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The Effect of Individual Investors' Personality Characteristics, Past Trading Performance, Stocks with Specific Characteristics, and Gambling Behavior on Individual Investors' Trading Behavior in the Iranian Bear Stock Market

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Abstract

The purpose of this study was to investigate the factors affecting the trading behavior of individual investors in the Iranian bear stock market, with emphasis on personality characteristics, past trading performance, stocks with specific characteristics, and gambling behavior. In terms of purpose, the study was applied, and methodologically it was based on the analysis of trading data using a panel-data model. The initial data were collected for 2,500 individual investors from a brokerage and technology company affiliated with the Iranian capital market over the 2019–2021 period. After data screening, information from 657 investors, comprising 1,314 observations over the two-year period of 2020–2021, was selected for analysis. The data were analyzed using EViews and generalized least squares with random effects. The results showed that age and the AGE2 indicator had negative and significant relationships with investors' trading behavior, whereas investment experience had a positive and significant relationship. The effects of gender and portfolio turnover were not significant. Past trading performance and abnormal stock returns also had positive and significant relationships with trading behavior, while the effects of market value and trading volume were not statistically significant. In addition, gambling behavior had a positive and significant effect on the trading behavior of individual investors. Overall, the findings indicate that, under declining market conditions, investors' trading behavior is influenced not only by individual characteristics, but also by their prior performance, behavioral preferences, and certain stock-specific characteristics. These findings emphasize the importance of a behavioral-finance perspective in analyzing the decisions of individual investors during periods of market decline.

Keywords: individual investors, bear stock market, trading behavior, personality characteristics, past trading performance, gambling behavior.

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1. Introduction

Financial markets are not merely arenas in which rational agents process information and allocate capital; they are also behavioral environments in which individual characteristics, prior experiences, beliefs, emotions, and risk preferences interact with changing market conditions. This behavioral dimension becomes particularly pronounced during bear markets, when sustained price declines, uncertainty, heightened volatility, and the possibility of further losses alter the informational and psychological context in which investment decisions are made. Retail investors may respond to such conditions by reducing market participation, liquidating positions, searching for opportunities to recover previous losses, or shifting toward assets with particular return and risk characteristics. Consequently, explaining individual investors' trading behavior during declining markets requires moving beyond traditional assumptions of homogeneous rationality and considering the combined effects of demographic and personality-related characteristics, previous portfolio performance, stock-specific attributes, and speculative or gambling-related preferences. Recent research has increasingly emphasized that investor behavior during market downturns is shaped by the interaction of personal factors and adverse market circumstances rather than by market information alone (Asadi Zeidabadi et al., 2026; Brooks & Williams, 2022; Xu et al., 2022).

Bear markets provide an especially informative setting for examining retail investor behavior because declining prices expose investors to financial losses, uncertainty, and psychologically salient reference points. Under such conditions, investors may interpret information differently from how they do during stable or rising markets. A negative market environment may intensify loss aversion, encourage extrapolation from recent performance, increase attention to unusual stock returns, and change the willingness to trade. Studies of retail decision-making during periods of elevated volatility indicate that individual investors do not react uniformly to market stress; rather, responses vary according to financial knowledge, investment experience, prior outcomes, and behavioral tendencies (Brooks & Williams, 2022; Kim & Kim, 2023). Evidence specifically focused on bear markets also suggests that the motives driving trading decisions during downturns can differ substantially from those observed in bullish periods, because investors must simultaneously evaluate the possibility of further deterioration and the opportunity to acquire assets at depressed prices (Asadi Zeidabadi et al., 2026; Xu et al., 2022). For this reason, identifying the factors associated with individual trading behavior in bear markets is important not only for behavioral finance theory but also for understanding market participation, liquidity, price adjustment, and the potential amplification of market fluctuations.

The growing importance of retail investors has further strengthened the need to examine how individual-level differences translate into observable trading patterns. Unlike institutional investors, whose decisions are generally constrained by formal mandates, organizational processes, professional risk management systems, and fiduciary responsibilities, individual investors frequently make decisions using a combination of personal experience, market information, expectations, heuristics, and subjective beliefs. Research on extreme market fluctuations has shown that institutional trading behavior itself can change substantially when uncertainty rises, illustrating that market states exert an important influence even on professional investors (Ebrahimnejad et al., 2023). These pressures may be even more consequential for individual investors, who often possess fewer analytical resources and face greater differences in knowledge and investment competence. In high-risk market environments, inexperienced individual investors may depend more heavily on simplified decision rules, observable market cues, and subjective assessments when choosing whether and how to trade (Eshrieh & Joula, 2025). Accordingly, a comprehensive analysis of retail trading behavior should account for both relatively stable investor characteristics and situational variables that become salient under adverse market conditions.

One important group of determinants concerns investors' personal and demographic characteristics. Age, gender, and investment experience have frequently been associated with differences in risk tolerance, financial decision-making, trading intensity, and responses to uncertainty. These variables are not merely descriptive controls; they can reflect broader differences in cognitive processing, accumulated market knowledge, confidence, time horizon, and willingness to bear losses. Personality-related research likewise suggests that individual differences can influence market expectations and investment intentions through psychological beliefs and interpretations of financial information. Personality traits may shape the way investors form expectations, react to extreme beliefs, and extrapolate prior outcomes when assessing future opportunities (Sadeghi Yakhdani et al., 2025). Experimental and machine-learning evidence further indicates that investor personality can contain predictive

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information about investment choices and market-related outcomes, reinforcing the idea that financial behavior is partly rooted in persistent individual characteristics (Nguyen et al., 2023). Therefore, analyzing demographic and personality-related characteristics alongside market variables can provide a more realistic explanation of why investors facing the same market decline may nevertheless behave differently.

Age is particularly relevant because investors at different stages of life may differ in wealth accumulation, investment horizon, tolerance for uncertainty, and exposure to market experience. Younger investors may have longer horizons and may therefore be more willing to tolerate temporary losses, yet they may also possess less experience and engage in more speculative behavior. Older investors may have accumulated greater financial knowledge and experience, but they may also place greater emphasis on capital preservation. Thus, the direction of the relationship between age and trading behavior cannot be assumed a priori and may depend on the broader market environment. Similarly, gender differences have often been linked to differences in risk taking, confidence, and trading frequency, but these effects may become weaker or stronger under severe market stress. Investment experience represents another central individual attribute because repeated exposure to market cycles can influence information processing and emotional responses. Investors who have previously encountered periods of volatility may interpret market declines differently from inexperienced participants and may be more capable of distinguishing temporary fluctuations from fundamental deterioration.

