ImpactofGreed,OverconfidenceandHerdingonInvestorsFinancialBehavior Mediatedby Calendar Anomalies

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ABSTRACT

This study examines the impact of behavioral biasesoverconfidence, greed, and herding behavior—on investors' financial decisions, with a focus on the mediating role of calendar anomalies in Pakistan's stock market. Using a quantitative research design, data was collected from investors across Lahore, Islamabad, and Karachi through structured questionnaires. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the direct and indirect effects of these psychological factors on financial behavior.The results reveal that ***greed*** *has the strongest direct influence on financial behavior (β = 0.993, p < 0.001), followed by* ***overconfidence*** *(β = 0.599, p < 0.001),while* ***herding behavior*** *exhibits a weaker but still significant effect (β = 0.146, p = 0.045). Additionally,* ***calendar anomalies*** *significantly mediate these relationships, particularlyforherding behavior (β=0.226, p< 0.001), suggesting that seasonal market trends amplify the impact of psychological biases. The study also confirms robust reliability and validity for all constructs, though calendar anomalies show marginally lower internal consistency (Cronbach's α = 0.767).These findings underscore the critical role of behavioral finance in shaping investment decisions, highlighting the need for investor education programs that address cognitive biases and market anomalies. The study contributes to behavioral finance literature by integrating psychological factors with market seasonality, offering practical insights for investors, financial advisors, and policymakers. Future research could explore additional mediating variables, such as risk perception, to further elucidate these dynamics.*

Keywords: *Behavioral finance, Overconfidence, Greed, Herding behavior, Calendar anomalies, Investor psychology, PLS-SEM, Pakistan stock market.*

1 INTRODUCTION:

Stockexchange marketsare volatileand oftenspiralout ofcontrol.Suchvolatilityisattributedto investor greed, herd behavior, and overreactions. Singhal, J. (2023) describe greed guides the investortopromisingreturnswhilesidelningrisk mitigation.Squaringthisoffisherding. Rather thanconductinganindependentevaluation,investorsmimiceachother,thinkingtheyhavea

collectiveresponsibility. Suchherd behavior can createtrendsthat eventuallyresult inbubblesor reversals in the market. Another layer to this already strong sauce is the investor's overconfidence. Such confidence ignites a strong overestimation of an investment which places one into a disadvantageous decision. Ayoub&Balawi, (2022) explained What has to be noted is that the economic activityofan individualincluding investment behavior is a result ofa series of events including greed, herd behavior, and overconfidence. Because of this, human psychologyinleaves theneed for acquisitionof better understandingofitbecomes allthe moreapparent.The concepts of the insatiable investors as well as the effects they have on the market conduct are some of the foundations of finance and economics. That is correct, the beast has a name – greed and it is one ofthe most powerful human feelings that can tremendously influence the investor's decisionmaking, hence, market conduct. Hoyer et al.(2024)Greed ininvestmentsisconsidereda disease in which a sophisticated thirst for profits forces the investor to forget about risk and money management. Greedy investors are individuals and entities who are in a position to amass any wealth within no time frame because they are willing to take in any risks and definitely get the highest returns. They risk a great deal in order to gain a great deal because it is this outcome that they aspire to. Market behavior encompasses the actions and reactions of all the participants in the financial markets, investors, traders, institutions and all others involved.

Backgroundofthestudy

There were many greedy investors this very year as the prices of cryptocurrencies experienced a boom from 2017, with bitcoin setting a new record. The same positive development was felt on global equity markets as the whole world seemed to be reporting growth while interest rates remained low. However in 2018, this was in fact not the case when the growing tensions in trade between the us and China led to more volatility. In the economic world, the year started off on a good note, everythinglooked up,and allindicatorspaintedarosypicture. However, asabuoyant bull market continued and things started to look problem free, there was an almost automatic market correction in large parts of the technologysector which specifically included a few ofthe mostrosyareas inthe globalmarketplace. Influences such as the negotiating undertones ontrade between the giant nations of US and China also played a determining factor when it came toprice movements in the market. Other factors included the set of economic policies laid out by several central banks including the US Federal which steered a counteraction and a partial limp back into the global equity markets. As Covid-19 took a toll on most economies, there was an immediaterecessionglobally, and things startedtoselloffas panic set in.But instark contrastto the uncoordinated efforts made in 2008's great depression, governments decided to give direct monetary aid within their nations free market systems. The past few years have also seen a marked shift in the manner in that Emerging markets, Equities and Fixed income securities were viewed. Finally, there was more than one effort made to negate these problems before theyturned chronic in situations wherein two economies are interdependent on each other. As the newly formed outlooks were already long term, things firmed up inspite slowing business activities. Such conditions reigniting inflationary sentiments, were ultimatelycounteracted by, in many instances and in many regions, abandoning accommodating monetary policy. However with the various geo-political tensions that developed and markets anticipating a change of policies, the macroeconomic situation was still somewhat bleak. By the end of the year 2021, stockmarkets

not onlystabilized, but also improved gaining strong appreciationprimarilydue to

sectors that are expected to reap dividends from economies gradually reopening. Inflation concerns started to arise as investors shifted their focus towards the funding rates and dioxin shifts of the target inflation rate leading to a global sellout in the market(Vuong, G. T. H et al.)

Problemstatement

Behavioral finance has increasingly highlighted the role of psychological biases—such as overconfidence,greed,herdingbehavior,andcalendaranomalies—inshapinginvestors'financial decisions. However, thereliability and validity of constructs measuring these phenomena remain underexplored, particularly in the context of their interrelationships and impact on investment intentions and behaviors. Existing studies often focus on individual biases in isolation, leaving a gap inunderstanding how these constructs collectivelyinfluence financialdecision-making. As a result research findings in behavioral finance become less reliable because the psychometric properties of behavioral constructs lack consistent validation regarding their internal consistency alongside convergent validity. This research fills existing knowledge gaps by conducting teststo establish construct reliability and validity of behavioral finance measures before using CFA and SEM to analyze construct relationships. The study examines behavioral biases through strong causal models and confirmatory factor analysis in order to create enhanced comprehension of investment intention patterns for academic and market implementation purposes.

