. Furthermore, investment sentiment was determined to have a significant effect on volatility, as indicated by a T-value of 5.394. Lastly, volatility was found to impact investment behavior, with a T-value of 6.475. The model fit statistics indicate that the research model exhibits a satisfactory fit.

Conclusion: Additionally, the research identified a persistence in both market volatility and the sentiment index, indicating a direct relationship between sentiment and excess market returns. These results imply that investors perceive the market as weakly efficient, suggesting that the efficient market hypothesis may not adequately account for the behaviors observed in emerging markets, such as the gold market.

Keywords: Investment, sentiment, volatility, investor, gold

Introduction

Achieving sustained and long-term economic growth necessitates the effective mobilization and allocation of resources at the national level, which is contingent upon the support of financial markets, particularly a comprehensive and efficient capital market. In a robust economy, an efficient financial system is crucial for the equitable distribution of capital and financial resources (Chen et al. 2021). Financial markets are typically

characterized as a framework comprising individuals and institutions, instruments, and processes that facilitate the interaction between savers and borrowers. While discussions surrounding behavioral aspects in investment and finance have a long history, these conversations have evolved into a distinct field of study over the past three decades (Balcilar et al. 2017). The collapse of the stock market bubble in the late 1990s in the United States underscored the necessity of comprehending the irrational behaviors exhibited by investors, leading to the emergence of concepts such as "normal" versus "rational" individuals. In the context of behavioral finance, "normal" individuals refer to the actual behaviors observed in economic decision-making. Human beings exhibit various behavioral tendencies and biases, with individuals experiencing these biases to differing extents, some of which are readily apparent in everyday actions (Hapau, 2023).

Traditional financial theories posit that the valuation of any financial asset is determined by the present value of its anticipated future cash flows. When new information regarding future earnings becomes available, investors are expected to adjust their evaluations accordingly, leading to price fluctuations that align with the asset's intrinsic value (Maitra & Dash, 2017). Consequently, any discrepancies between market price and intrinsic value are anticipated to be swiftly corrected. However, various phenomena observed in financial markets, including the January effect, specific day-of-the-week effects, and significant price volatility, challenge the explanatory power of these conventional theories (Piñeiro-Chousa et al. 2018). In response, researchers in behavioral finance have sought to elucidate these anomalies by integrating psychological insights and theories from other fields. A key finding from behavioral finance is that human emotions and cognitive biases significantly influence decision-making processes, particularly in the context of investment choices. The emergence of price bubbles, market crashes, and financial crises serves as compelling evidence of the impact of emotional factors on investor behavior. Emotions such as fear and exuberance can distort investors' perceptions, resulting in atypical market reactions (Qadan & Nama, 2018).

Financial experts currently discuss the influence of psychological factors on investors and their effects on financial markets. An individual's mental condition and emotional state significantly affect decision-making processes, particularly regarding investment choices within these markets (Güler, 2023). Emotions are pivotal in shaping decisions, often leading investors to favor either rationality or emotional responses in their investment strategies. The presence of stock market bubbles, crashes, and financial crises serves as significant evidence of the impact of emotions on investor decision-making processes. Emotional factors, including fear and enthusiasm, can distort investors' perceptions, leading to atypical responses in their trading behavior (Diaconășu et al. 2022). A core principle of behavioral finance posits that investors, driven by emotions, actively participate in financial markets, and that these emotions play a crucial role in shaping their investment choices. The behavioral perspective on market identity posits that investors operate under a framework of normal human behavior rather than rationality (Niu et al. 2023). This approach highlights that systematic biases in investor preferences lead them to engage in transactions influenced by non-fundamental information, often referred to as "emotions." The model of irrational traders illustrates how these non-fundamental influences can systematically impact market prices (Raza et al. 2016). Numerous studies have established a correlation between sentiment indices, returns, and volatility. According to this theory, the fluctuations in asset prices may be attributed to the rise of non-fundamental information driven by investor sentiment, whereby irrational traders exert influence over asset price levels. Alterations in investor sentiment distinctly influence volatility within financial markets. In essence, fluctuations in investor sentiment—whether positive or negative—exert a considerable impact on volatility, with the repercussions of these changes being particularly pronounced in futures markets. Therefore, comprehending the relationship between investor sentiment, returns, and volatility in financial markets is crucial (Tayar & Aktaş, 2024).