The importance of experience is reinforced by research showing that its effect can be conditional on both the information environment and market state. The usefulness of particular information channels for investment decision-making may vary depending on whether the market is bullish or bearish, and investment experience can moderate the way investors translate information into decisions (Nesrin et al., 2023). Experienced investors may rely more selectively on information, whereas less experienced investors may be more susceptible to prominent signals, recent returns, or persuasive narratives. Financial and investment literacy also appear to influence how retail investors react during market crashes. More knowledgeable investors may be better positioned to assess risk, interpret temporary price movements, and avoid impulsive responses to adverse conditions (Kim & Kim, 2023). These findings suggest that trading experience should be regarded as a substantive determinant of behavior during downturns rather than simply as a background demographic characteristic.

Another potentially important investor characteristic is portfolio turnover, which reflects the intensity with which an investor buys and sells securities. High turnover can indicate active information processing and portfolio rebalancing, but it may also reflect overconfidence, speculative activity, short investment horizons, or attempts to respond rapidly to market changes. In a bear market, turnover may rise as investors seek to reduce losses, reposition portfolios, or exploit perceived short-term opportunities. Conversely, some investors may reduce trading because of uncertainty, transaction costs, or reluctance to realize losses. As a result, the relationship between turnover and net trading behavior is theoretically ambiguous and warrants empirical investigation. This is particularly relevant when turnover is examined jointly with age, gender, and experience because apparently similar levels of trading activity may originate from very different underlying behavioral processes.

Past investment performance represents a second major determinant of subsequent trading behavior. Behavioral finance research suggests that investors do not evaluate new decisions independently of previous outcomes. Prior gains and losses can alter confidence, risk perception, reference points, and expectations about future performance. Investors who have recently earned positive returns may become more confident and willing to increase market participation, whereas those who have experienced losses may either withdraw from the market or take additional risks in an attempt to recover. In declining markets, this path dependence becomes especially important because the probability of investors carrying unrealized or realized losses increases. Stålnacke's evidence that individual investors may engage in gambling-like behavior in an attempt to recoup previous losses illustrates how past outcomes can influence subsequent risk taking (Stålnacke, 2024). This possibility implies that portfolio returns from previous periods may predict current trading behavior even after controlling for demographic characteristics and contemporaneous stock attributes.

The effect of past performance can also be interpreted through expectation formation and extrapolative behavior. Investors often use prior returns as signals regarding their own ability, the attractiveness of their holdings, or the likelihood of future gains. Positive portfolio performance may strengthen confidence in previously adopted strategies and encourage continued trading, while poor performance can lead investors either to reduce exposure or to seek more extreme opportunities. Such behavior is consistent with evidence that personality traits and extrapolative beliefs jointly shape investment intentions and

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expectations (Sadeghi Yakhdani et al., 2025). It is also consistent with broader evidence that individual investors' decisions in volatile markets depend on their interpretation of recent outcomes rather than solely on objective fundamentals (Brooks & Williams, 2022). Thus, prior portfolio performance offers a direct behavioral link between an investor's personal trading history and current market actions.

Beyond investor-specific attributes and past performance, trading decisions may be influenced by the characteristics of individual stocks. Investors do not react to all securities in the same manner; some stocks attract greater attention because they exhibit unusual returns, high turnover, particular size characteristics, or highly salient price movements. Firm-specific investor sentiment can affect the valuation and demand for individual securities, indicating that stock-level perceptions are relevant to market behavior even when aggregate conditions are held constant (Li & Li, 2021). During bear markets, investors may become especially sensitive to signals that distinguish potentially resilient or high-opportunity stocks from the broader declining market. Consequently, abnormal returns, market value, and trading volume may function as informational or attention-related cues that influence the direction of retail trading.

Abnormal returns are especially salient because they represent performance relative to a market benchmark. When the overall market is declining, a stock that performs unusually well may attract individual investors who interpret relative strength as evidence of superior prospects. Conversely, unusually negative performance may stimulate selling or contrarian buying depending on investors' expectations. Such stock-specific return signals may interact with sentiment and recent market narratives, causing investors to focus on securities that deviate sharply from general market movements. Research on investor sentiment demonstrates that firm-level sentiment contains information relevant to stock-market behavior and can be distinguished from broad market sentiment (Li & Li, 2021). Thus, abnormal stock returns may exert an independent influence on retail trading decisions beyond the general effect of a bearish market environment.

Market value and trading volume may also shape investor attention and perceived investment opportunities. Larger firms may be perceived as more stable, better known, or more informationally transparent, whereas smaller firms can be associated with greater uncertainty and greater perceived upside. Trading volume can signal liquidity, investor attention, and disagreement, making heavily traded stocks more visible to retail investors. Advances in artificial intelligence and stock-market prediction have further increased the attention devoted to observable market indicators and the identification of bullish and bearish signals in financial data (Chopra et al., 2024). However, the existence of sophisticated forecasting technologies does not eliminate behavioral heterogeneity among retail investors. Investors may interpret the same market value, return, and volume signals differently depending on their experience and psychological preferences. The empirical relevance of these stock characteristics therefore requires direct assessment within actual retail trading data.

A particularly important behavioral mechanism in this context is investors' preference for lottery-like stocks. Lottery stocks are typically characterized by combinations of low prices, high idiosyncratic volatility, and positive idiosyncratic skewness, creating a small probability of exceptionally large gains. Kumar's seminal research demonstrated that some individual investors systematically prefer such securities and that stock-market participation can contain gambling-like elements (Kumar, 2009). The attraction of lottery-like stocks challenges standard risk-return reasoning because investors may accept unfavorable average characteristics in exchange for the possibility of a highly salient payoff. Subsequent research has continued to examine whether investors effectively "gamble" through the purchase of lottery stocks and has shown that this preference has important implications for retail portfolio choices (Oehler & Schneider, 2022). This behavioral tendency may become even more relevant during market downturns, when conventional return opportunities are limited and some investors may seek securities offering perceived opportunities for rapid recovery.

The relationship between losses and lottery-stock demand is particularly important in bear markets. Investors experiencing recent losses may increase their willingness to take positively skewed risks if they perceive such securities as a way to recover previously lost wealth. Evidence that individual investors may gamble to recoup losses supports the possibility that adverse portfolio outcomes and lottery-stock preferences are behaviorally connected (Stålnacke, 2024). Such behavior is also consistent with the broader view that high-risk investment decisions are influenced by experience, beliefs, and situational pressure rather than by stable risk preferences alone. Oehler and Schneider's examination of gambling through lottery stocks further demonstrates that lottery-like investment behavior can be identified through observable portfolio choices rather than

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being treated solely as a psychological construct (Oehler & Schneider, 2022). Accordingly, incorporating a measure of lottery-stock preference into a model of retail trading provides an opportunity to assess whether gambling-related tendencies contribute to net trading behavior during declining market conditions.

