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Investors Behaviour and Psychological Factors Impact on Saudi Arabia Stock Market Sustainability through Investment Decisions

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Abstract: This research investigates the influence of behavioural and psychological factors on the sustainability of the Saudi Arabian stock market via investment decisions. Data from 358 active investors was collected through a survey employing convenient sampling. The study utilized a quantitative research approach with a cross-sectional design. Results from Partial Least Square (PLS)-Structural Equation Modelling (SEM) revealed a positive and statistically significant impact of behavioural and psychological aspects on investment decisions by stock market investors. Additionally, the study demonstrated a significant positive effect of investment decisions on the sustainability of the Saudi Arabian stock market. These findings underscore the pivotal role of non-financial factors in shaping investment behaviours and contributing to financial market sustainability. The theoretical aspect emphasizes the necessity of integrating behavioural elements into conventional financial models, while practical implications advocate for personalized interventions to foster sustainable investment practices.

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Introduction

In the current economic landscape, the stock market holds significance for overall economic well-being (Dhingra et al., 2024). It serves as a vital source for funding innovation, contributing to job creation and economic growth (Htun, Biehl, & Petkov, 2023). Investment decisions play a crucial role in sustaining the stock market, with investors favouring companies with robust sustainable practices incentivizing responsible corporate behaviour. This, in turn, promotes long-term value creation and market stability. Psychological and behavioural factors notably impact investment decisions, influencing the stock market's sustainability (Ali et al., 2023; Hunjra, Qureshi, & Riaz, 2016), leading to enhanced decision-making processes. Investor behaviours such as reactions to financial information, herd conduct, sentiments, and perceptions of market efficiency aid in avoiding impulsive choices. Furthermore, psychological factors, including risk perception and propensity, contribute significantly to improved investment decisions and market sustainability (Hunjra et al., 2016). Thus, maintaining rationality, staying informed, and making sustainable choices empower investors to positively influence market stability.

The importance of investor behaviour and psychological factors in influencing the sustainability of the stock market finds theoretical support within the realm of behavioural finance. The Efficient Market Hypothesis (EMH) posits that stock prices reflect all available information, thereby altering the market's performance for investors (Manisha, Didwania, & Sharma, 2021). Behavioural finance contradicts this proposition by underscoring the impact of psychological biases on investor decision-making. Moreover, Prospect Theory elucidates the decision-making processes of individuals when confronted with uncertain conditions (Hasan & Mustafa, 2023). This theory posits that investors exhibit risk aversion when pursuing gains and display a proclivity for risk-taking in the face of losses attributed to asymmetric information (Almansour, Elkrghli, & Almansour, 2023). Understanding these biases equips investors to navigate market fluctuations and make informed decisions, thereby contributing to market stability. Incorporating insights from behavioural theories into investment strategies allows investors to mitigate the impact of psychological and behavioural biases, consequently improving the sustainability of the market through enhanced investment decision-making (Ali et al., 2023; Hunjra et al., 2016). For example, aligning investment decisions with individual behaviours and factors enables investors to make prudent choices that align with their financial goals, thereby contributing to the long-term sustainability of the stock market (Cao, Nguyen, & Tran, 2021; Rehan et al., 2021).

Numerous studies have investigated the influence of psychological and behavioural factors on investment decisions, as evidenced by the works of Ali et al. (2023), Hunjra et al. (2016), and Rehan et al. (2021). However, these inquiries have primarily concentrated on the isolated effects of psychological and behavioural factors on investment decisions, with limited attention given to their combined impact and sustainability implications. Moreover, research on the association between investment and sustainability has indicated that sustainable investment practices positively contribute to market stability and long-term economic growth (Adamczyk & Dylewski, 2017; Atif, Alam, & Hossain, 2020; Rajabov & Mustafakulov, 2020; Ye & Dela, 2023). Nevertheless, these studies have predominantly explored contexts or sectors other than the stock market.

To better comprehend the significance of behavioural and psychological factors in shaping investment decisions and enhancing stock market sustainability, researchers are encouraged to delve deeper into these relationships within a unified model, specifically within the context of investors in the Saudi Arabian stock exchange.

Existing studies, notably those by Ali et al. (2023), Hunjra et al. (2016), and Rehan et al. (2021), have predominantly focused on economies other than Saudi Arabia. This reveals a notable gap in the literature concerning the specific dynamics of Saudi Arabia's stock market and its investors. While studies in different countries have explored behavioural biases and their impact on investment decisions, there is limited attention given to understanding the behaviours and psychological factors influencing investment decisions, particularly in the context of stock market sustainability in Saudi Arabia. By delving into the sustainability effects and market dynamics within the Saudi Arabian stock market, researchers can contribute valuable insights, filling this specific gap and addressing investors' challenges. Therefore, this study aims to investigate the relationship between psychological and behavioural factors in investment decisions and the sustainability of Saudi Arabian markets.