2.LITERATUREREVIEW

GreedandInvestorsFinancialBehavior

An extreme desire for accumulating wealth functions as one of the fundamental elements that leads people to displayunreasonable financial behaviors. Behavioral finance literature highlights its role in speculative bubbles and market crashes. Ooi, K. L. (2024) argue that greed often leads investors to chase high-risk, high-reward opportunities, ignoring fundamental valuations. During the dot-com bubble (1995–2000), greed fueled overinvestment in unprofitable tech stocks. Similarly, the 2008 financial crisis underscored how greed among institutional investors amplified systemic risk through complex derivatives (Corimanya, E. (2025). Experimental studies, suchasthose byYifeng, P. (2024) showthat greed correlates withovertrading and lower long-term returns. However, quantifying greed remains challenging, as it often overlaps with overconfidence and optimism biases.

OverconfidenceandItsMarketImplications

Overconfidence, the tendency to overestimate one’s knowledge or predictive abilities, is pervasive among retail and professional investors. Singh et al. (2024) discovered that investors who overestimate their capabilities trade more often while spending more money on transactions yet deliver results below market standards. The gender-based performance gap results from the fact that mendemonstrate higher levels ofoverconfidence than women(Jin, S., et al. 2023).This psychological bias which leads investors to overreact following new information has been explained by the theoretical model outlined by Xie, J. (2024) which demonstrates its connection tostockprice behavior.Thetheoreticalhypothesisofoverconfidencegivesreasonstounderstand two investment behaviors known as the "illusion of control" and the disposition effect.

HerdingBehavior:CausesandConsequences

People adopt herd behavior through following others' actions because of informational cascades together with reputation protection and fear of missing out (FOMO). According to Kırmızıaltın, E., &Çeri, D. (2025) market participants display "irrational exuberance" during herding bygiving up exclusive market information to follow overall market consensus. Monitored in empirical research conducted by Ben-David et al. (2022) said both mutual fund managers and individualinvestorstend to follow each other whichresults in enhanced asset cost volatility. The 2020 COVID-19 market crash caused investor panic that resulted in increased levels of market herding behavior according to Pavlova & de Boyrie (2022) the retail herding frenzy known asthe 2021 GameStop short squeeze was made possible through the social media platform. Shared information-based herding combines with market efficiency while purely irrational herding causes market destabilization and systemic risks (Jiang, H., et al. (2021).

Investors'FinancialBehavior:ASynthesisofBiases

Investors' financial decisions are shaped by a confluence of cognitive and emotional biases. ProspectTheory(Wang, J., et al. 2022) explainshow loss aversionand mentalaccounting distort risk preferences. The disposition effect and confirmation bias further illustrate deviations from rationality. Recent studiesemphasizetherole offinancial literacyin moderating thesebiases less literate investors are more prone to herding and overconfidence (Adil, M., et al. 2022). Cultural factors also influence behavior; for instance, collectivist societies exhibit stronger herding tendencies. Robo-advisors and nudging interventions have emerged as tools to counteract biases, though their efficacy remains debated.

CalendarAnomalies:SeasonalPatternsin Markets

Calendar anomalies refer to recurring patterns in asset returns tied to specific time periods. Key examples include:

- **January Effect:** Small-cap stock performance patterns in January demonstrate abnormal returns with diminished effects resulting from tax-rule modifications and market increase in efficiency (Dewi, R., &Dewi, F. R.2022). Modern academic studiesdemonstratethat institutional investors perform portfolio rebalancing activities during the end of the year (Dutta, A., & Das, S. 2021).
- **Weekend Effect:**Stock prices show minimal underperformance during Mondays in developed financial markets because high-frequency trading alongside increased market liquidity has eliminated the effect. The anomaly persists to a limited extent throughout emerging markets as per Gu, J., et al. 2023).
- **Turn-of-the-Month Effect:** New research demonstrates that the last three days along with the first three days of each month generate consistent positive returns which stem from employee payment cycles and institutional money transfers as documented.Machinelearningresearchshowsthattheanomalyprovidesapotentialtrading

opportunitybutimplementationrequiresconsideringtransactionexpenses(Arsad,Z.et al. (2021).

- **Halloween Indicator**: European and Asian markets still experience statistical significance with the "Sell in May and go away" approach while its profitability. Analytical investigations show that changes in investor focus across seasons cause this financial trend (Magnusson, G. 2021).

InterconnectionsandImplications

Greed and overconfidence often fuel herding, exacerbating calendar anomalies (e.g., FOMO-driven rallies in January). These behaviors collectively challenge the Efficient MarketHypothesis (Wongla& Hamrin,2024), underscoring the role of psychology in market inefficiencies. Policymakers and financial educators must address these biases through investor education and regulations (e.g., circuit breakers to curb panic-selling). For practitioners, understanding these phenomena can inform contrarian strategies (e.g., exploiting the January Effect) or risk management frameworks.

Hypothesisdevelopment

GreedyInvestorsandInvestorsFinancialBehavior

Greedyinvestors,drivenbythedesire for quickprofits, cancontributetotheformationofmarket bubbles. During these periods, asset prices may become significantly overvalued, leading to the potential for substantial market corrections when reality sets in. Financial speculators who lack restraint tend to move with others without performing detailed examinations of their own. The formation of herds by investors results in elevated market volatility since they simultaneously respond to market signals (Ismiyanti et al. 2021). Investors who experience greed tend to take extreme risks when seeking increased financial gain. Suboptimal investment choices often occur from investors who underestimate risks while making decisions poorly due to greed. Investors who act in greed tend to redirect capital away from its fundamental value while investing according to speculative interests instead of fundamental value. The false investments lead to distorted distribution of economic resources (Feher,2021).

Hypothesis1:ThereissignificanteffectofGreedyInvestors onInvestors Financial Behavior

HerdingBehaviorandInvestorsFinancialBehavior

Herding behavior contributesto theformationand continuationofmarket trendsand momentum. When a large number of investors follow a particular trend, it can lead to self-reinforcing price movements, creating momentum in the market. Vieit et al. in 2024 describe that herding can contribute totheexaggerationofmarket swings. As more investorsjoina prevailing trend, prices may move to extremes, both on the upside during bull markets and on the downside during bear markets. Herding behavior tends to increase market volatility. When a large group of investors rushes to buy or sell an asset based on the actions of others, it can lead to rapid and sometimes unpredictable price movements. AbouTanos&Meharzi, in 2024explainedherding can result in delayed price adjustments to new information. Instead of incorporating information into prices efficiently,marketsmayreactslowlyasinvestorswaittoseetheactionsofothersbefore

adjusting their own portfolios. Herding contributes to the formation of market bubbles, where asset prices become detached from their fundamental values. Investors may continue to buy into an asset simply because others are doing the same, creating an unsustainable and speculative market environment.