This issue is highly relevant in emerging and developing capital markets, where rapid growth in individual participation, uneven levels of financial literacy, and periods of substantial price fluctuation can increase behavioral heterogeneity. The

Iranian stock market provides a particularly informative setting because it has experienced pronounced bullish and bearish episodes and substantial participation by individual investors. Evidence from the Iranian market has already shown that investor behavior during extreme market fluctuations warrants separate analysis (Ebrahimnejad et al., 2023). Recent studies have also emphasized the need to understand the motivations of individual investors specifically under bear-market conditions (Asadi Zeidabadi et al., 2026) and to develop decision-making frameworks for inexperienced investors exposed to high-risk capital-market environments (Eshrieh & Joula, 2025). However, much of the existing literature tends to examine personality, experience, information processing, stock characteristics, or speculative preferences separately. This fragmentation limits understanding of how these mechanisms jointly influence actual trading behavior.

An integrated empirical framework is therefore necessary. Studies of bear-market behavior have identified the importance of investor-specific motivations and previous experiences (Asadi Zeidabadi et al., 2026; Xu et al., 2022), while research on market crashes has emphasized investment literacy and heterogeneous retail reactions (Kim & Kim, 2023). Other research has demonstrated the role of personality traits, information channels, and investment experience in shaping decisions (Nesrin et al., 2023; Nguyen et al., 2023; Sadeghi Yakhdani et al., 2025). At the same time, stock-level sentiment and observable market characteristics influence the attractiveness of particular securities (Li & Li, 2021), and gambling-related research indicates that preferences for lottery-like stocks constitute a distinct dimension of retail investing (Kumar, 2009; Oehler & Schneider, 2022; Stålnacke, 2024). These streams of research imply that retail trading during market declines is best conceptualized as the outcome of simultaneous influences operating at the investor, portfolio, stock, and behavioral-preference levels.

A further methodological gap concerns the distinction between stated intentions and observed trading behavior. Survey-based studies are valuable for identifying beliefs, expectations, and psychological tendencies, but stated intentions do not always correspond to actual transactions. Transaction-level or investor-level trading records provide a stronger basis for analyzing realized behavior because they capture the direct outcomes of investment decisions. This distinction is particularly important in bear markets, where emotional and financial pressure may cause investors to behave differently from what they would report under hypothetical conditions. Using actual investor trading records also makes it possible to relate personal characteristics and historical portfolio performance to contemporaneous trading outcomes while controlling for observable stock-level attributes. Such an approach complements experimental, survey, and machine-learning studies of investor personality and decision-making (Nguyen et al., 2023) and contributes to the literature on behavior under extreme market conditions (Brooks & Williams, 2022; Ebrahimnejad et al., 2023).

From a practical perspective, identifying the determinants of retail trading behavior can help regulators, brokerages, investor-education providers, and financial institutions better understand which investors are more likely to alter their trading patterns during market downturns. If trading behavior is systematically associated with age, experience, past performance, abnormal returns, or lottery-stock preferences, investor-protection policies and financial education initiatives can be designed more precisely. Likewise, brokerage firms may improve risk communication by recognizing that inexperienced or loss-exposed investors may interpret market signals differently from experienced investors. The increasing use of artificial intelligence in market prediction and investment decision support further raises the importance of distinguishing sophisticated forecasting tools from the behavioral processes through which individual investors actually use market information (Chopra et al., 2024). Understanding these behavioral processes is therefore essential for interpreting retail activity in increasingly data-intensive financial markets.

Taken together, the literature suggests that individual trading behavior in a bear market cannot be adequately explained by any single demographic, financial, or psychological variable. Personal characteristics may influence risk tolerance and

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information processing; investment experience may shape the interpretation of adverse market conditions; previous portfolio performance may create confidence or loss-recovery incentives; stock-specific characteristics may direct investor attention toward particular securities; and lottery-stock preferences may reflect a willingness to pursue highly skewed payoffs. Yet the relative importance of these factors when modeled simultaneously remains insufficiently understood, particularly using actual transaction data from individual investors in the Iranian stock market. Addressing this gap can provide a more comprehensive account of retail behavior during periods in which uncertainty and declining asset prices place unusual pressure on investment decision-making.

The aim of this study is to examine the effects of individual investors' personal characteristics, past trading performance, stock-specific characteristics, and lottery-like gambling preferences on their trading behavior during the bear market of the Iranian stock market.

2. Methods and Materials

In terms of research classification by method, type, and nature, this study was applied, quantitative, descriptive, and ex post facto. The statistical population consisted of individual investors from a large brokerage or technology company associated with the Tehran Stock Exchange. After collection, the required data were classified and summarized using Microsoft Excel, and the research variables were then processed and statistically analyzed using EViews version 11. The data used to test the hypotheses were ex post facto observations organized in investor-period form.

Trading data for individual investors were collected from a large brokerage or technology company associated with the Tehran Stock Exchange. The sample period extended from March 2019 to the end of September 2021. Between March 2019 and late August 2020, the stock market experienced a bull market, during which the stock index increased from approximately 180,000 points to about 2,100,000 points, representing growth of approximately 953%. This was followed by a bear market from late August 2020 to the beginning of 2021, when the index fell to approximately 1,100,000 points. Thereafter, the stock market gradually emerged from the bear market, and the index increased by about 43% from its lowest point to 1,580,000 points by the end of September 2021. Consequently, the dataset can be divided into three periods: (1) a bull-market period from March 2019 to late August 2020, when the stock index reached its historical peak; (2) a declining period from late August 2020 to the beginning of 2021; and (3) a recovery period from the beginning of 2021 to the end of September 2021. This dataset is well suited to the research because it allows examination of how investors trade under different market conditions. For each stock-market trading code, the data provide the following information: (1) investor characteristics, (2) stock holdings, and (3) trading records. All customer profiles include a unique number for each trading code, the account-opening date, date of birth, and gender. Cash-balance data include each investor's daily cash balance after each trading day. Stock-holding data contain information on the securities held and the number of shares, while trading records include trading histories such as (a) transaction date, (b) security traded, (c) number of shares purchased or sold, (d) transaction price, (e) total number of shares after each transaction, and (f) transaction type—purchase or sale. Information on cash balances, stock holdings, and trading records is updated daily. To meet the research objectives, trading codes such as those holding only securities investment funds were excluded. Investors were required to be older than 18 years when obtaining their trading code and to remain active during the sampling period. To ensure data consistency, investors who cancelled their trading codes during the sample period were excluded. In addition to the primary dataset described above, stock-market data were collected from a stock-market database, including daily stock prices, index returns, trading volume, market value, the risk-free rate, and the three Fama–French factors.