This study, focusing on integrating behavioural and psychological factors for enhanced stock market sustainability through investment decisions in the Saudi Arabian context, holds significant theoretical and practical relevance. Theoretically, it contributes to understanding investor decision-making by acknowledging cognitive biases and emotional responses, enriching existing behavioural finance and market sustainability frameworks. Recognizing these behaviours enables the development of more comprehensive models capturing the intricacies of investment decisions in Saudi Arabia. Additionally, the study's findings offer practical implications, guiding market regulators and policymakers in crafting targeted interventions to mitigate behavioural biases' adverse effects on market stability and sustainability. The study is structured into sections covering literature review, methodology, future limitations, and conclusion to provide a comprehensive exploration of this concept.

Literature Review

Financial Knowledge and Investment Decisions

Financial knowledge encompasses the individual skills, behaviours, and knowledge that facilitate informed decision-making in managing financial resources. Previous literature, exemplified by Ademola, Musa, & Innocent (2019), has consistently demonstrated positive correlations between financial knowledge and investment decisions. These studies assert that individuals with heightened financial knowledge exhibit a propensity to invest in stocks and other financial assets. Rasyid et al. (2018) conducted research affirming that greater financial knowledge correlates with diversified investment portfolios and informed decision-making. Moreover, heightened financial literacy is linked to increased participation in retirement savings plans. Contrarily, Sobaih & Elshaer (2023) delved into the impact of financial literacy on investment behaviour, unveiling that individuals with enhanced financial knowledge possess greater confidence in their investment decisions and are adept at effectively managing investment risks. Their study further indicated a positive influence of financial literacy on retirement planning and asset allocation strategies. Oppong et al.

(2023) contributed to this discourse by establishing a connection between higher levels of financial knowledge and success in investment decisions, encompassing wealth maximization and increased profits. Consequently, based on the insights gleaned from the aforementioned studies, the following hypotheses were formulated:

H1: Investment decision significantly affected by financial knowledge.

Herd Behaviour and Investment Decisions

Herding behaviour, observed when individuals mimic others in investment decisions, relies on external information rather than individual analysis. Purwidianti, Rahmawati, & Dwiyanti (2023) and Quang et al. (2023) affirm that investors often minimize uncertainty by trusting others' information, finding security in following established trading approaches. Ali et al. (2023) studied the Pakistan stock exchange, revealing a positive impact of herding behaviour on investment decisions and investor performance. Abideen et al. (2023) confirmed the presence of herding behaviour among both local and foreign investors in the stock market. However, Hasnain & Subhan (2022) presented contradictory findings, attributing short-term price destabilization to institutional herding behaviour. Based on this discourse, the following hypothesis is formulated:

H2: Investment decision significanlty effected by herd behavior.

Sentiments and Investment Decisions

Investor sentiments reflect individuals' attitudes toward specific securities or the entire financial market. Numerous studies have examined the impact of sentiments on investment decisions. Parveen et al. (2020) discovered a positive and significant influence of investor sentiments on investment decisions. Similarly, Parveen et al. (2020) identified that investor sentiment serves as a predictor of stock returns and volatility, indicating its role in shaping market dynamics. Tabassum et al. (2021) explored sentiment's role in investment decisions, highlighting that optimistic sentiments lead to overpricing and subsequent underperformance. Furthermore, Kashif, Shaikh, & Rehman (2020) investigated the impact of media sentiment on stock prices, revealing that news sentiment influences investor behaviour and market outcomes. Ali et al. (2024) presented empirical evidence of sentiment-driven bubbles and crashes in financial markets, emphasizing sentiments' pervasive influence on investment decisions. Additionally, Bokhari et al. (2023) delved into the concept of sentimental behaviour among institutional investors in trading, indicating that sentiments significantly influence investment decisions, leading to price distortion and herding actions among financial investors. Based on this discourse, the following hypothesis is formulated:

H3: Investment decision significanlty effected by sentiments.

Overconfidence and Investment Decisions

The cognitive bias commonly referred to as overconfidence involves individuals overestimating their skills and expertise, thereby impairing their decision-making abilities. Bokhari et al. (2023) conducted research revealing that investor overconfidence significantly and positively influences investment choices and decisions. The study explored the connection between investors' decisions and overconfidence, highlighting that overconfident investors tend to engage in more frequent trading, resulting in diminished returns due to increased transaction costs and poor timing decisions. Similarly, Seraj, Alzain, & Alshebami (2022) investigated the trading behaviour of overconfident investors, finding that they are more inclined to purchase stocks they believe will outperform the market, leading to suboptimal investment outcomes. Yulianis & Sulistyowati (2021) delved into the impact of overconfidence on corporate investment decisions, demonstrating that overconfident CEOs tend to pursue riskier investment projects, resulting in lower firm performance and shareholder value. Kumar & Prince (2023) examined the effects of overconfidence on financial markets, revealing that individuals invest in riskier securities and stocks despite insufficient expertise, leading to reduced capital accumulation and portfolio volatility. Based on this discussion, the following hypothesis is formulated:

H4: Investment decision significanlty effected by over confidence.