The analysis of financial news and the impact of financial sentiment on market performance is a significant area of scholarly inquiry. Scholars have posited that emotional factors play a crucial role in stock market dynamics and the formation of speculative bubbles. Furthermore, investigations have underscored the relevance of analyzing the sentiment embedded in financial texts as it pertains to investment decisions (Qezelbash et al. 2024). Certain studies have identified a causal relationship between news sentiment and market outcomes, highlighting the critical influence of investor sentiment on market volatility and the emergence of financial bubbles. Additionally, research has pointed to the predictive power of investor sentiment regarding stock returns in the UK market. Other studies have also affirmed the significance of news sentiment in anticipating stock price fluctuations (Su & Li, 2020).

Market volatility denotes the rate and extent of price fluctuations, whether upward or downward, for a particular security or market index within a defined timeframe. Stocks characterized by high volatility are typically regarded as more hazardous investments compared to those with lower volatility, as their price movements are more erratic and uncertain (Ahmed, 2020). Implied volatility reflects the anticipated fluctuations in the market, whereas historical volatility assesses price variations over a specified past duration. In the realm of investment, volatility serves as both a persistent presence and a significant challenge (Bildirici et al. 2022). It fluctuates akin to ocean tides, shaping market perceptions, guiding decision-making processes, and testing the determination of even the

most experienced investors. The 2023 Ernst and Young Global Wealth Research report reveals that younger investors are more inclined to transition to active investments during periods of volatility, with 50% of this demographic increasing their allocations, in contrast to only 22% of baby boomers. Additionally, the study indicates that 40% of wealth management clients perceive an increase in the complexity of managing their wealth over the past two years, while 57% of high-net-worth individuals (HNW) who feel ill-equipped to achieve their financial objectives attribute this sentiment primarily to market volatility (He et al. 2019). Periods characterized by significant volatility frequently evoke a feeling of impending crisis among investors. This perception is substantiated by historical data. The St. Louis Federal Reserve's equity volatility tracker indicates that, with the exception of the post-war recession in the early 1990s, every instance of heightened market volatility has coincided with a prolonged economic decline. This historical pattern serves as a compelling source of anxiety for investors (Niu et al. 2024).

The gold market occupies a distinctive and crucial position within financial markets, serving as a safe haven while also facilitating hedging and diversification strategies. Although there is no theoretical basis for categorizing gold as a safe haven asset, historical data indicates that investment in gold tends to surge during periods of instability in other financial markets (Shahzad et al. 2017). One possible rationale for this phenomenon is that gold has been one of the oldest forms of currency and has historically been utilized as a hedge against inflation. Additionally, gold frequently exhibits low or even negative correlation with various asset classes. This characteristic is particularly significant, as it enables gold to function as a diversification tool within investment portfolios, especially in an increasingly globalized market where correlations among other assets have risen (Smales, 2014). Gold occupies a distinctive position within financial markets, as previously noted. Among all precious metals, it stands out as the most favored investment choice. Investors typically acquire gold as a protective measure or a safe haven in response to various crises, including economic downturns, political instability, social upheaval, or currency devaluation. Such crises may manifest as declines in investment markets, escalating national debt, currency failures, inflation, or even conflicts and civil unrest (Rao & Srivastava, 2013). The pricing of gold, like other commodities, is fundamentally influenced by the dynamics of supply and demand. However, in contrast to other resources, the practices of hoarding and disposal significantly impact price determination, given that a substantial portion of the gold ever extracted remains in existence and can potentially re-enter the market if the price is deemed favorable (Kyriazis et al. 2023). Consequently, due to the vast reserves of gold relative to its annual production, fluctuations in gold prices are predominantly driven by shifts in market sentiment rather than variations in actual yearly output. Also, the gold market has emerged as a prominent financial sector in Iran, attracting numerous investors since its inception in recent years. Consequently, a thorough understanding of investor behavior within this market is essential for informed decision-making and effective policy formulation. This study aims to investigate whether variables such as investor sentiment and volatility influence investor behavior in the gold market.