To test the research hypotheses, the study used classified financial data from the Tehran Stock Exchange. The required corporate information was also collected using Tadbir Pardaz software, Rahavard Novin, and the official website of the Securities and Exchange Organization.

a) Dependent Variable: Trading Behavior of Individual Investors

The trading behavior of individual investors was measured using the Net Individual Trading (NIT) index. This index is calculated as the difference between the value of purchased shares and the value of sold shares, divided by the total value of each investor's transactions. Accordingly, the index represents the net direction of an investor's trading during the period under study.

$$NIT_{it} = (BUY_{it} - SELL_{it}) / TOTAL\ TRADE_{it}$$

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In this equation, NIT denotes the trading behavior of individual investors (Net Individual Trading index), BUY denotes the value of purchase transactions, SELL denotes the value of sales transactions, and TOTAL TRADE denotes the total value of transactions for investor i in period t.

b) Independent Variables

1. Personality Characteristics of Individual Investors

This variable was operationalized using the following indicators:

Gender (GENDER): A dummy variable coded 1 for male investors and 0 for female investors.

Age (AGE): The investor's age, in years, in the month under examination.

Young Age (AGE2): A dummy variable assigned a value of 1 when the investor is younger than 60 years and 0 otherwise. In the software model output, this indicator is reported as AGE2.

Trading Experience (Investment Experience) (EXPERIENCE): The number of years of an investor's trading experience, calculated as the time interval between the account-opening date and the month under examination.

Portfolio Turnover (TURNOVER): Measured on the basis of average portfolio purchase-and-sale turnover following the method of Barber and Odean (2001).

2. Past Trading Performance (PORTFOLIO_RETURN)

Past trading performance was measured on the basis of the investor's gross portfolio return at the beginning of month t−1. This indicator represents the investor's performance in the preceding trading period and was used to examine the relationship between past performance and trading behavior in the period under study.

3. Stocks with Specific Characteristics

This variable was measured using the following three indicators:

Abnormal Returns (ABNORMAL_RETURNS): Calculated as the difference between the stock return and the market-index return.

Market Value (MARKET_VALUE): Equal to the logarithm of the stock's closing market value one day before the transaction.

Trading Volume (TRADING_VOLUME): Calculated by dividing the stock's trading volume on day t by the number of shares outstanding on the same day.

4. Gambling Behavior (LOTTERYPREFERENCEI)

To measure investors' gambling behavior, Kumar's (2009) method and the criterion for identifying stocks with lottery-like characteristics were used. Under this approach, stocks located in the lowest price percentile and the highest percentiles of idiosyncratic volatility and idiosyncratic skewness are identified as lottery stocks. Accordingly, this indicator was used to measure investors' tendency to hold stocks with lottery-like characteristics.

To examine the effects of the independent variables on the trading behavior of individual investors, a multivariate regression model was used within a panel-data framework. In this model, the trading behavior of individual investors was treated as the dependent variable, while indicators related to personality characteristics, past trading performance, stocks with specific characteristics, and gambling behavior were included as explanatory variables.

Given the structure of the research data and the results of the diagnostic tests, the final model was estimated using a random-effects approach and generalized least squares (Panel EGLS). The general form of the research regression model is as follows:

$$NIT_{it} = \alpha + \beta_1 TURNOVER_{it} + \beta_2 GENDER_{it} + \beta_3 AGE_{it} + \beta_4 AGE2_{it} + \beta_5 EXPERIENCE_{it} + \beta_6 PORTFOLIO_RETURN_{it} + \beta_7 MARKET_VALUE_{it} + \beta_8 TRADING_VOLUME_{it} + \beta_9 ABNORMAL_RETURNS_{it} + \beta_{10} LOTTERYPREFERENCEI_{it} + \mu_i + \varepsilon_{it}$$

In this equation:

NIT_{it}: trading behavior of individual investor i in period t;

α: intercept;

β_1 to β_{10}: coefficients of the independent variables;

μ_i: investor-specific random effect;

ε_{it}: model error term;

i: investor identifier;

t: time-period identifier.

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This study used an econometric model and multivariate regression to examine the factors affecting individual investors in a bear market. Data were analyzed using EViews econometric software and simultaneous multivariate regression with panel data. Based on the results of the diagnostic tests and the tests used to select the appropriate model, a random-effects model was estimated using generalized least squares (EGLS). Before the regression analysis, the Durbin–Watson statistic, Breusch–Pagan test, autocorrelation test, multicollinearity test, Limer F test (Chow test), and Hausman test were examined.

3. Findings and Results

Based on the results in Table 1, the mean trading behavior of individual investors (NIT) was 0.067682, with a standard deviation of 0.788177. The mean portfolio turnover (TURNOVER) was 0.494364. The investors' mean age was 34.56 years, and their mean trading experience was 9.42 years. The mean past portfolio performance was 0.939993. Among the variables related to specific stock characteristics, the mean market value was 4.749402, the mean trading volume was 0.462640, and the mean abnormal return was 1.721272. The mean lottery-stock preference variable (LOTTERYPREFERENCEI) was 0.096071. In this study, this indicator was used to measure investors' tendency toward stocks with gambling-like characteristics.

Table 1. Descriptive Statistics of the Research Variables

Variable	Mean	Median	Maximum	Minimum	Standard Deviation	Skewness	Kurtosis	Observations
NIT	0.067682	0.021867	8.305826	-5.87888	0.788177	2.920796	60.78851	1314
TURNOVER	0.494364	0.495380	5.422658	0.000000	0.299202	3.797955	60.00538	1314
GENDER	0.795282	1.000000	1.000000	0.000000	0.403649	-1.46362	3.142175	1314
AGE	34.55860	34.00000	79.00000	21.00000	11.59976	1.340597	4.823978	1314
AGE2	0.955099	1.000000	1.000000	0.000000	0.207166	-4.39525	20.31820	1314
EXPERIENCE	9.417808	7.500000	42.00000	2.000000	5.946424	1.679002	7.232150	1314
PORTFOLIO_RETURN	0.939993	0.877816	19.05165	-12.8572	5.238713	0.087666	2.726256	1314
MARKET_VALUE	4.749402	4.807050	7.910837	0.477121	1.074458	-0.56826	4.312528	1314
TRADING_VOLUME	0.462640	0.417979	0.993379	-0.21184	0.253804	0.450389	2.171976	1314
ABNORMAL_RETURNS	1.721272	1.251624	70.71748	0.001569	3.474413	14.50505	255.3938	1314
LOTTERYPREFERENCEI	0.096071	0.084778	7.632442	-13.8296	1.328048	-6.8909	81.67747	1314

To examine linear relationships among the independent variables and ensure the absence of severe multicollinearity, the correlation matrix and variance inflation factor (VIF) were evaluated. The correlation matrix showed that the highest observed correlation among the independent variables was between age and trading experience, with a coefficient of 0.464432. The correlation between portfolio turnover and trading volume was 0.419408, and the correlation between age and AGE2 was −0.405673. Overall, the correlation coefficients among the independent variables indicated the absence of very strong linear relationships. For a more precise examination of multicollinearity, centered VIF values were also calculated. The results showed that the highest VIF was for age, at 3.137108. Other values were lower, including 2.599917 for trading experience, 1.644510 for AGE2, and 1.321362 for portfolio turnover. Because the VIF values for the independent variables were below the conventional threshold of 10, there was no evidence of severe multicollinearity among the explanatory variables in the model.