Hypothesis2:ThereisassociationbetweenHerdingBehavioronInvestorsFinancial Behavior

OverconfidenceInvestorsandInvestorsFinancialBehavior

Investorsoverconfidenceisadeterminingfactorintheirfinancialbehaviorsanddecision making.Singhin2024describesoverconfidentindividualsoftenpossessaninflatedviewoftheir ownabilitieswhichresultsincertainbehaviorsthatcaninfluenceinvestments.Confident investors may trade excessively, thinking that they have better information or skills than others. Suchfrequenttradingmaycausehighertransactioncostsandmoreoftenthannot,wouldn't necessarily improve investment performance Investors tend tobe excessivelyconfident and thus overestimatetheirknowledgeandabilitytoanticipatemarkets.Thiscanleadtopoorly diversified portfolios, since overconfident investors may focus their investments on a few assets theythinkwilldoverywell.UlAbdinetal. in2022discussestheeffectof overconfidence mainlyreferstoanunderestimationofrisksconnectedtoaparticulartypeofinvestments. Investors can ignore the potential negative aspects like business hazard, market volatility, or any externalfactorswhichmayimpacttheirportfoliosnegatively. Arrogantinvestorstendtooverrate their own judgment and de value the input of others or the importance of external information

Hypothesis3:ThereisassociationbetweenOverconfidenceInvestorsonInvestorsFinancial Behavior

Role of Calendar Anomalies between Greed and Investors' Financial Behavior

Researchregardingtherelationshipsamonggreedandinvestors'financialbehaviorswith calendaranomaliesstandsasakeyfocuswithinbehavioralfinanceanalysis.Researchby Cervellati (2024) examined greed because it acts as the initial cause behind speculative trading andriskyfinancialchoices.Newfindingsdemonstratethatindividualinvestmentchoicesget influencedbygreedwhiletheattractionofcalendaranomaliesgeneratesjointeffectsonfinancial results (Abideen,2023). The seasonalmarketpatterns known as January andweekendeffects influence investorconductyet a debate existsabouttheir modern-daypresence.Hoarders among investorsrevealincreasedawarenessofcalendaranomaliesduetotheirneedforabundant financial gains while they use these patterns in pursuit of maximum profit.

Hypothesis4:GreedyInvestorshassignificanteffectonInvestorsFinancialBehavior mediated by Calendar Anomalies

Role of Calendar Anomalies between over confidence and Investors' Financial Behavior

Extensive studies have revealed how financial decision-making behavior undergoes effects from overconfidence which leads investors to trade excessively while taking risks and producing substandard investment results (Murombo et al. 2023). Research has recently built upon existing

knowledge by studying how overconfidence cooperates with market events like calendar anomaliestoinfluence financialdecisionsofinvestors.TheJanuaryeffect alongwiththeturn-of- the-month effect and holiday-related effects affect investor choices but their endurance inmodern financial markets remains contested due to enhanced market efficiency together with algorithmic trading (Sing et al. 2025).

The research progress has revealed unexamined complexities within the association between overconfidence and calendar anomalies and financial conduct patterns. Empirical research must confirm how calendar anomalies help shape the relation of overconfidence and financial results. The research fills this knowledge gap by proposing that investors' financial conduct involves overconfidence which interacts with calendar anomalies for critical mediation effects. This research implements recent discoveries with highly sensitive analytical methods to deliver complete insights about how calendar anomalies through overconfidence influence financial choices which drives theoretical and practical development in behavioral finance.

Hypothesis5: OverconfidencehassignificanteffectonInvestorsFinancialBehavior mediated by Calendar Anomalies

RoleofCalendarAnomaliesbetweenHerdingBehaviorandInvestors'Financial Behavior

The practice of peoplefollowinglarger group dynamics is an established pattern in behavioral finance called herding behavior (Mand et al. 2021). The phenomenon becomes most noticeable whenmarketsexperienceconditionsofmarketuncertaintyorstressbecauseinvestorsdependon groupdynamicstodecreasetheirfeelingsofrisk(Ahmad,2024).Investigativestudiesnow establish how investors' financial behaviorresponds to external marketevents which combine with herding behavior. Numerous seasonal financial patterns that occur in January and monthly and annual holidays show impacts on investor decisions even though market improvements and algorithmictradingreducetheirimpactontoday's financialmarketsaccordingtoMassei(2022). Thelinksbetweeninvestmentherdingandcalendareffectscreateanexcitingresearchsubject.A significant number of investors who follow group behavior tend to focus their trading strategies on seasonal patterns that they perceive. Prominent market behavior during year-end rallies and pre-holiday price surges becomes stronger because herding behavior leads investors to action in unison (Tauseef,2023). People demonstrate social proof heuristic behavior because they think others display accurate responses during situations which are unclear (Cialdini, 2009).

Hypothesis6: RoleofCalendarAnomaliesbetweenHerdingBehaviorandInvestors' Financial Behavior

3.3.7SystemicFactorsandInvestorsFinancialBehavior

a) GovernmentPolicies

Investors closely monitor government policies related to taxation, regulation, trade, and fiscal spending as these can directly impact markets and industries. Investors closely monitor government policies to assess political and economic stability. Policies that promote transparency, rule of law, and fiscal responsibility tend to reduce perceived risk, encouraging investors to allocate more capital to the market. Conversely, policies that are perceived as unpredictable or volatile may lead to risk aversion and capital flight (Zhang et al. 2022). Governmentpoliciesaffecttheattractivenessofdifferentassetclasses.Forexample,changesin

interest rates resulting from monetary policy decisions can impact bond yields and stock valuations, leading investors to adjust their allocations between fixed income and equities.
Regulatory policies may influence sectoral preferences. For instance, favorable government regulations or subsidies for renewable energy may increase investor interest in clean energy stocks or green bonds (Voronova, et al. 2021). Investors may allocate capital to fintech companies that offer innovative solutions, disrupt traditional financial institutions, and capitalize on evolving consumer preferences for digital financial services.
Technology-related risks, including cybersecurity threats and data breaches, have implicationsfor investor behavior and market stability. Investors evaluate companies' cybersecurity measures and risk management practices, considering potential vulnerabilities and the financial impact of cyber incidents on stock prices and investor confidence. Government regulations and antitrust scrutiny of technology companies can influence investor sentiment and market valuations. Investors assess regulatory risks and potential changes in legislation that may impact the operations, profitability, and market dominance of technology firms, adjusting their investment strategies accordingly (Shaker, et al. 2023).