Methods

This study employs a quantitative methodology to explore the research topic. A cross-sectional survey design was utilized to gather primary data from individual investors. This approach was deemed suitable as it enables the efficient collection of data from a substantial number of respondents within a brief timeframe. Moreover, it offers a structured framework for evaluating the constructs under examination. The research implemented a non-probability sampling method, specifically purposive sampling, to select a sample of 384 individual investors participating in the gold market. This sampling strategy was justified as it allowed for the identification of participants who met the predetermined inclusion criteria. Data collection regarding investor sentiment and investment behavior was carried out using a structured questionnaire, which was crafted following a comprehensive review of the relevant literature. The questionnaire consisted of two separate sections, with the first section aimed at collecting demographic information about the participants, including gender, age, income, education level, occupation, and investment experience. The second section focused on gathering data related to investor sentiment and investment behavior. A 4-item questionnaire was utilized to measure investor sentiment, employing a 7-point Likert scale ranging from completely disagree to completely agree. This scale was a modified version of the "Impulsive Buying Questionnaire" developed by Darrat et al. (2016). The reliability of this instrument was assessed, resulting in a Cronbach's alpha of 0.92. Additionally, a distinct 4-item questionnaire was used to evaluate investment decision-making, also scored on a 7-point Likert scale from completely disagree to completely agree, with reliability analysis indicating a Cronbach's alpha of 0.94. Furthermore, the study assessed the volatility of the gold market by calculating the standard deviation of daily returns over a one-month period. SPSS-27 and Lisrel software were employed for data analysis. A Pearson correlation test was performed to evaluate the relationships among the variables. Additionally, the structural equation modeling approach was utilized to examine the effects of investor

sentiment and volatility on investment behavior within the gold market. The threshold for statistical significance was established at $P < 0.05$.

Results

The relationships among investor sentiment, volatility, and investment behavior are depicted in Table 1. The results reveal a strong direct correlation between investor sentiment and investment behavior ($P < 0.001$). Furthermore, a direct and significant relationship is observed between volatility and investment behavior ($P < 0.001$). Finally, investor sentiment is also found to be directly and significantly associated with volatility ($P < 0.001$).

Table 1. Results of bivariate relationships between variables

	1	2	3
1. investor sentiment	-		
2. volatility	$r=0.550$ $P<0.001$	-	
3. investment behavior	$r=0.539$ $P<0.001$	$r=0.647$ $P<0.001$	-

Table 2 and Figure 1 illustrate the outcomes derived from the structural equation modeling analysis. The findings reveal that investment sentiment exerts a considerable influence on investment behavior, evidenced by a T-value of 5.553. Furthermore, investment sentiment was determined to have a significant effect on volatility, as indicated by a T-value of 5.394. Lastly, volatility was found to impact investment behavior, with a T-value of 6.475. The model fit statistics, presented in Table 3, indicate that the research model exhibits a satisfactory fit.

Table 2. Results of structural equation modelling

Pat	β	T-value
1 investor sentiment \Rightarrow investment behavior	0.532	5.553
2 investor sentiment \Rightarrow volatility	0.518	5.394
3 volatility \Rightarrow investment behavior	0.620	6.475

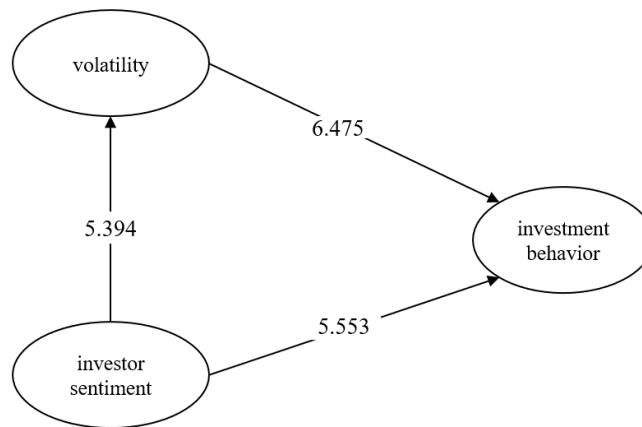


Figure 1. Structural equation modelling in the form of T-values

Table 3. Results of model fit

Index	Optimal Range	Obtained Value	Conclusion
RMSEA	< 0.08	0.07	Good fit
X^2 / df	< 3	2.98	Good fit
RMR	Closer to 0	0.01	Good fit
NFI	> 0.9	0.98	Good fit
CFI	> 0.9	0.98	Good fit

Discussion

The gold market has emerged as a prominent financial sector in Iran, attracting numerous investors since its inception in recent years. Consequently, a thorough understanding of investor behavior within this market is essential for informed decision-making and effective policy formulation. This study aims to investigate whether variables such as investor sentiment and volatility influence investor behavior in the gold market. The findings of this study revealed that investment sentiment exerts a considerable influence on investment behavior. Furthermore, investment sentiment was determined to have a significant effect on volatility. Lastly, volatility was found to impact investment behavior.