To evaluate the statistical validity of the model and identify potential problems in the error terms, the Breusch–Pagan–Godfrey heteroskedasticity test and the Breusch–Godfrey autocorrelation test were conducted.

In this test, the null hypothesis indicates homoskedasticity of the error terms, whereas the alternative hypothesis indicates heteroskedasticity. The test results are presented in Table 2.

Table 2. Results of the Heteroskedasticity Test

Test Indicator	Value
F-statistic	21.90997
Prob. F-statistic	0.2713
Obs*R-squared	189.1446
Prob. Chi-square	0.1215
Scaled explained SS	3392.152
Prob. Chi-square	0.1028

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Because the probability value of the F-statistic was 0.2713 and the probability values of the chi-square statistics were also greater than the 5% error level, the null hypothesis of homoskedasticity was not rejected. Therefore, the test provided no statistically significant evidence of heteroskedasticity in the model.

The Breusch–Godfrey test was used to examine autocorrelation among the error terms. The null hypothesis of this test indicates the absence of autocorrelation. The results are presented in Table 3.

Table 3. Results of the Breusch–Godfrey Autocorrelation Test

Test Indicator	Value
F-statistic	20.88237
Prob. F-statistic	0.2148
Obs*R-squared	40.87005
Prob. Chi-square	0.1152

Because the probability value of the F-statistic was 0.2148 and the probability value of the chi-square statistic was 0.1152, both values exceeded the 5% significance level. Therefore, the null hypothesis of no autocorrelation was not rejected, and there was no significant evidence of autocorrelation in the model's error terms.

Given the structure of the research data, which included observations for multiple investors across two time periods, the Limer and Hausman tests were used to determine the appropriate model-estimation method.

The Limer test was conducted to determine whether a panel-data approach was more appropriate than a pooled-data approach. The null hypothesis indicates the suitability of pooled estimation, whereas the alternative hypothesis indicates cross-sectional differences and the need for a panel-data model. The results showed an F-statistic of 1.577022 with a significance level of 0.0000. The chi-square statistic was 1255.015952, also with a significance level of 0.0000. Because the significance level was below 0.05, the null hypothesis was rejected. Thus, the panel-data approach was more appropriate than pooled estimation.

After confirming the use of panel data, the Hausman test was applied to select between fixed-effects and random-effects models. The null hypothesis indicates consistency of the random-effects estimator, whereas the alternative hypothesis indicates that the fixed-effects model is more appropriate. The Hausman test results are presented in Table 4.

Table 4. Results of the Hausman Test

Test Indicator	Value
Chi-square statistic	15.253241
Degrees of freedom	10
Significance level	0.1231

Because the Hausman test significance level was 0.1231, which exceeded the 5% error level, the null hypothesis was not rejected. Consequently, the random-effects model was considered more appropriate for estimating the relationships among the research variables. The final model was therefore estimated using generalized least squares for panel data with cross-sectional random effects.

After the diagnostic tests and selection of the appropriate estimation method, the research model was estimated using Panel EGLS with cross-sectional random effects. The estimation used data from 657 individual investors across the two calendar years 2020 and 2021, yielding a total of 1,314 observations. The regression results are presented in Table 5.

Table 5. Results of the Research Regression Model

Variable	Coefficient	t-statistic	Significance Level	Result
TURNOVER	0.008289	0.157868	0.8746	Not significant
GENDER	-0.048026	-1.416527	0.1569	Not significant
AGE	-0.006101	-2.736846	0.0063	Significant
AGE2	-0.410411	-4.613860	0.0000	Significant
EXPERIENCE	0.035477	8.949935	0.0000	Significant
PORTFOLIO_RETURN	0.031838	12.739590	0.0000	Significant
MARKET_VALUE	0.017600	1.336746	0.1815	Not significant
TRADING_VOLUME	-0.005263	-0.082529	0.9342	Not significant
ABNORMAL_RETURNS	0.145758	35.305000	0.0000	Significant
LOTTERYPREFERENCEI	0.216441	20.586550	0.0000	Significant
Intercept (C)	-0.012275	-0.085069	0.9322	Not significant

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Based on the results in Table 5, the estimated coefficients show that some independent variables have significant effects on the trading behavior of individual investors, whereas the effects of other variables are not statistically significant. The results for each group of research variables are examined below.

a) Effect of Investors' Individual and Personality Characteristics on Trading Behavior

The model-estimation results show that age (AGE) had a negative coefficient of −0.006101 and a significance level of 0.0063. Thus, investors' age had a negative and significant relationship with their trading behavior. In addition, AGE2, defined as a dummy indicator distinguishing investors younger than 60 years, had a negative coefficient of −0.410411 and a significance level of 0.0000. This result indicates a negative and significant relationship between this indicator and investors' trading behavior. By contrast, trading experience (EXPERIENCE) had a positive coefficient of 0.035477 and a significance level of 0.0000, indicating a positive and significant relationship with investors' trading behavior. Gender (GENDER) and portfolio turnover (TURNOVER), with coefficients of −0.048026 and 0.008289 and significance levels of 0.1569 and 0.8746, respectively, did not have significant effects on the dependent variable. Overall, the coefficient of the first indicator of the independent variable representing individual investors' personality characteristics (GENDER) on individual investors' trading behavior (NIT) was −0.048026, and the corresponding test statistic was −1.416527. Its absolute value was smaller than the critical value of 1.96 at the 5% error level, indicating that the observed coefficient was not significant. The significance value of 0.1569 was also greater than 0.05, confirming the lack of statistical significance.

b) Effect of Past Trading Performance on Investors' Trading Behavior

The coefficient of past portfolio performance (PORTFOLIO_RETURN) was 0.031838, with a significance level of 0.0000. The positive and significant coefficient indicates that past trading performance had a positive and significant relationship with the trading behavior of individual investors. In other words, changes in past portfolio performance were accompanied by changes in investors' trading behavior during the period under examination.

c) Effect of Stocks with Specific Characteristics on Investors' Trading Behavior

Among the variables related to specific stock characteristics, abnormal stock returns (ABNORMAL_RETURNS) had a positive coefficient of 0.145758 and a significance level of 0.0000. Thus, abnormal returns had a positive and significant relationship with investors' trading behavior.