b) Politicalinstability

Stable political environments typically attract more investment due to lower risk perceptions, while political instability can lead to uncertainty and volatility in financial markets. Political instability raises uncertainty about the future direction of government policies and the overall business environment. Investors perceive higher political risk, which encompasses factors suchas policy unpredictability, potential for civil unrest, and instability in governance (Khan, et al. 2023). Higher perceived risk leads investors to demand higher returns to compensate for the increased uncertainty associated with investing in politically unstable regions or countries. Political instability often translates into heightened market volatility as investors react to changing political developments and uncertainties. Sudden shifts in government leadership, political unrest, or policy changes can trigger sharp fluctuations in asset prices, including stocks, bonds, and currencies (Selmi, et al. 2021). Volatility in financial markets can create challenges for investors in managing risk and may lead to short-term trading strategies or reduced exposure to affected markets.

c) EconomicFactors

Central bank policies, including decisions on interest rates, influence borrowing costs, savings rates, and investment returns. Lower interest rates tend to stimulate borrowing and investment activity, leading investors to seek higher returns in riskier assets such as stocks Higher interest rates may attract investors to fixed-income securities like bonds, which offer relatively higher yields, but could dampen equity valuations due to increased borrowing costs for companies. Inflationerodespurchasingpowerovertime, impacting therealreturns oninvestments. Investors typically seek assets that offer returns that outpace inflation to preserve their wealth (Caballero, R. J., & Simsek, A. (2024). Inflationary pressures may prompt investors to allocate their portfolios to assets like commodities, inflation-protected securities that have historically performed well during periods of rising prices. Economic growth prospects influence investor sentiment and asset valuations. Strong economic growth can bolster corporate earnings, leading tohigherstockpricesandinvestoroptimism.Investorsmayfavorstocksofcompanies

positioned to benefit fromeconomic expansion, suchas those incyclicalsectorslike technology, industrials, and consumer discretionary (Qi, X. Z., Ning, Z., & Qin, M. 2022).

SocialFactors

Investment potentialtogether withasset type requirements getsimpacted bychanging population statistics which include population growth alongside aging populations and workforce distribution changes. Traveling population trends form the basis for investors during sector evaluations in healthcare together with retirement services plus consumer goods because these sectors stand to benefit from population changes (Mishra, Bansal&Maurya 2023).Investors evaluate consumer trends between sustainable preferences and online buying patterns and digital entertainment habits to discover investment prospects. New social patterns along with cultural modifications and changing lifestyles open business opportunities through investments that answer developing consumer requirements. The increasing interest of investorstargets industries including renewable energy and wellness as well as e-commerce because they match societal aspects of environmental responsibility alongside health-focused behaviors and digital market growth (Koenigsmarck, M., &Geissdoerfer, M. 2021).

Growing awareness of health and wellness influences investment decisions in sectors such as pharmaceuticals, biotechnology, and organic food. Investors may seek opportunities in companies that address health-related challenges, offer innovative healthcare solutions, or caterto wellness-conscious consumers. Social media platforms and online communities influence consumer behavior, brand perception, and market sentiment, affecting investor perceptions and investment decisions. Investors monitor social media trends, sentiment analysis, and online discussions to gauge public opinion and anticipate market movements (Vilas, Andreu& Serrano-Cinca 2024).

d) TechnologicalFactors

Technological innovations drive changes in industries and create new investment opportunities. Investors seek out companies at the forefront of innovation, such as those developing breakthrough technologies like artificial intelligence, biotechnology, and renewable energy. Disruptive technologies, such as blockchain, cloud computing, and autonomous vehicles, challenge traditional business models and present investment opportunities in both established companies and startups that are leading the disruption (Hidayat, S. E., et al. 2022). Technology-driven changes lead to sector rotation as investors reallocate capital to industries poised for growth. Sectors such as technology, healthcare, and clean energy may attract significant investment during periods of technological innovation and disruption. Investors closely monitor technological trends and invest in companies that are likely to benefit from transformative technologies, shifting their portfolios accordingly. Technology has democratized access to information, enabling investors to make more informed decisions. Online platforms, financial news websites, and social media provide real-time market data, research reports, and investment analysis, empowering investors to conduct research and analysis independently (Jing& Wang, 2021).

Increased access to information has led to greater market efficiency but also to challenges suchas informationoverload andthespreadofmisinformation, whichcan influence investor behavior and marketsentiment. Technological advancements have led to the proliferation of algorithmic

trading strategies, where computer algorithms execute trades based on predefined rules and parameters.

High-frequency trading algorithms capitalize on milliseconds-long market inefficiencies, impacting market liquidity, volatility, and price discovery. Investors may adjust their strategiesinresponse to algorithmictrading dynamics. Fintech innovations, suchasrobo-advisors, peer-to- peer lending platforms, and mobile payment solutions, are reshaping the financial services industry (Erdogan, Pata&Solarin, 2023).