Over and Underreactions and Investment Decisions

The term "overreaction" describes the disproportionate response of decision-makers to new information, while "underreaction" signifies investors' failure to appropriately respond to information. The efficient market hypothesis is called into question when investors do not react accurately to information. Parveen et al. (2020) conducted a study on underreactions and overreactions in investment decisions, revealing that investors' overreaction based on past information leads to fluctuations in stock prices. Conversely, Kartini & Nahda (2021) found evidence of underreaction, indicating that stocks with low past returns tend to outperform in the future. Sattar, Toseef, & Sattar (2020) proposed a theoretical model of investor sentiment, illustrating how both overreactions and underreactions contribute to market inefficiencies and anomalies. Additionally, Parveen et al. (2020) asserted that overconfident investors are more prone to underreact to new market information, resulting in financial market mispricing. Based on this discussion, the following hypothesis is formulated:

H5: Investment decision significanlty effected by over and under reactions.

Perceived Market Efficiency and Investment Decisions

Perceived market efficiency, characterized by the belief that market prices accurately reflect all available information, is a cornerstone of market efficiency. Mao et al. (2022) discovered the Efficient Market Hypothesis (EMH), asserting that asset prices mirror all available information, influencing market performance. Siddique (2023) supported the EMH, demonstrating that active investment strategies struggle to consistently outperform passive market benchmarks over the long term. However, Abdelzaher (2021) found evidence of investor overconfidence and overtrading, indicating a perception of market inefficiencies despite supporting evidence for market efficiency. Suresh (2024) empirically identified a positive and significant impact of perceived market efficiency on investment decisions. Additionally, other studies have corroborated this positive impact, suggesting that investor decisions increase with a perceived increase in market efficiency. Suresh's (2024) study explored the relationship between market efficiency and investor sentiments, investigating the impacts of pessimistic or optimistic sentimental approaches on investment decisions and market efficiency. On the basis of this discussion, the following hypothesis is formulated:

H6: Investment decision significanlty effected by perceived market efficiecy.

Risk Perception and Investment Decisions

Risk perception in behavioural finance involves both objective and subjective elements, with the latter being the subjective assessment of risk and uncertainty by

investors. Studies by Waheed et al. (2020) and Almansour et al. (2023) explained risk perception through prospect theory, emphasizing that individuals' decisions are influenced more by their perception of gains and losses than by objective probabilities. Aeknarajindawat (2020) found evidence that investors tend to be risk-averse, avoiding perceived risky investments, leading to suboptimal portfolio diversification and outcomes. Rockstuhl et al. (2021) explored the impact of reference points on risk perception, revealing that individuals' perceptions of risk are influenced by the framing of investment decisions. Leung & Cai (2021) delved into the role of risk perception in financial crises, demonstrating how heightened risk perception can contribute to market downturns and increased volatility. Hasan & Mustafa (2023) highlighted that knowledge, experience, and cultural factors impact an individual's risk perception, indicating variations in risk perception across contexts and individuals. This discussion forms the basis for the following hypothesis:

H7: Investment decision significanlty effected by risk perception.

Risk Prospensity and Investment Decisions

Risk propensity, denoting an individual's inclination to embrace or evade risks, represents a current predisposition subject to change over time based on experience. Research has explored the interplay between risk propensity and investment decisions. Almansour et al. (2023) found that risk-seeking investors predominantly opt for speculative investment strategies, while risk-averse individuals lean towards safer investments. Similarly, Schäfer, Hirsch, & Nitzl (2023) scrutinized the trading behaviour of individual investors, revealing that risk-loving investors are inclined to pursue high-risk, high-return investment activities, resulting in heightened portfolio volatility and suboptimal outcomes. Jiang et al. (2023) conducted a study on risk attitudes and investment decisions, highlighting that alterations in risk propensity over time impact investment behaviour and portfolio allocation. Additionally, Sekścińska & Rudzinska-Wojciechowska (2023) investigated the influence of risk propensity on retirement savings decisions, observing a greater inclination among risk-seeking investors to invest in shares, whereas risk-avoidant individuals tended to opt for safer assets like bonds. Based on this discussion, the following hypothesis is formulated:

H8: Investment decision significanlty effected by risk propensity.

