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BEHAVIORAL BIASES IN ISLAMIC RETAIL INVESTING: THE MODERATING ROLE OF DEMOGRAPHICS

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ABSTRACT - Young Muslim retail investors in the Indonesian capital market often face challenges stemming from various behavioral finance biases that can negatively impact their investment decisions. This study examines the influence of behavioral finance biases—herding, overconfidence, mental accounting, loss aversion, and status quo bias—on the investment decisions of novice Muslim retail investors in Indonesia. It further explores the moderating effects of demographic factors including generation, gender, education, and income. Using a quantitative research design, data were collected from 318 respondents through a structured questionnaire, with 310 valid responses analyzed using multiple regression and moderation analysis via Hayes' PROCESS macro in SPSS. The results indicate that all five behavioral biases negatively affect investment decisions, and demographic variables significantly moderate these effects. These findings underscore the importance of financial education and advisory services tailored to both behavioral tendencies and Islamic financial values to support informed decision-making among young Muslim investors. Despite its demographic limitations, this study contributes to a deeper understanding of behavioral finance within the Islamic finance context.
Keywords: Behavioral Finance, Investment Decisions, Moslim Retail Investors, Demographic Factors, Indonesia

ABSTRAK - Bias Perilaku dalam Investasi Ritel Syariah: Peran Moderasi Demografis. *Investor ritel Muslim pemula di pasar modal Indonesia seringkali menghadapi tantangan yang disebabkan oleh berbagai bias perilaku keuangan yang dapat berdampak negatif pada keputusan investasi mereka. Penelitian ini mengkaji pengaruh bias perilaku keuangan—herding, overconfidence, mental accounting, loss aversion, dan status quo bias—terhadap keputusan investasi investor ritel Muslim pemula di Indonesia. Studi ini juga menganalisis peran moderasi faktor demografis seperti generasi, jenis kelamin, pendidikan, dan pendapatan. Dengan menggunakan pendekatan kuantitatif, data dikumpulkan dari 318 responden melalui kuesioner terstruktur, dengan 310 data valid yang dianalisis menggunakan regresi berganda dan analisis moderasi melalui PROCESS macro dari Hayes dalam SPSS. Hasil penelitian menunjukkan bahwa kelima bias perilaku berpengaruh negatif terhadap keputusan investasi, dan variabel demografis memoderasi pengaruh tersebut secara signifikan. Temuan ini menekankan pentingnya edukasi dan layanan konsultasi keuangan yang disesuaikan dengan kecenderungan perilaku dan nilai-nilai keuangan Islam untuk mendukung pengambilan keputusan yang lebih terinformasi di kalangan investor Muslim muda. Meskipun memiliki keterbatasan pada fokus demografis, penelitian ini memberikan kontribusi terhadap pemahaman yang lebih mendalam mengenai perilaku keuangan dalam konteks keuangan Islam.*
Kata Kunci: *Perilaku Keuangan, Keputusan Investasi, Investor Ritel Muslim, Faktor Demografi, Indonesia*

INTRODUCTION

The global landscape of financial markets has witnessed a notable surge in the participation of retail investors in recent years (Johri et al., 2023). This trend is particularly evident in emerging economies such as Indonesia, where the number of retail investors reached 9.6 million in 2023, a significant increase from 8.62 million in 2022 (OJK, 2023). This growth reflects rising public confidence in the capital market, significantly facilitated by technological advancements that enhance accessibility through digital platforms and applications (Tahir & Danarsari, 2023). The Indonesian government actively promotes capital market participation, particularly targeting younger generations like Millennials and Gen Z through digital initiatives. However, despite increased access, a persistent challenge remains the relatively low level of financial literacy within the capital market subsector, potentially hindering effective participation among novice investors (Abdullah & Anderson, 2015).

Unlike institutional investors who typically possess extensive financial expertise, retail investors often require more fundamental knowledge of financial management due to diverse investment goals ranging from long-term objectives like retirement and education to short-term financial targets (Clark & Monk, 2017). Their engagement methods vary, including direct stock purchases, mutual fund investments, and utilizing online investment platforms (Johri et al., 2023). The flexibility offered by these various avenues influences investment choices and ultimately shapes investment decisions.

For young and novice retail investors, navigating the complexities of the capital market is frequently compounded by behavioral finance factors. Research indicates that phenomena such as herding, where investors mimic market trends without thorough analysis, are prevalent among young investors (Jiang et al., 2018). Overconfidence, characterized by an inflated perception of one's investment prowess, often leads to riskier decisions (Pikulina et al., 2017). Mental accounting, the irrational segregation of money, can result in suboptimal portfolio management. Loss aversion, the psychological tendency to fear losses more than valuing equivalent gains, can induce excessively conservative strategies and impede potential growth (Masruki & Hussin, 2018). Furthermore, status quo bias, the inclination to maintain existing investment positions, may prevent necessary portfolio adjustments (Mahyudi & Abdul Aziz, 2017).