To interpret these findings, it can be stated that sentiment plays a pivotal role in shaping market dynamics. According to traditional capital asset pricing model theory, investors are expected to receive compensation commensurate with their risk exposure. Nevertheless, the influence of sentiment on market volatility can introduce uncertainty, potentially resulting in diminished returns. When market participants do not achieve a market risk premium reflective of anticipated volatility, they may withdraw from the market, exacerbating volatility (Smales & Lucey, 2019; Zheng, 2014). This cyclical phenomenon can lead to a bearish market trend and sluggish growth. Analysis of conditional volatility indicates that negative sentiment exerts a more pronounced effect than positive sentiment. This suggests that in times of positive sentiment, investors are more inclined to engage in the market, driven by the prospect of higher returns (Kumari, 2019; Shahvari, 2022). However, this increased participation can lead to speculative behavior and potential overvaluation of assets. Conversely, during periods characterized by negative sentiment, investors tend to retreat from the market due to pessimistic expectations regarding returns. Consequently, it can be posited that in an environment of positive sentiment, companies are more likely to pursue market entry through initial public offerings (IPOs). Additionally, actions such as declaring dividends, issuing bonuses, and rights offerings can further stimulate positive sentiment (Ghumro et al. 2024; Wang & Markellos, 2018).

In addition, the relationship between sentiment and volatility suggests that the influence of price pressure prevails in the market, allowing noise traders to gain advantages during periods characterized by elevated sentiment indices. In this context, sentiment acts as a precursor to volatility. However, as noise traders begin to realize profits, their expectations regarding returns and associated risks tend to rise (Ahmed, 2024; French, 2017). Consequently, this dynamic may not foster a reverse causality in emerging markets due to prevailing information inefficiencies. Alternatively, it can be articulated that when investors exhibit positive irrational sentiment, their expectations for returns also become optimistic (Ferreira et al. 2021). This scenario may incite speculative behavior as investors seek to capitalize on favorable conditions, thereby increasing their investment activity and contributing to market volatility. Conversely, heightened market uncertainty can lead to the withdrawal of market makers and prompt investors to adopt a more passive stance, driven by unpredictable return expectations in a volatile environment. Furthermore, in such circumstances, investors remain vigilant about equilibrium prices influenced by fundamental factors, which reflect the true value of assets (Almeida & Gonçalves, 2023; Smales, 2015).

Market sentiment embodies the emotional and psychological state of the market, as reflected in the price movements and trading activities of the securities within that market. Market sentiment is typically categorized as either bearish or bullish. In a bearish market, where pessimism prevails, stock prices tend to decline (Bahloul & Bouri, 2016; Padungsaksawasdi, 2020). Conversely, in a bullish market, characterized by optimism, stock prices generally rise. It is important to note that market sentiment is driven by emotions, which means it does not always align with fundamental values. While market sentiment is influenced by feelings and passions, fundamental values are grounded in the actual performance of businesses (Cevik et al. 2022; Shaikh, 2021). Investor sentiment refers to the tendency of individuals to engage in trading influenced by emotions and market fluctuations rather than objective data. This sentiment leads investors to develop expectations regarding future cash flows and investment risks that lack a solid foundation. Traditional financial theories present a counterargument to the influence of sentiment, positing that investors act rationally (Gaies et al. 2022; Wang et al. 2024). The underlying premise is that typical traders, seeking to capitalize on profit opportunities arising from mispricing, will effectively mitigate the impact of sentiment. Nevertheless, the effects of sentiment become more pronounced when these ordinary traders are unable to fully exploit such opportunities (Maghyereh et al. 2020; Morema & Bonga-Bonga, 2020).

Conclusion

The findings suggest that heightened investor optimism regarding the potential for excess market returns can lead to increased speculative behavior, prompting investors to allocate even greater resources. Additionally, the

research identified a persistence in both market volatility and the sentiment index, indicating a direct relationship between sentiment and excess market returns. These results imply that investors perceive the market as weakly efficient, suggesting that the efficient market hypothesis may not adequately account for the behaviors observed in emerging markets, such as the gold market. Furthermore, the findings highlight the potential for arbitrage opportunities within the Indian market, thereby challenging the notion of efficient market volatility in that context. This also points to a departure from a random walk model, although accurately forecasting market volatility to achieve excess returns remains a complex challenge.

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