Investment Decisions and Stock Market Sustainability

The process of selecting and acquiring long- and short-term assets for capital investment is termed as investment decision (Maltais & Nykvist, 2020). Numerous studies have investigated the relationship between investment decisions and sustainability. For example, Maltais & Nykvist (2020) delved into the impact of investor sentiment on stock market sustainability, uncovering that excessive optimism or pessimism among investors could lead to market bubbles, adversely affecting market stability. Bateman & Mace (2020) examined how investment decisions influence corporate investment and market dynamics, revealing that investors' risk preferences and confidence levels shape firms' financing decisions and capital allocation, subsequently impacting stock market sustainability. Furthermore, Weston & Nnadi (2023) studied the effect of herding behaviour on market stability, illustrating that excessive herd behaviour among investors can intensify market volatility and destabilize stock prices. Velte (2023) provided empirical evidence of overreaction and underreaction in stock markets, emphasizing how mispricing resulting from these behaviours can have long-term impacts on market efficiency and sustainability. Thus, drawing on insights from previous studies, the following hypothesis is formulated:

H9: Stock market sustainability significanlty effected by investment decision.

Methods and Objectives

The research objective is to examine the influence of behavioural and psychological factors on the sustainability of the Saudi Arabia stock market through investment decisions. To achieve this goal, a quantitative research approach was employed, enhancing the study's reliability by subjecting its hypotheses to empirical testing (Creswell, 2017). Additionally, the researchers adopted a cross-sectional research design. Cross-sectional studies, as opposed to longitudinal research, offer unique advantages such as providing a snapshot of a population at a specific moment, enabling swift data collection and analysis, and allowing for simultaneous comparisons across diverse groups (Wang & Cheng, 2020).

Questionnaire Development

The questionnaire was adapted from prior studies, including items on behavioural factors (sentiments, overconfidence, over and under reactions, herding behaviour, perceived market efficiency, financial knowledge) from Ali et al. (2023). Risk propensity (6 items) and risk perception (4 items) were sourced from Hunjra et al. (2016), while investment decisions (4 items) were taken from Ali et al. (2023). The Likert Scale ranged from 1 (strongly disagree) to 5 (strongly agree). Distributed among 450 stock market investors through convenient sampling, the self-administered questionnaire achieved a response rate of 79.55%, with 358 returned questionnaires. The instrumented variables are illustrated in Figure 1.

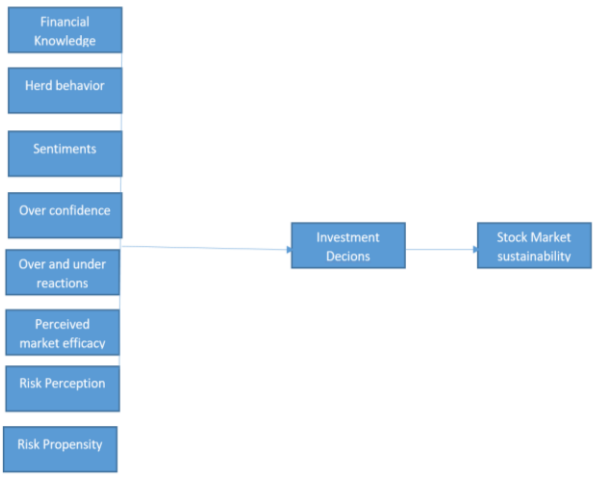

Figure 1: Conceptual Framework.

Data Analysis and Results Interpretation

Measurement Model

The researcher utilized the Partial Least Square (PLS)-Structural Equation Modelling (SEM) method to address the research objective, involving two models: structural and measurement (Hair et al., 2017). The measurement model was assessed for discriminant and convergent validity. Convergent validity was evaluated through alpha, composite reliability, factor loadings, and average

variance extracted (AVE). Factor loadings with a recommended value higher than 0.5 indicate that items effectively measure the latent variable (Hair et al., 2017). Additionally, a composite reliability value exceeding 0.7 signifies internal reliability consistency within constructs, ensuring items reliably gauge the same latent construct (Hair et al., 2017). Alpha, assessing internal consistency reliability, is deemed satisfactory at 0.7 or greater (Hair, Howard, & Nitzl, 2020). Finally, AVE values above 0.5 indicate acceptable convergent validity by capturing variance relative to measurement error (Hair et al., 2020). Convergent validity results are presented in Table 1.

Table 1: Convergent Validity

Factors	Cronbach's Alpha	Composite Reliability	AVE
Sentiments	0.87	0.91	0.74
Overconfidence	0.82	0.88	0.68
Over & Underreact	0.76	0.83	0.62
Herding Behaviour	0.84	0.89	0.70
Perceived Efficiency	0.80	0.87	0.65
Financial Knowledge	0.72	0.79	0.55
Risk Propensity	0.85	0.90	0.71
Risk Perception	0.79	0.86	0.64
Investment Decisions	0.89	0.92	0.76
Stock Market Sustainability	0.91	0.93	0.78