By contrast, market value (MARKET_VALUE), with a positive coefficient of 0.017600 and a significance level of 0.1815, and trading volume (TRADING_VOLUME), with a negative coefficient of −0.005263 and a significance level of 0.9342, did not have significant effects on investors' trading behavior. Therefore, among the indicators used to measure specific stock characteristics, only abnormal returns had a statistically significant relationship with investors' trading behavior.

d) Effect of Gambling Behavior on Investors' Trading Behavior

The model-estimation results show that the lottery-stock preference variable (LOTTERYPREFERENCEI) had a positive coefficient of 0.216441 and a significance level of 0.0000. This result indicates a positive and significant relationship between a preference for stocks with lottery-like characteristics and the trading behavior of individual investors. Thus, an increase in this indicator was associated with an increase in the trading-behavior variable. Within the operational definition used in this study, however, this indicator reflects a tendency toward lottery-like stocks and should not be interpreted as equivalent to a psychological or clinical diagnosis of gambling behavior.

To evaluate the explanatory power of the model and the overall significance of the relationship between the independent and dependent variables, the coefficient of determination, adjusted coefficient of determination, and F-statistic were examined. The estimated model produced an R-squared value of 0.601862 and an adjusted R-squared value of 0.598807. Accordingly, the independent variables included in the model explained approximately 60.18% of the variation in the trading behavior of individual investors.

The F-statistic was 196.9738, with a significance level of 0.0000. This result indicates that the regression model was statistically significant overall and that the independent variables collectively had significant explanatory power for investors' trading behavior. The Durbin–Watson statistic was 2.006238.

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4. Discussion and Conclusion

The findings of the present study provide a multidimensional explanation of individual investors' trading behavior during a bear market by demonstrating that demographic characteristics, investment experience, past portfolio performance, stock-specific attributes, and lottery-stock preferences do not contribute equally to trading decisions. The estimated model was statistically significant overall, with an R^2 of 0.601862 and an adjusted R^2 of 0.598807, indicating that approximately 60.18% of the variation in individual investors' trading behavior was explained by the variables included in the model. The F-statistic of 196.9738 with a significance level of 0.0000 further confirmed the joint explanatory power of the model. At the individual-characteristics level, age and the AGE2 indicator had negative and statistically significant relationships with trading behavior, whereas investment experience showed a positive and significant relationship. Gender and portfolio turnover were not statistically significant. Past portfolio performance had a positive and significant coefficient, indicating that favorable previous trading outcomes were associated with stronger current trading behavior. Among stock-specific characteristics, abnormal returns showed a positive and significant association with trading behavior, while market value and trading volume were insignificant. Finally, lottery-stock preference exhibited a positive and highly significant relationship with trading behavior. Taken together, these results suggest that individual investors in a declining market are influenced more strongly by accumulated experience, prior outcomes, salient abnormal performance, and speculative preferences than by gender, portfolio turnover, firm size, or contemporaneous trading volume.

The negative relationship between age and trading behavior is an important finding because it suggests that trading activity and net trading orientation decline as investors become older. The estimated coefficient for AGE was −0.006101 with a significance level of 0.0063, while the AGE2 indicator also showed a negative and statistically significant coefficient of −0.410411. These findings indicate that age-related differences are not merely incidental characteristics but may reflect systematic variation in risk tolerance, behavioral responsiveness, and market participation. Younger investors may be more willing to alter their portfolios, respond to short-term signals, and engage in active trading during declining market conditions, whereas older investors may place greater emphasis on capital preservation and be more cautious when faced with uncertainty. This interpretation is broadly consistent with evidence showing that retail investors differ substantially in their reactions to market crashes and periods of heightened uncertainty (Brooks & Williams, 2022; Kim & Kim, 2023). It also aligns with the broader behavioral-finance argument that investor characteristics influence responses to adverse market states rather than merely determining long-run portfolio preferences (Asadi Zeidabadi et al., 2026; Xu et al., 2022). The result is also compatible with evidence that personality-related and individual-level characteristics can predict differences in financial behavior and market-related outcomes (Nguyen et al., 2023).

The negative effect of AGE2 should also be interpreted in conjunction with the specific operationalization of the variable. In the study, AGE2 identified investors below 60 years of age. Its negative coefficient suggests that belonging to this younger category was associated with a lower value of the net individual trading index after controlling for the other explanatory variables. This result highlights the complexity of age effects and suggests that age may operate nonlinearly or differently depending on the definition of the trading-behavior measure. In other words, younger investors may be more active in some respects while displaying a different balance between purchases and sales in net terms. Previous research indicates that investor responses during bear markets are heterogeneous and conditioned by personal attributes, financial competence, and perceived market opportunities (Kim & Kim, 2023; Xu et al., 2022). Therefore, the present age findings reinforce the need to avoid reducing age effects to a simple assumption that younger investors always trade more aggressively. The direction of net trading depends on how demographic factors interact with market conditions, prior returns, and stock-selection preferences.

In contrast to age, investment experience had a positive and highly significant relationship with trading behavior. The coefficient for EXPERIENCE was 0.035477 with a significance level of 0.0000, indicating that investors with longer trading histories exhibited a stronger net trading response during the study period. This finding supports the view that experience may increase investors' willingness and ability to act under adverse market conditions. Experienced investors are more likely to have encountered previous cycles of volatility and may possess greater familiarity with price corrections, liquidity changes, and temporary market dislocations. As a result, they may be less likely to withdraw completely from the market during downturns and more likely to perceive declining prices as opportunities for active portfolio adjustment. This interpretation is consistent with findings showing that investment experience moderates the influence of information channels on investment

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decisions across different market conditions (Nesrin et al., 2023). It also aligns with evidence that investment literacy and knowledge affect how retail investors respond to crashes (Kim & Kim, 2023). In high-risk capital-market environments, experience can reduce uncertainty associated with unfamiliar conditions and enable investors to rely on accumulated knowledge rather than react solely to short-term fear or market noise (Eshrieh & Joula, 2025).

The positive role of experience may also be understood in terms of confidence and information processing. Repeated market participation can improve familiarity with brokerage systems, order execution, portfolio evaluation, and the interpretation of market indicators. Experienced investors may therefore be more capable of distinguishing between broad market deterioration and stock-specific opportunities. Evidence from studies of individual decision-making indicates that investment choices are affected by the interaction between personal characteristics and informational environments (Nesrin et al., 2023; Nguyen et al., 2023). Moreover, studies conducted under extreme market fluctuations suggest that investor behavior changes when market uncertainty rises, and accumulated experience may become especially valuable under such conditions (Ebrahimnejad et al., 2023). The present findings therefore extend this literature by showing that experience remains positively associated with actual trading behavior after accounting for age, gender, portfolio turnover, previous portfolio return, stock-specific characteristics, and lottery preferences.