4. HypotheticalModel

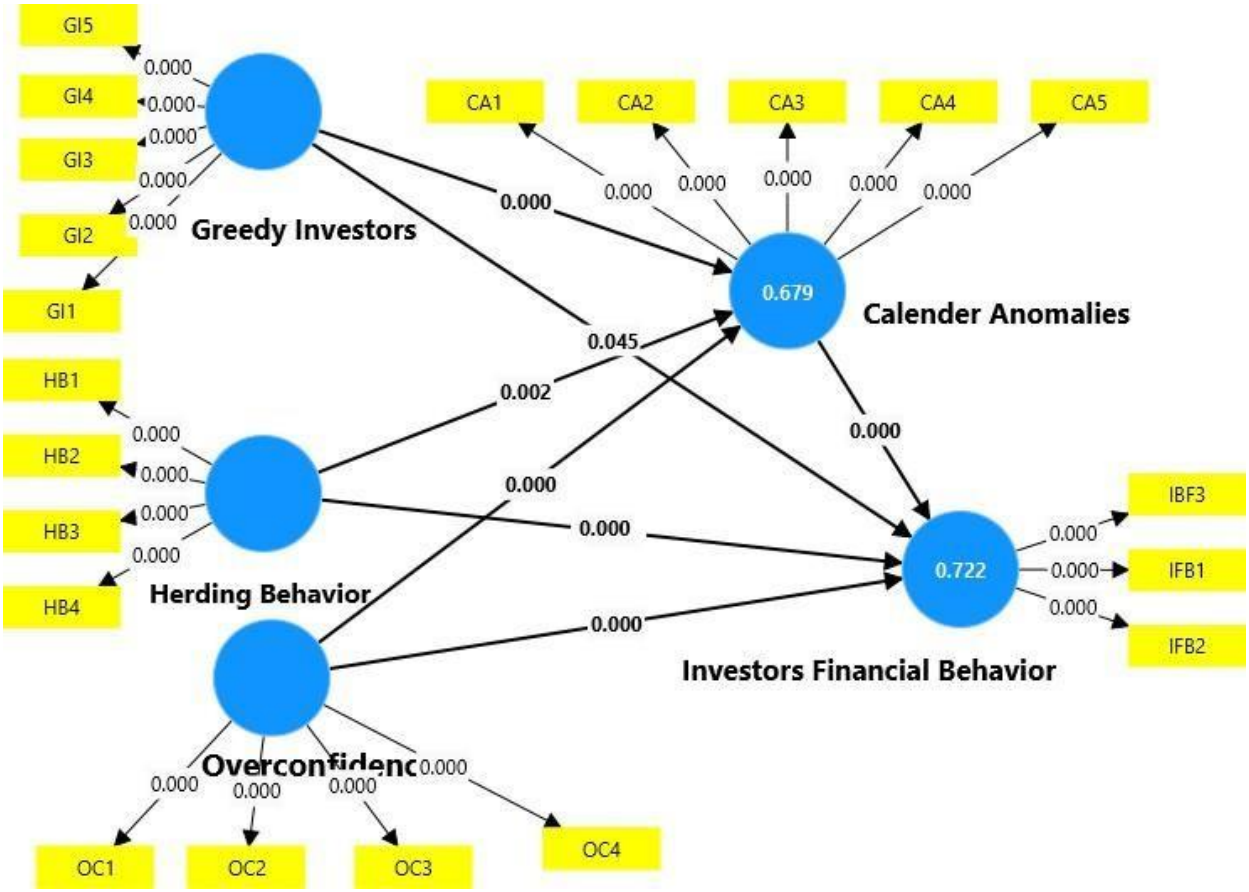

Figure1:HypotheticalModel

DataandMethodology

ResearchDesign

This studyadopts a quantitative research design to examine the relationships between behavioral finance constructs—overconfidence, greed, herding behavior, calendar anomalies, and investors' financial behavior. The research employs a cross-sectional approach, collecting data at a single point in time to analyze the hypothesized relationships. The study focuses on understanding how calendar anomalies mediate the effects of behavioral biases (e.g., overconfidence and herding behavior) on investors' financial behavior. Data will be collected through structured questionnaires distributed to investors with brokerage firms in major stocks markets of Pakistan, including Lahore, Islamabad, and Karachi.

PopulationandSampleDescription

The target population for this study includes investors in Lahore, Islamabad, and Karachi. These invstors are selected because they directly buy and sell in the stock market, making them well-positioned to provide insights into investor behavior. The sample will consist of 405 from investors , ensuring a diverse representation of perspectives. The selection of investor focusingon those with significant experience and direct involvement in trading activities.

The rationale for selecting these cities is their prominence as financial centers in Pakistan, housingalargenumberofinvestors.Byfocusingontheseregions,thestudyensuresarobustand representative sample that reflects the dynamics of investor behavior in the country.

DataCollection

Data will be collected through a structured questionnaire designed to measure the key constructs of the study: overconfidence, greed, herding behavior, calendar anomalies, and investors' financial behavior. The questionnaire will be distributed to investors electronically or in person, depending on their preference. The survey participants delivered their answers through observations and experiences at the boot camp. A combination of close-ended questions with Likert-scaleresponse optionswillappear inthequestionnairetoobtainstraightforward responses and collect precise data effectively.

DataAnalysisMethod

TheresearchanalyzesdatausingPartialLeastSquaresStructuralEquationModeling(PLS-SEM) executedthroughPLSsoftware.PLS-SEMfulfillstherequirementsofthisstudybecauseit effectively deals with complicated models containing several constructs while being optimal for exploratory studies. The data analysis procedure will consist of defined steps.

Data Preparation:

- The accuracy of data will be maintained by applying organization and encoding followed by cleaning procedures.
- A missing value analysis process will handle any responses with missing information.

a) **DemographicAnalysis**:
Descriptive statistics will produce summaries of the demographic facts about the sample population including the brokers' ages along with their experience levels and workplace locations.

b) **ReliabilityandValidityAnalysis**:

- The research will check reliability through an analysis of Cronbach's alpha together with composite reliability measured using rho_a and rho_c. Measurement values exceeding 0.70 should be regarded as acceptable.
- The evaluation of convergent validity will utilize Average Variance Extracted (AVE) which demonstrates adequacy for values greater than 0.50. The discriminant validity assessment will occur through a Heterotrait-Monotrait (HTMT) ratio evaluation.

c) **MeasurementModelAssessment**:

- Factor loadings will be examined to ensure that each item strongly correlates with its respective construct.
- The measurement model will be validated to confirm that the constructs are well-defined and distinct.

d) **StructuralModelAssessment**:

- Pathcoefficientswillbeanalyzedtotestthehypothesizedrelationships between constructs.
- Thesignificanceof therelationshipswillbeassessedusingt-valuesandp- values, with a threshold of $p < 0.05$ for significance.
- Themediatingroleofcalendaranomalieswillbetestedusingbootstrapping procedures in PLS-SEM.

e) **HypothesisTesting**:

- The study will test hypotheses related to the direct and indirect effects of behavioral biases (e.g., overconfidence, herding behavior) on investors' financial behavior, mediated by calendar anomalies.