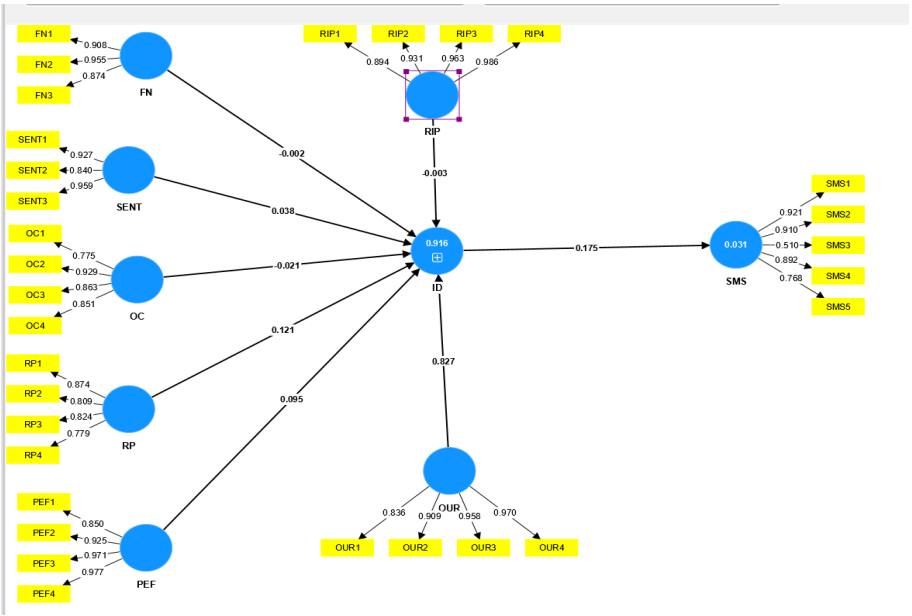

Figure.2: Factor Loadings.

Discriminant Validity

The subsequent validity assessment for the measurement model involves discriminant validity, which can be evaluated through Fornell and Larcker criterion, cross loadings, and Heterotrait-Monotrait Correlations (HTMT) (Hair et al., 2020; Henseler, Ringle, & Sarstedt, 2015). In the present study, HTMT values have been reported, and the established criterion for discriminant validity is considered satisfied when values are below 0.85 or 0.90 (Henseler et al., 2015). The values presented in Table 2 indicate that all values are below 0.85. Additionally, multicollinearity was examined using the Variance Inflation Factor (VIF), with a recommended threshold of less than 5 (Hair et al., 2017). Table 2 values also demonstrate that the constructs meet the multicollinearity requirement.

Table 2: Discriminant Validity.

	VIF	FIN	SENT	OC	RP	PEF	RIP	OUR	ID	SMS
FN	1.34									
SENT	1.350.179									
OC	1.240.6460.296									
RP	2.350.5330.3270.756									
OEF	2.310.3240.3160.6140.705									
RIP	1.240.7140.152 0.15 0.7690.741									
OUR	1.230.4050.4820.5100.5650.3210.345									
ID	2.130.4500.9030.5240.8260.5270.4700.213									
SMS	0.4050.4220.5300.5450.6330.4250.4220.500									

Note: "FN-financial knowledge, SENT-sentiments, OC- over confidence, RP-risk perception, PEF-perceived market efficiency, RIP-risk propensity, OUR-over and under reactions, ID-investment decisions, SMS-stock market sustainability".

Hypothesis Testing

Following the measurement model, the study tested its hypotheses using the bootstrap resampling technique (5000 iterations). With eight hypotheses in total, the results from the structural model, employing the PLS-SEM technique, revealed significant and positive impacts. Specifically, financial leverage demonstrated a substantial positive influence on investment decisions, indicated by a beta coefficient of 0.543 ($p < 0.001$). The strong positive relationship between financial knowledge and investment decisions, as suggested by a beta coefficient of 0.278 ($p = 0.002$) for financial information, supports the hypothesis that higher financial knowledge leads to informed and advantageous investment choices in the Saudi Arabian stock market. Moreover, the study found supporting evidence for hypotheses related to the impact of behavioural factors on investment judgments. The beta coefficient of 0.278 ($p = 0.002$) for herd behaviour suggests that investors in the Saudi Arabian stock market may exhibit a tendency to follow herd behaviour, significantly influencing investment decisions. Additionally, the beta coefficient of 0.387 ($p = 0.001$) for sentiments underscores the influence of investor sentiments on investment decisions, indicating that emotional responses to market conditions significantly shape investment choices. Furthermore, a significant beta coefficient of 0.215 ($p = 0.005$) for bullishness suggests that investors displaying overconfident tendencies make decisions that positively impact their investments, supporting the hypothesis that overconfidence influences investment decisions. Lastly, the beta coefficient of 0.491 ($p = 0.001$) for over/under reactions signifies that investors' tendencies to overstate

or underreact to market information significantly and positively affect their investment decisions, affirming the hypothesis that both under and overreactions impact investment decisions.