Gender, by contrast, did not have a statistically significant effect on trading behavior. The coefficient for GENDER was −0.048026 with a significance level of 0.1569. This result suggests that, after controlling for other personal, financial, and stock-related factors, male and female investors did not differ significantly in their net trading behavior during the bear-market period. Although gender is frequently associated with differences in risk attitudes and financial decision-making in the broader literature, such differences may become less relevant when investors are simultaneously exposed to strong common market pressures. In a pronounced declining market, shared signals such as losses, abnormal returns, and expectations of recovery may dominate demographic differences. The result is compatible with the broader conclusion that market-state effects and individual behavioral mechanisms can interact in complex ways and that demographic variables alone may have limited explanatory power when richer behavioral variables are included (Brooks & Williams, 2022; Xu et al., 2022). Similarly, studies emphasizing personality, expectations, and behavioral beliefs suggest that psychological and experiential factors may provide more direct explanations of investment intentions than simple demographic categories (Sadeghi Yakhdani et al., 2025).

Portfolio turnover was also statistically insignificant, with a coefficient of 0.008289 and a significance level of 0.8746. This finding indicates that the intensity of buying and selling activity was not independently associated with the net direction of trading behavior once the remaining variables were considered. This distinction is conceptually important because portfolio turnover captures how frequently or intensively an investor trades, whereas the net individual trading index reflects the relative balance between purchases and sales. An investor may therefore engage in frequent transactions without systematically increasing or decreasing net exposure. The lack of significance suggests that trading intensity by itself does not adequately explain the direction of investor behavior in a bear market. Instead, the reasons behind trading—such as prior gains, perceived abnormal opportunities, experience, or speculative preferences—appear to matter more. This interpretation is consistent with evidence that retail decision-making during volatile markets is shaped by context, beliefs, and prior outcomes rather than by activity levels alone (Asadi Zeidabadi et al., 2026; Brooks & Williams, 2022).

One of the clearest findings of the study was the positive and statistically significant relationship between past portfolio performance and current trading behavior. The coefficient for PORTFOLIO_RETURN was 0.031838 with a significance level of 0.0000. This indicates that stronger previous portfolio performance was associated with a higher net trading orientation in the subsequent period. Such a result supports the behavioral-finance proposition that investors do not make decisions independently of prior outcomes. Positive past returns may increase confidence, reinforce existing investment beliefs, and encourage continued participation in the market. Investors who have experienced favorable performance may perceive their previous decisions as evidence of skill and may consequently become more willing to trade even in adverse market conditions. This interpretation is consistent with research showing that past outcomes can shape subsequent risk taking and that investors may alter their behavior in response to gains and losses (Stålnacke, 2024). It is also supported by evidence that extrapolative beliefs and investor expectations mediate the effect of personality traits on investment intentions (Sadeghi Yakhdani et al., 2025).

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The positive effect of previous portfolio performance may also reflect reinforcement learning and return extrapolation. Investors often place disproportionate weight on recently experienced outcomes when forming expectations about future opportunities. During bear markets, investors with favorable prior performance may believe that they are better positioned to identify mispriced securities or may interpret recent success as confirmation of their strategy. Conversely, investors who have experienced poor performance may become more cautious or may reduce market exposure. Research on investor behavior during market downturns emphasizes that earlier experiences influence how individuals perceive opportunities and risks (Asadi Zeidabadi et al., 2026; Xu et al., 2022). However, the relationship between prior losses and subsequent behavior may not always be one of withdrawal, because some investors may increase risk taking in an attempt to recover losses. Evidence that investors sometimes gamble to recoup previous losses demonstrates that past performance can influence subsequent trading through multiple behavioral pathways (Stålnacke, 2024). Thus, the positive coefficient observed in the present study is consistent with the general proposition that previous performance constitutes an important state variable in individual decision-making.

Among stock-specific characteristics, abnormal returns had a strong positive and statistically significant relationship with investor trading behavior. The estimated coefficient for ABNORMAL_RETURNS was 0.145758, with a significance level of 0.0000. This finding suggests that individual investors were especially responsive to stocks that outperformed or underperformed the market benchmark. In a declining market, abnormal performance may be particularly salient because it distinguishes individual securities from the prevailing negative trend. Stocks generating relatively favorable returns can attract investor attention and may be interpreted as signals of resilience, superior prospects, or temporary mispricing. This result is consistent with the literature showing that firm-specific sentiment and stock-level information influence individual security demand (Li & Li, 2021). It also corresponds with the broader importance of market signals in identifying bullish and bearish opportunities in contemporary financial markets (Chopra et al., 2024). The finding indicates that even during broad market downturns, individual investors continue to differentiate among securities rather than responding exclusively to aggregate market direction.

The significance of abnormal returns also highlights the possible role of attention-driven trading. Retail investors face substantial information-processing constraints and may therefore focus disproportionately on visible and salient signals. Large deviations from market performance are likely to attract attention because they stand out from the broader price pattern. This can motivate buying when investors perceive positive abnormal returns as indicators of momentum or superior quality, or selling when negative abnormal returns are interpreted as evidence of continued deterioration. Research on firm-specific investor sentiment supports the proposition that security-level perceptions can affect market behavior independently of aggregate sentiment (Li & Li, 2021). The present results therefore suggest that abnormal performance operates as a particularly influential stock-level cue in the investment decisions of individuals during declining markets.

By contrast, market value did not have a statistically significant effect on trading behavior. The coefficient for MARKET_VALUE was 0.017600 with a significance level of 0.1815. This indicates that firm size, as proxied by market capitalization, did not independently influence the net trading behavior of individual investors. One possible explanation is that during a pronounced bear market, investors may place greater weight on recent performance, perceived recovery potential, and short-term opportunities than on firm size itself. Although large firms may typically be associated with greater visibility and liquidity, these attributes may not be sufficient to determine the direction of retail trades once abnormal returns and speculative preferences are taken into account. Similarly, TRADING_VOLUME had a coefficient of −0.005263 and a significance level of 0.9342, showing no statistically significant relationship with trading behavior. This suggests that aggregate stock turnover was not independently informative for the net trading decisions of investors in the sample. Although volume can indicate attention or liquidity, it may be less influential than return-based signals during a falling market.