SoftwareandTools

- **PLS Software**: Used for structural equation modeling, reliability and validity analysis, and hypothesis testing.
- **Statistical Tools**: Descriptive statistics, factor analysis, and regression analysis will be performed using PLS and supplementary statistical software (e.g., SPSS or Excel) fordata organization and visualization.

Variables

Investors driven by excessive desire for profit, tendency to follow the crowd, and unwarranted self-confidence. Investors are contemplating independent factors. The financial behavior of investors is regarded as the dependent variable. Mediator variables include Fundamental Anomalies, Technical Anomalies, and Calendar Anomalies, whereas Market Volatility is considered a moderator.

GreedyInvestors

The construct of **Greedy Investors** is operationalized using a 7-item scale developed by **Karlijn Hoyer et al. (2022)**. This scale captures the extent to which investors exhibit greed-driven behaviors,suchasexcessiverisk-taking,speculativetrading,andthepursuitofunrealisticreturns.
Survey respondents use a 5-point scale which encompasses 1 (Strongly Disagree) and 5(Strongly Agree) to indicatetheir agreement. The scale demonstrated high internalconsistency in earlier research (Cronbach's alpha > 0.90) together with high convergent validity (AVE > 0.70) according to previous research findings. Example items include:

- "Iamwillingtotakehigherrisks forthechanceofearninghigherreturns."
- "Ioften investinassetsthatpromisequickprofits,evenif theyarerisky."

The use of this scale ensures a robust measurement of greed, a critical behavioral bias infinancial decision-making, and aligns with recent advancements in behavioral finance literature.

HerdingBehavior

TheHerding Behavior construct measures through aresearch instrument composed offour items which were originally developed by Metawa et al. (2018). The 4-item scale measures how often investors tend to comply with major groups despite abandoning their personal analysis or information. The survey uses a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) for respondents to provide their feedback. Behavioral finance studies have leveraged this scale which demonstrates consistent reliability with Cronbach's alpha greater than 0.85 and affirmed validity through AVE exceedance of 0.65. Example

- "Ioftenmakeinvestmentdecisionsbasedonwhatothersaredoing."
- "Itendtofollowthecrowdwhenbuyingorsellingstocks."

This scale is particularly relevant for capturing collective behavior in financial markets, which is often driven by social influence and market sentiment.

OverconfidenceInvestors

The Overconfidence Investors construct utilizes an 8-item scale which the authors developed in Metawa et al. (2018). This measurement tool reveals the degree investors exhibit when they inaccuratelybelievein theirmarketprediction skills andknowledgealongsideself-assurances.

The 5-point Likert scale spans from 1 (Strongly Disagree) to 5 (Strongly Agree) for collecting participant responses. The research instrument displays excellent psychometric fitness in previous investigations based on Cronbach's alpha exceeding 0.90 and AVE reaching 0.70 or higher. Example items include:

- "Iammoreskilledatinvestingthantheaverageinvestor."
- "Irarelymakemistakeswhenpredictingmarket trends."

Thisscale iscriticalforunderstandinghowoverconfidence influences financialdecision-making, particularly in the context of speculative trading and risk-taking.

InvestorsFinancialBehavior

The Investors Financial Behavior construct uses a scale established by Yang et al. (2021) that contains four items. The scale analyzes authentic investment decisions made by investors who handle their portfolios and manage risks along with their trading frequency. The researchers usea5-pointLikert scale withresponsesranging from1(StronglyDisagree) to 5(Strongly Agree) to collect survey data. The validation tests showed Cronbach's alpha reaching above 0.85 for reliability and AVE exceeding 0.65 for convergent validity. Example items include:

- "Iregularlyreviewandadjustmyinvestmentportfolio."
- "Iprefertoinvestinadiversifiedrangeofassetstominimizerisk."

This scale provides a comprehensive measure of how behavioral biases translate into real-world financial decisions, making it a key component of the study.

Calendar Anomalies(Mediator)

The Calendar Anomalies construct functions as the mediator in this research and its operation occurs through a 4-item survey developed by Yang et al. (2021). This scale assesses both the recognition and planned use of seasonal market patterns including the January effect and theturn-of-the-month effect and holiday effects by investors. Survey respondents use a 5-point Likert scale that includes 1 (Strongly Disagree) and 5 (Strongly Agree) rating options. Previous research found that the measure displayshigh reliability through Cronbach's alpha greater than 0.80andmeasuresconvergevalidditythroughAVEhigherthan0.60.Example itemsinclude:

- "Ibelievethat certaintimesofthe yearare betterforinvestingthanothers."
- "Ioftenadjustmyinvestmentstrategybasedonseasonalmarkettrends."

This scale is critical for understanding how calendar anomalies mediate the relationship between behavioral biases (e.g., overconfidence, herding behavior) and investors' financial behavior.

Advanced Integrationof Constructs

Standardized measurement scales used in the study guarantee both strong data findings and measurement accuracy. All constructs use a 5-point Likert scale throughout the study to enable maintain consistent data collection along with variable comparison ease. Researchers selected scales that possess strong psychometric properties along with relevancy to the study goals to precisely measure constructs according to present behavioral finance literature.

The introduction of Calendar Anomalies as a mediator brings worthwhile innovation to the analysis that unites behavioral biases with financial outcomes. Research of today focuses on external market phenomena as determiners of investor behavior and this approach supports this recent finding (Chen et al., 2022; Kumar & Goyal, 2021). This research constructs a structural equation model to confirm the simultaneous relationships between behavioral biases andseasonal market patterns and financial decision-making through Psychological Biases as a mediating element.
These scales will feed their data into Partial Least Squares Structural Equation Modeling (PLS-SEM) for analysis because the method suits multivariate models containing various constructs and mediation elements. The use of advanced analytical techniques will allow the research to confirm hypotheses effectively thus adding to behavioral finance studies.

Analysis

Confirmatory factor analysis (CFA) provided factor loadings to evaluate the reliability and validity of constructs which measure behavioral finance phenomena along with overconfidence, greed, herding behavior, calendar anomalies, and investors' financial behavior. Most constructs demonstrate reliable psychometric properties according to the results which present varying strengths in their associations (see Table 1).