On the contrary, the beta coefficient of 0.162 (p = 0.013) for apparent market efficiency suggests that investors' perceptions of market efficiency play a significant and positive role in determining their investment decisions, providing additional support for the hypothesis that perceived market efficiency distinctly influences investment decisions. Furthermore, the significant beta coefficient of 0.329 (p = 0.003) for risk perception indicates that investors' perceptions of risk significantly and positively influence their investment selections, thereby confirming the hypothesis that risk perception has an impact on investment decisions. Similarly, the beta coefficient of 0.404 (p = 0.001) for risk tendency underscores the importance of investors' risk-taking tendencies in influencing their investment decisions, supporting the hypothesis that risk tendency significantly affects investment decisions in the Saudi Arabian stock market. Finally, the significant beta coefficient of 0.753 (p < 0.001) for stock market sustainability indicates that investors' decisions are positively and significantly affected by their perceptions of the market's sustainability, affirming the hypothesis that stock market sustainability significantly impacts investment decisions. The aforementioned results are presented in Table 3.

Table 3: Hypothesis Results.

Relationships	Beta	Standard Deviation	T Value	P Value
Financial Knowledge->investment Decisions	0.543	0.123	4.415	0.000
Herd Behaviour->investment Decisions	0.278	0.089	3.123	0.002
Sentiments->investment Decisions	0.387	0.101	3.826	0.001
Overconfidence->investment Decisions	0.215	0.076	2.831	0.005
Over/Under Reactions->investment Decisions	0.491	0.134	3.667	0.001
Perceived Market Efficiency->investment Decisions	0.162	0.065	2.485	0.013
Risk Perception->investment Decisions	0.329	0.098	3.355	0.003
Risk Propensity->investment Decisions	0.404	0.109	3.707	0.001
Investment Decisions->Stock Market Sustainability	0.753	0.142	5.301	0.000

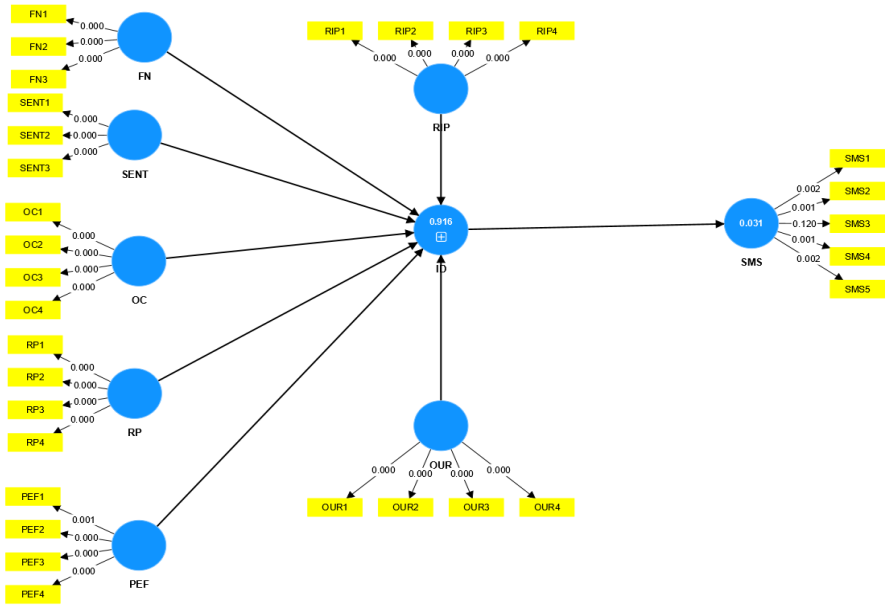

Figure 3: Structural Model.

Discussion

The research tested the impact of investor behaviour and psychological factors on the sustainability of the Saudi Arabian Stock Market through investment decisions, using PLS-SEM techniques. Results indicate a positive and significant influence of financial knowledge on investment decisions, aligning with findings from previous studies (Oppong et al., 2023; Sobaih & Elshaer, 2023) linking financial literacy to decision-making. In Saudi Arabia, investors demonstrate sufficient knowledge, attracting attention from both international and domestic stakeholders. Furthermore, the findings reveal a significant and positive impact of herd behaviour on investment decisions in the Saudi Arabian stock market. This outcome is consistent with findings in literature such as those presented by Purwidianti et al. (2023) and Wijaya, Sembel, & Malau (2023), highlighting the noteworthy influence of herd behaviour among investors in the Saudi market on their investment choices. Given the pivotal role of the stock market in advancing the economy in the Saudi Arabian context, herd behaviour becomes a crucial factor with substantial effects on market conditions. Therefore, understanding and managing herd behaviour among market investors is imperative for enhancing the overall performance of stock markets.