The insignificant effects of market value and trading volume are theoretically informative because they suggest that not all observable stock characteristics carry equal behavioral salience. While size and volume are standard market indicators, they may operate primarily as contextual variables rather than direct drivers of retail trading decisions. Investors may interpret abnormal returns more readily because return information is directly connected to potential gains and losses. In contrast, market capitalization and volume require additional interpretation and may therefore have weaker behavioral effects, particularly among less sophisticated investors. This distinction is consistent with research emphasizing that financial decision-making

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depends not merely on the availability of information but on the way investors process and prioritize different types of information (Eshrieh & Joula, 2025; Nesrin et al., 2023). The increasing sophistication of predictive technologies does not necessarily imply that individual investors give equal weight to all market indicators (Chopra et al., 2024). The current findings indicate that abnormal performance is more behaviorally consequential than size or volume in explaining net retail trading.

The strongest behavioral finding concerns lottery-stock preference. LOTTERYPREFERENCEI had a positive coefficient of 0.216441 and was statistically significant at the 0.0000 level. This result demonstrates that investors with stronger preferences for lottery-like stocks exhibited more pronounced net trading behavior. The finding is strongly consistent with Kumar's foundational argument that some individual investors effectively use the stock market as a venue for gambling by disproportionately selecting securities with lottery-like payoff distributions (Kumar, 2009). Such stocks typically offer a small probability of very large gains, making them attractive to investors who value positive skewness despite unfavorable average risk-return characteristics. Subsequent research has confirmed that investment in lottery-like stocks can reflect gambling-oriented behavior and is particularly relevant among retail investors (Oehler & Schneider, 2022).

The positive relationship between lottery-stock preference and trading behavior may become particularly strong in bear markets because declining asset values increase the psychological appeal of rapid wealth recovery. Investors who have experienced losses may become more willing to accept high volatility if a stock offers a perceived possibility of an exceptional payoff. This interpretation is directly aligned with evidence that individual investors may gamble in order to recoup losses (Stålnacke, 2024). Under conditions of market distress, conventional investment opportunities may appear less attractive, while low-priced and highly skewed stocks can offer psychologically salient recovery possibilities. The result also supports the broader argument that bear-market trading cannot be explained exclusively by rational risk-return calculations. Motivational and psychological factors play a meaningful role in determining which securities investors select and how they adjust their portfolios (Asadi Zeidabadi et al., 2026; Xu et al., 2022). The present findings therefore extend the gambling-preference literature by showing that lottery-stock preference remains a powerful explanatory variable even after controlling for demographic characteristics, experience, past portfolio performance, and conventional stock attributes.

More broadly, the combined findings support a behavioral and context-dependent interpretation of individual trading during bear markets. The significant effects of age, investment experience, previous portfolio performance, abnormal returns, and lottery-stock preference demonstrate that trading decisions are shaped by an interaction between who the investor is, what the investor has recently experienced, which stocks attract attention, and how strongly the investor is drawn to speculative payoffs. This pattern is consistent with research emphasizing the heterogeneity of retail investors under market stress (Brooks & Williams, 2022; Kim & Kim, 2023). It also supports findings that individual characteristics and personality-related factors can predict financial decisions (Nguyen et al., 2023; Sadeghi Yakhdani et al., 2025). At the same time, the insignificant effects of gender, turnover, market value, and trading volume indicate that some conventional demographic and market variables have limited explanatory value once more behaviorally relevant variables are incorporated into the same model.

The findings also contribute to the specific literature on bear-market behavior by demonstrating that adverse market conditions do not produce uniform withdrawal from the market. Instead, experienced investors, investors with stronger prior performance, and investors attracted to abnormal or lottery-like return opportunities may remain actively engaged. This is consistent with evidence that individual investors may interpret downturns as both threats and opportunities depending on their motivations and prior experiences (Asadi Zeidabadi et al., 2026; Xu et al., 2022). The results further emphasize that decision-making under market stress is heterogeneous and that models of retail trading should incorporate investor characteristics, historical performance, and behavioral preferences simultaneously rather than examining them in isolation.

The present study has several limitations that should be considered when interpreting its findings. First, the analysis was based on transaction records obtained from a specific brokerage or capital-market technology company and therefore may not fully represent all individual investors in the Iranian stock market. Second, although the dataset included 657 investors and 1,314 observations, the final panel covered only two annual periods, which limits the ability to examine longer-term behavioral dynamics and changes across multiple market cycles. Third, several psychological constructs were inferred from observed trading behavior rather than measured directly through validated psychometric instruments. In particular, the lottery-stock

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preference indicator captures an observable tendency to trade lottery-like securities and should not be interpreted as a clinical or psychological diagnosis of gambling behavior. Fourth, the model included several important demographic, portfolio, and security-level variables but could not control for all potentially relevant factors, such as income, education, financial literacy, household wealth, risk tolerance, investment objectives, social influence, emotional state, and access to financial advice. Finally, the observational nature of the data does not permit definitive causal conclusions, even though panel-data estimation and diagnostic tests were used to strengthen the robustness of the statistical analysis.

Future research should extend the present analysis by using larger and more diverse samples obtained from multiple brokerage firms and by covering longer periods that include several bull, bear, and recovery phases. Longitudinal designs would make it possible to determine whether the relationships identified in this study remain stable across changing market regimes or become stronger during periods of extreme volatility. Future studies could also combine transaction-level records with survey or experimental data in order to measure financial literacy, personality traits, overconfidence, risk tolerance, loss aversion, sensation seeking, regret, and gambling propensity directly. Examining interaction effects would also be valuable, particularly whether age, experience, or financial literacy moderate the influence of previous losses, abnormal returns, and lottery-stock preferences. Additional research could compare individual and institutional investors, examine differences between short-term traders and long-term investors, and test nonlinear relationships between age, experience, prior performance, and trading intensity. Cross-country comparisons could further determine whether the observed relationships are specific to the institutional and behavioral characteristics of the Iranian capital market or generalize to other emerging and developed markets.

From a practical perspective, the findings indicate that brokerage firms, regulators, financial educators, and investor-protection authorities should pay greater attention to behavioral heterogeneity during market downturns. Investor education programs should emphasize the risks associated with extrapolating from recent portfolio performance, reacting excessively to abnormal short-term returns, and pursuing lottery-like stocks as a means of recovering losses. Brokerages could provide clearer risk disclosures and decision-support tools when clients concentrate their portfolios in highly volatile and positively skewed securities. Educational interventions may also be differentiated according to investment experience, because inexperienced investors may require more guidance regarding the interpretation of market signals, while experienced investors may benefit from tools that reduce overconfidence and excessive reliance on past success. Regulators should also monitor retail concentration in lottery-like securities during severe market declines, particularly where such activity may amplify volatility. More broadly, market participants should recognize that retail trading behavior during bear markets is influenced not only by objective financial indicators but also by investors' accumulated experiences, prior outcomes, and preferences for speculative payoffs.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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