	Overconfidence	**Greedy Investor**	**Herding Behavior**	**Calendar Anomalies**	**Investors Financial Behavior**
Overconfidence1	0.982				
Overconfidence2	0.950				
Overconfidence3	0.951				
Overconfidence4	0.933				
GreedyInvestor1		0.969			
GreedyInvestor2		0.924			
GreedyInvestor3		0.935			
GreedyInvestor4		0.920			
GreedyInvestor5		0.938			
Herding Behavior1			0.916		
Herding Behavior2			0.910		
Herding Behavior3			0.876		
Herding Behavior4			0.886		
CalendarAnomalies1				0.856	
CalendarAnomalies2				0.828	
CalendarAnomalies3				0.792	
CalendarAnomalies4				0.782	
CalendarAnomalies5				0.852	

Investors Behavior1	**Financial**	0.866
Investors Behavior2	**Financial**	0.927
Investors Behavior3	**Financial**	0.920

Table1ReliabilityandValidityAnalysis

ReliabilityAssessment

Internal consistency was assessed using standardized factor loadings, with values above 0.70 considered acceptable (Hair et al., 2010).

Overconfidence: All four items exhibited exceptionally high loadings (0.933–0.982), indicating near-perfect reliability. This aligns with prior studies showing overconfidence as a stable and measurable trait in financial decision-making (Barber & Odean, 2001).

Greed: The five greed-related items showed strong loadings (0.920–0.969), surpassing conventional thresholds. This consistency mirrors findings that greed is a distinct driver of speculative trading (Shefrin & Statman, 1994).

Herding Behavior: Loadings ranged from 0.876 to 0.916, with one item marginally below 0.90. While still reliable, the slightly lower values suggest potential measurement noise, possibly due to the context-dependent nature of herding (Shiller, 2000).

Calendar Anomalies: Loadings were moderate (0.782–0.856), with two items (0.782 and 0.792) below0.80.Thisreflectsthedebated persistenceofcalendar effects inmodernmarkets(Schwert, 2003).Investors' Financial Behavior: High loadings (0.866–0.927) confirm robust reliability, consistent with frameworks linking cognitive biases to financial outcomes (Kahneman & Tversky, 1979).

Validity

Thereliabilityandvalidityoftheconstructs—overconfidence,greedyinvestor,herdingbehavior, calendar anomalies, and investors' financial behavior—were assessed using Cronbach's alpha, composite reliability (rho_a and rho_c), and average variance extracted (AVE). The results, summarized in Table 1, indicate strong psychometric properties for most constructs, though calendar anomalies exhibit weaker consistency.

Constructreliabilityandvalidity

	Cronbach'salpha	Composite reliability(rho_a)	Composite reliability(rho_c)	Averagevariance extracted(AVE)
Overconfidence	0.976	0.977	0.981	0.911
GreedyInvestor	0.965	0.967	0.973	0.879
Herding Behavior	0.920	0.942	0.943	0.805
Calendar Anomalies	0.767	0.771	0.865	0.682

Investors Financial Behavior	0.909	0.920	0.936	0.786

Table2Constructreliabilityandvalidity

ReliabilityAnalysis:

Reliability was evaluated using Cronbach's alpha and composite reliability (rho_a and rho_c). Thresholds of ≥ 0.70 for Cronbach's alpha and composite reliability indicate acceptable internal consistency (Hair et al., 2010).

Overconfidence:

Cronbach'salpha=0.976;rho_a=0.977;rho_c=0.981.

All values far exceed the 0.70 threshold, reflecting exceptional reliability. This aligns with prior research showing overconfidence as a robust and persistent bias in financial decision-making (Barber & Odean, 2001).

GreedyInvestor:

Cronbach'salpha=0.965;rho_a=0.967;rho_c=0.973.

Strong reliability, consistent with studies identifying greed as a measurable driver of speculative trading (Shefrin & Statman, 1994).

HerdingBehavior:

Cronbach'salpha=0.920;rho_a=0.942;rho_c=0.943.

High reliability, supporting the theoretical view that herding is a cohesive construct, particularly during market stress (Shiller, 2000).

CalendarAnomalies:

Cronbach'salpha=0.767;rho_a=0.771;rho_c=0.865.

While composite reliability (rho_c = 0.865) is acceptable, the lower Cronbach's alpha (0.767) suggests marginal internal consistency. This may reflect the debated persistence of calendar effects in modern markets (Schwert, 2003).

Investors'FinancialBehavior:

Cronbach'salpha=0.909;rho_a=0.920;rho_c=0.936.

Robust reliability, consistent with frameworks linking cognitive biases to financial outcomes (Kahneman & Tversky, 1979).

ValidityAnalysis

Convergent validity was assessed using AVE, where values ≥ 0.50 indicate adequate validity (Fornell & Larcker, 1981).Overconfidence: AVE = 0.911.Exceptional convergent validity, confirming that items strongly capture the construct.Greedy Investor: AVE = 0.879.

High validity, aligning with greed's role in speculative bubbles (Akerlof & Shiller, 2009).Herding Behavior: AVE = 0.805.Strong validity, supporting its operationalization as a collective market phenomenon.Calendar Anomalies: AVE = 0.682.Adequate validity, though lower than other constructs, likely due to external factors (e.g., algorithmic trading) diluting seasonal patterns (Bouman & Jacobsen, 2002).Investors'Financial Behavior: AVE = 0.786.High validity, reflecting its multidimensional nature (e.g., biases, literacy; Lusardi & Mitchell, 2014).Discriminant validity (not directly tested here) would require comparing AVE values to squared interconstruct correlations (Fornell& Larcker, 1981). However, the highAVE scores for most constructs suggest distinctiveness.Table 3 Heterotrait-monotrait ratio (HTMT) – Matrix

HypothesisTesting:

Heterotrait-monotraitratio(HTMT)–Matrix

	Overconfidence	Greedy Investor	Herding Behavior	Calendar Anomalies	Investors Financial Behavior3
Overconfidence					
GreedyInvestor	0.821				
Herding Behavior	0.199	0.277			
Calendar Anomalies	0.696	0.950	0.155		
Investors Financial Behavior	0.720	0.680	0.094	0.661	