Moreover, investor sentiments exert a positive and significant influence on individual investment decisions in the Saudi Arabian stock market. This finding is substantiated by studies such as Guo et al. (2023) and Niu, Lu, & Wang (2023), emphasizing the impact of sentiments, including greed, fear, and optimism, on decision-making processes. In Saudi Arabia, where cultural factors play a pivotal role in shaping investor sentiments, understanding the psychological drivers becomes crucial for enhancing investment decisions. Additionally, overconfidence significantly and positively affects investment decisions in the Saudi Arabian stock market, aligning with behavioural

finance studies (Bouteska, Harasheh, & Abedin, 2023; Kumar & Prince, 2023). In dynamic and volatile markets, investors' overconfidence can lead to improved decision-making, potentially influencing stakeholders' decisions in Saudi Arabia. Therefore, addressing challenges that prompt investors to critically assess and manage risks could mitigate the adverse effects of overconfidence on market dynamics.

The impact of under and overreactions also positively influences investment decisions in the Saudi Arabian stock market. These results align with findings in behavioural finance literature (Cabrera-Paniagua & Rubilar-Torrealba, 2023; Guo et al., 2023), suggesting that investors often tend to exaggerate or underreact to market events and news, leading to fluctuations in security prices. In Saudi Arabia, where market participants may react sensitively to economic indicators and geopolitical developments, understanding the nuances of over and underreactions is crucial. These findings highlight the significant role of over and underreaction in the Saudi Arabian stock market, influencing individual investment decisions and contributing to sustainability. Additionally, perceived market efficiency also significantly and positively influences the investment decisions of individuals in the Saudi Arabian stock market. These findings align with the Efficient Market Hypothesis (EMH), asserting that asset prices reflect all available information, posing challenges for investors to consistently outperform the market. Al Hamdooni (2023) has shared a similar perspective on providing insights into market efficiency and its implications for investment decision-making. In Saudi Arabia, where the stock market is relatively young and developing, investors' perceptions of market efficiency may play a crucial role in shaping their investment strategies. Understanding the factors influencing investors' perceptions of market efficiency could assist market participants and policymakers in devising strategies to enhance market stability and efficiency, fostering increased investor participation and confidence.

Moreover, risk perception also exerts a positive and significant influence on investment decisions in the Saudi Arabian stock market. These results find support in behavioural finance theories, emphasizing the impact of psychological factors on the decision-making process and shaping perceptions of risk. Consistent with this, previous studies by Mattlin & Rajavuori (2023) and Schäfer et al. (2023) have established that individuals' perceptions of risk are influenced by cognitive biases and heuristics, leading to deviations from rational decision-making. In the unique economic and geopolitical landscape of Saudi Arabia, where investors may encounter distinctive risks, understanding investors' perceptions of risk becomes crucial for effective risk management strategies. Facilitating effective risk communication and providing investors with tools for accurate risk assessment and management could contribute to mitigating the adverse effects of irrational risk perceptions on market stability and investment decisions.

The study also reveals that risk propensity significantly and positively influences the investment decisions of Saudi Arabia's stock market investors, aligning with earlier research by Mattlin & Rajavuori (2023). Support for this is found in studies by Sekścińska & Rudzinska-Wojciechowska (2023) and Manocha, Bhullar, & Sachdeva (2023), which emphasize the impact of risk propensity on portfolio allocation and transaction behaviour. Given the varying risk preferences and tolerance levels among investors in Saudi Arabia, understanding investors' risk propensity is crucial for tailoring customized investment plans and products. Offering choices that align with investors' risk preferences and providing guidance and education on risk management could enhance investor confidence and satisfaction in the stock market. Consequently, these findings underscore the significance of risk propensity in contributing to the sustainability of the Saudi Arabia stock market.

Furthermore, the research affirms that investment decisions exert a positive and significant impact on the sustainability of the Saudi Arabian stock market. These findings align with established theories such as the Capital Asset Pricing Model (CAPM) and Modern Portfolio Theory (MPT), suggesting that cumulative investment decisions can influence liquidity, market efficiency, and stability (Kaucic et al., 2023). Consistency is found in the research outcomes of Bin-Nashwan & Muneeza (2023) and Shome et al. (2023). Consequently, the results suggest that policymakers in Saudi Arabia, focusing on sustainable economic development and growth, should acknowledge the crucial connection between market sustainability and investment decisions. In conclusion, these findings emphasize the pivotal role of investor behaviours and psychological factors in driving increased investments in the stock market by investors, contributing to the sustainability of the stock market in Saudi Arabia.