Existing literature suggests that demographic characteristics can moderate the influence of these behavioral biases on investment decisions. Generational differences, for instance, appear significant, with studies indicating that Millennials might be more susceptible to herd behavior compared to older investors who favor individual analysis (Adielyani & Mawardi, 2020). Gender also plays a role; women are often found to be more risk-averse and less confident investors than men (Olsen & Cox, 2001; Deo & Sundar, 2015). Educational attainment is linked to a greater ability to mitigate biases like mental accounting and loss aversion (Silva et al., 2023; Brown et al., 2024). Similarly, income levels can influence how individuals approach risk and status quo bias, with higher income often associated with better access to information and resources, potentially reducing resistance to change (Godefroid et al., 2023).

Despite the growing body of work on behavioral finance and demographic influences in investment decisions, a comprehensive understanding of how a combination of key behavioral biases impacts the decisions of novice retail investors in the Indonesian capital market, and how these relationships are simultaneously moderated by a range of demographic variables (generation, gender, education, income), remains limited. Most studies tend to focus on a limited number of biases or demographic factors, or are conducted in different market contexts, potentially limiting the generalizability of findings to the unique characteristics of the Indonesian market and its novice investors. Specifically, there is a research gap concerning the integrated effect of herding, overconfidence, mental accounting, loss aversion, and status quo bias on novice Indonesian retail investors' decisions, analyzed through the lens of multifaceted demographic moderation.

This study addresses this gap by investigating the direct effects of these five prominent behavioral finance factors on the investment decisions of novice retail investors in Indonesia. Furthermore, it uniquely explores the novel contribution of examining the simultaneous moderating roles of generation, gender, education, and income on these relationships. This study offers significant research significance by providing a more nuanced understanding of these complex interactions within the specific context of the growing Indonesian retail investor base. The findings will have practical implications for financial educators in developing targeted literacy programs, for policymakers in designing investor protection measures, and for financial institutions in tailoring products and services for novice investors.

Theoretically, this study contributes by testing the applicability and interplay of established behavioral finance theories and demographic influences in a specific emerging market context, enriching the understanding of investor behavior beyond developed markets.

Specifically, the objectives of this study are to: 1) Investigate the direct effects of behavioral finance factors (herding, overconfidence, mental accounting, loss aversion, and status quo bias) on investment decisions among novice investors; 2) Assess how generational differences (Millennials vs. older generations) influence the impact of these behavioral finance factors; 3) Explore gender-specific variations in the relationships between behavioral finance factors and investment decisions; 4) Examine the role of educational background (high school, undergraduate, postgraduate) in moderating these relationships; and 5) Analyze the moderating effect of income level (low, middle, upper) on the relationships between behavioral finance factors and investment decisions.

The remainder of this paper is organized as follows: Section 2 provides a detailed review of the relevant literature on behavioral finance, demographic factors, and investor decision-making. Section 3 outlines the research methodology, including data collection and analytical approaches. Section 4 presents the results of the empirical analysis, and discusses the findings and their implications. Finally, Section 6 concludes the study and offers suggestions for future research.

LITERATURE REVIEW

This section reviews the theoretical underpinnings of behavioral finance and its relevance to individual investor decision-making, with a specific focus on the context of Islamic finance. It examines key behavioral biases identified in the literature and explores how Islamic principles, such as Tawakal and the requirements of Sharia compliance, may interact with or potentially moderate these biases among Muslim investors. This review serves to build the theoretical framework for the study and justify the proposed hypotheses.

Behavioral Biases in Investment Decisions

Traditional financial theory often assumes investors are rational agents who make decisions based on maximizing utility and processing all available information efficiently. However, behavioral finance challenges this assumption by integrating psychological principles to explain deviations from

rationality in financial decision-making (Kahneman & Tversky, 1979; Thaler, 1999). Several behavioral biases have been identified as significantly influencing how investors perceive information, evaluate risks, and make investment choices. This study focuses on five prominent biases: herding, overconfidence, mental accounting, loss aversion, and status quo bias.

Herding

Herding behavior occurs when individuals follow the actions of a larger group, often disregarding their own information or analysis (Hassan & Mahlknecht, 2011). In financial markets, this can manifest as investors blindly following market trends or the decisions of others, potentially leading to irrational outcomes like asset bubbles or crashes due to a lack of independent, in-depth analysis. The tendency to herd is often amplified by uncertainty and informational cascades, where observing others' actions is perceived as a signal of valuable information.

In the context of Islamic finance, the principle of seeking knowledge (*'ilm*) and making informed decisions based on clear understanding is strongly emphasized. Islam encourages individuals to rely on sound analysis rather than mere imitation. While uncertainty can still drive herding among Muslim investors, the principle of *tawakal* (surrender to Allah after exerting maximum effort) may mitigate this bias by encouraging deliberate decision-making grounded in Sharia principles rather than simply following the crowd (Hassan & Mahlknecht, 2011). Muslim investors often consult religious scholars and seek Sharia guidance, which can provide an alternative source of information and reduce the reliance on observing others' actions, thereby potentially lessening the tendency to herd without proper consideration of Islamic principles (Hassan & Mahlknecht, 2011).