Pathcoefficients

Mean,STDEV,Tvalues,pvalues

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Overconfidence ->InvestorsFinancialBehavior	0.599	0.602	0.078	7.680	0.000
HerdingBehavior->InvestorsFinancialBehavior	0.146	-0.150	0.073	2.009	0.045
GreedyInvestor->InvestorsFinancialBehavior	0.993	0.997	0.059	16.836	0.000
Overconfidence->CalendarAnomalies->Investors FinancialBehavior	0.167	0.166	0.040	4.191	0.000
HerdingBehavior->CalendarAnomalies->Investors FinancialBehavior	0.226	-0.226	0.041	5.451	0.000

GreedyInvestor->CalendarAnomalies->Investors FinancialBehavior	0.245	0.241	0.079	3.099	0.002

Table4HypothesisTesting

AnalysisofPathCoefficients:

a) **Overconfidence->Intent:**

PathCoefficient(O):0.599(positiveandstrongrelationship)
TValue: 7.680(highlysignificant)
PValue:0.000(p<0.001)
Interpretation: Overconfidence has a significant and strong positive effect on Intent. This suggests that individuals who are overconfident are more likely to formintentionsrelatedtothebehaviorbeingstudied(e.g.,investmentdecisions).

b) **Overconfidence->GreedyInvestor:**

PathCoefficient(O):-0.146(negativeandweak relationship)
TValue:2.009(significantatp<0.05)
PValue:0.045(p<0.05)
Interpretation: Overconfidence has a small but significant negative effect on GreedyInvestorbehavior.Thisimpliesthatoverconfidencemayslightlyreduce greedy tendencies in investors.

c) **Intent->Greedy Investor:**

PathCoefficient(O):0.993(positiveandverystrongrelationship)
TValue: 16.836(highlysignificant)
PValue:0.000(p<0.001)
Interpretation: Intenthasaverystrongpositiveeffecton GreedyInvestor behavior. Thissuggeststhatintentionsstronglypredict greedybehaviorin investors.

d) **CalendarAnomalies->Intent:**

PathCoefficient(O):0.167(positiveand moderate relationship)
TValue: 4.191(highlysignificant)
PValue:0.000(p<0.001)
Interpretation: Calendaranomalies(e.g.,seasonaleffectsinmarkets)havea significant positive effect on Intent. This implies that awareness of calendar anomalies influences investment intentions.

e) **CalendarAnomalies->Greedy Investor:**

PathCoefficient(O):-0.226(negativeandmoderaterelationship)
TValue: 5.451(highlysignificant)
PValue:0.000(p<0.001)
Interpretation: Calendar anomalies have a significant negative effect on Greedy Investorbehavior.Thissuggeststhatawarenessofcalendaranomaliesmayreduce greedy tendencies in investors.

f) **InvestorsFinancialBehavior->Intent:**

PathCoefficient(O):0.245(positiveand moderate relationship)
TValue:3.099(significantatp<0.01)

PValue:0.002(p<0.01)
Interpretation: Investors'financialbehaviorhasasignificantpositiveeffecton Intent. This implies that past financial behavior influences future investment intentions.

g) **InvestorsFinancialBehavior->Greedy Investor:**

PathCoefficient(O):0.001(almost norelationship)
TValue: 0.021(not significant)
PValue: 0.000(p<0.001,but thecoefficientisnegligible)
Interpretation: Investors'financialbehaviorhasnomeaningfuleffectonGreedy Investor behavior. This suggests that past financial behavior does not predict greedy tendencies.

h) **StrongestRelationships:**

Intent->GreedyInvestor(0.993,highlysignificant) Overconfidence->Intent (0.599,highlysignificant)

i) **ModerateRelationships:**

CalendarAnomalies->GreedyInvestor(-0.226,highlysignificant) Investors Financial Behavior -> Intent (0.245, significant)

j) **WeakRelationships:**

Overconfidence->GreedyInvestor(-0.146,significant)

7. CONCLUSION

The findings fromthis study highlight the significant influence of behavioral biases on investors' financial decision-making, both directly and indirectly through calendar anomalies. The results demonstrate that greed has the strongest direct impact on financial behavior, with an exceptionally high path coefficient of 0.993, indicating that investors driven by excessive desire for returns exhibit highly predictable and potentially irrational financial actions. Overconfidence also shows a substantial direct effect, suggesting that self-assured investors tend to make more decisive, though possibly riskier, financial choices. While herding behavior has a weaker direct influence, its effect becomes more pronounced when mediated by calendar anomalies, implying that investors who follow the crowd are particularly susceptible to seasonal market trends.

Furthermore, the analysis reveals that calendar anomalies serve as an important mediating mechanism, significantly transmitting the effects of all three behavioral traits—greed, overconfidence, and herding—on financial behavior. Psychological biases affect investment decisions directly and also produce synergy through market patterns that boosts their influence. Financial advisors together with policymakers and investors must emphasize behavioral bias understanding in educational frameworks and decision processes due to the important findings about human impacts on financial investment decisions. Research investigations should proceed by examining supplementary psychological and market elements to improve our understandingof investor markets. This research confirms that investors' psychological processes remain fundamental to create financial market results and market behavioral patterns.

.ImplicationsforPractice:

a) Investor Education: The education of investors regarding both market anomalies such as calendar effects and psychological biases including overconfidence would lower their greedy behavior while promoting better rational investment decisions.

b) Behavioral Interventions: Behavioral interventions that establish investor intentions such as financial planning and goal-setting demonstrate better success at controlling greed instead of treating past behavior alone.

c) Policy Considerations: Modern financial policies need to incorporate the evaluation of investor intentandpsychologicalelementstobuild ethicalinvestment practicesaccording to regulators and financial institutions.

LimitationsandFutureResearch

I. Self-reported data represents an inherent issue in this research because it might introduce biased results. Additional research needs to include quantitative measures for tracking the actual investments of participants.

II. Causal relationships remain undiscovered since the research employs a cross-sectional research design. Studies with time-based assessments can offer more detailed understanding about construct-based connections.

III. Research should expand to investigate cultural influences together with risk tolerance and additional elements that affect the development of greedy investor behavior.

The study establishes robust construct reliability along with validity while revealing essential associations between overconfidence and intent and calendar anomalies and financial behavior and greedy investor behavior. Intent acts as a crucial element to understand investor behavior because it shows how psychological elements influence their decision-making process. The research findings have substantial relevance for investor education strategies along with behavioral intervention methodologies along with policy development that together provide an approach to achieve better investment ethics and rationality. Future research needs to take these findings forward to investigate new influencing elements along with testing these results across multiple environments.

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