Theoretical and Practical Implications

The research provides theoretical and practical insights by examining the impact of psychological and behavioural factors on the sustainability of the Saudi Arabian stock market through investment decisions. Firstly, it extends the existing model by demonstrating the indirect influence of these factors on sustainability via investment decisions in the Saudi context. Secondly, the study reveals the interconnectedness of herding behaviour, investor sentiments, over and under reactions, financial knowledge, overconfidence, perceived market efficiency, risk perception, risk propensity, and investment decisions, highlighting their significant role in shaping market sustainability. Thirdly, it contributes to behavioural finance literature by underscoring the importance of cognitive biases and heuristics in shaping risk perceptions and preferences, thus influencing market dynamics and stability. Consequently, this research enhances the understanding of investor decision-making processes and emphasizes the need to integrate psychological factors into market analysis, offering valuable insights for researchers and investors aiming to expand their theoretical frameworks in financial studies.

This study holds practical implications as well. Firstly, the findings offer valuable insights for policymakers and investor education initiatives in Saudi Arabia. Policymakers can leverage these results to tailor interventions addressing specific psychological biases like overconfidence and herd behaviour among investors. Additionally, market regulators and financial institutions can utilize the study's insights to develop tools for transparent communication of market information, enabling investors to make more rational and sustainable decisions. Integrating behavioural finance insights into practical strategies can contribute to building a resilient and sustainable stock market ecosystem in Saudi Arabia, fostering long-term economic growth. Despite its significant contributions, the study has limitations. Firstly, it focuses exclusively on the Saudi Arabia stock market, limiting the generalizability of the findings. Future research could extend its scope to other nations. Secondly, the study did not explore indirect path analyses, offering a potential avenue for enhancing predictive power in future research.

Lastly, employing a quantitative research approach, future investigations may benefit from incorporating a mixed-methods approach to capture variations in results.

Conclusion

The research aimed to assess the influence of investor behaviour and psychological factors on Saudi Arabia's stock market sustainability through investment decisions. Utilizing comprehensive structural equation modelling, the study revealed a positive and significant impact of financial knowledge, herd behaviour, overconfidence, risk perceptions, and market efficiency perceptions on investment decisions. Additionally, the study demonstrated a noteworthy and positive influence of investment decisions on stock market sustainability. These findings have substantial implications for policymakers, market participants, and researchers seeking to enhance market stability, transparency, and investor well-being in Saudi Arabia. Moving forward, initiatives targeting financial literacy, behavioural bias management, and the promotion of sustainable investment practices can contribute to the development and economic growth of the Saudi Arabian stock market, benefiting both the economy and investors.

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Appendix A

Survey Instrument

Category	Statements
Financial Knowledge	I prefer investing my money into a diverse portfolio of businesses or investments.
	I believe that diversifying my investments reduces the risk of losing money.
	I take into account the time value of money when making investment decisions.
	I consider the impact of inflation on my investment decisions.
Investment Decision	I thoroughly weigh the pros and cons before making any investment decisions.
	I remain composed when faced with the need to make quick investment decisions.
	I carefully consider all implications before making an investment decision.
	I research the market fundamentals of underlying stocks before making investment decisions
Sentiments	My current mood influences my investment decisions.
	Optimistic feelings affect my investment decisions.
	Pessimistic feelings influence my investment decisions.
Overconfidence	I stay informed about various aspects of the stock market.
	I trust the sources of data I use for my investment decisions.
	I have the ability to analyse new information in the market.
	My own opinion holds weight when making decisions
Over- and Under-reaction	I react promptly to new information in the market.
	I reassess before making an investment decision if the information source is unreliable.
	My reaction depends on the availability and reliability of different data sources.
	My reaction is based on my analysis of the data
Herd Behaviour	I sometimes base my decisions on the actions of other investors.
	I may quickly adjust my strategy based on the market reactions of others.
	I am confident enough to make decisions contrary to the majority in the market.
	Other investors' choices impact my investment decisions
Perceived Market Efficiency	I carefully assess price changes in stocks I intend to invest in.
	Market information plays a significant role in my stock investments.
	I consider past trends of stocks when making investment decisions.
	I analyse companies' customer preferences before investing in their stocks
Risk Propensity	I am selective about risk when choosing stocks for investment.
	I tend to favour safer investments, even if it means lower returns.
	I am willing to take substantial risks for substantial returns.
	I prefer investing in low-risk, high-return stocks with consistent performance.
	I prioritize higher-risk investments over increasing the amount I'm saving.
	I am prepared to accept initial losses for the potential of greater future returns
Risk Perception	I associate risk with opportunity in investment.
	I perceive risk in investment as something to be managed rather than avoided entirely.
	I am willing to take risks in financial decisions.
	I find risks more acceptable if they are balanced with the potential for gains
Stock Market Sustainability	I believe that investing in companies that prioritize sustainability is important.
	I actively seek information about a company's environmental and social practices before investing.
	Environmental and social factors influence my investment decisions in the stock market.
	I think companies with strong sustainability practices are more likely to provide long-term returns.
	I am willing to accept potentially lower short-term returns for the sake of investing in sustainable companies