Overconfidence

Overconfidence bias is characterized by investors overestimating their own abilities, knowledge, or the precision of their information, leading them to take on excessive risk or trade more frequently than is optimal (Ali, 2008; Pikulina et al., 2017). This bias can lead to poor investment performance as investors may disregard warning signs or neglect diversifying their portfolios due to an unwarranted belief in their own predictive powers.

Within Islamic finance, principles of prudence and justice in financial transactions are paramount (Kamri et al., 2014). Overconfidence can lead to engaging in high-risk activities that might verge on *gharar* (excessive uncertainty), which is prohibited in Islam (Sari et al., 2024). The principle of *tawakal*, however, can serve as a counteracting force against overconfidence (Ali, 2008). It encourages humility and reduces reliance solely on one's own perceived abilities by emphasizing that ultimate outcomes rest with Allah after diligent effort. This perspective may prompt Muslim investors to be more cautious, conduct thorough due diligence, and temper their self-assurance, potentially reducing the manifestation of overconfidence bias in their investment decisions (Ali, 2008; Ibrahim & Kamri, 2017).

Mental Accounting

Mental accounting refers to the cognitive process where individuals categorize and value money differently depending on its source or intended use, often in ways that are inconsistent with economic rationality (Thaler, 1999). For instance, investors might treat investment gains as 'play money' distinct from their regular income, leading to suboptimal financial management and potentially irrational decisions within specific 'mental accounts'.

In Islamic finance, the principles of integrity, transparency, and holistic wealth management are highly valued. While Islam encourages clear financial management, it emphasizes fairness and proportional risk-sharing (*musharakah*, *mudharabah*), which can be undermined by the arbitrary segregation inherent in mental accounting. Muslim investors adhering to Sharia principles often categorize wealth based on religious obligations (e.g., funds for Zakat or charity) or specific Sharia-compliant investment goals (Hasan, 2009). This intentional, value-driven categorization differs from irrational mental accounting and aligns with the Islamic emphasis on managing wealth justly and transparently, potentially mitigating the negative effects of irrational mental accounting on portfolio decisions (Hasan, 2009).

Loss Aversion

Loss aversion describes the psychological phenomenon where the pain associated with experiencing a loss is subjectively greater than the pleasure derived from an equivalent gain (Kahneman & Tversky, 1979). This bias can lead investors to be overly risk-averse, avoiding potentially profitable

investments, or to hold onto losing investments for too long in the hope of avoiding the realization of a loss, rather than cutting losses early.

For Muslim investors, loss aversion can be compounded by concerns about adhering to Sharia principles, particularly avoiding *riba* (interest) and *maysir* (gambling). The fear of inadvertently engaging in prohibited activities if investments turn sour can heighten anxiety around potential losses (Mahyudi & Abdul Aziz, 2017). However, similar to overconfidence, the principle of Tawakal can help mitigate this bias. By focusing on diligent effort and Sharia compliance while leaving the ultimate outcome to Allah, investors can become more accepting of inherent market uncertainties and less paralyzed by the fear of material losses, enabling them to make decisions based on sound Sharia-compliant analysis rather than excessive fear (Mahyudi & Abdul Aziz, 2017).

Status Quo Bias

Status quo bias is the preference for maintaining one's current situation or decision, even when alternative options might be more beneficial (Mahyudi & Abdul Aziz, 2017; Samuelson & Zeckhauser, 1988). In investing, this translates to a reluctance to rebalance portfolios, switch funds, or adapt to changing market conditions, potentially leading to missed opportunities or prolonged exposure to unsuitable investments.

While stability is valued in Islamic finance, the principles also encourage beneficial innovation and adaptation that align with Sharia. Status quo bias among Muslim investors might stem from a desire to remain comfortably within perceived religious compliance, even if new Sharia-compliant instruments or strategies emerge (Sundararajan & Errico, 2002). However, the active seeking of Sharia-compliant investment opportunities, such as *sukuk* or screened *halal* stocks, demonstrates that Muslim investors are often willing to adapt their portfolios, suggesting that while status quo bias may exist, it can be overcome by the motivation to invest ethically according to Islamic principles (Sundararajan & Errico, 2002).

Islamic Principles and Their Influence on Investment Decisions

Islamic finance operates under a set of principles derived from the Sharia, guiding economic and financial activities. Key tenets include the prohibition of *riba* (interest), *gharar* (excessive uncertainty), and *maysir* (gambling), and the promotion of ethical practices, risk-sharing, and social responsibility. Several

core Islamic concepts are particularly relevant to understanding Muslim investor behavior and their potential interaction with behavioral biases:

Tawakal

This principle signifies placing trust in Allah after making the utmost effort and adhering to ethical guidelines. In investment, Tawakal encourages investors to conduct thorough research, ensure Sharia compliance, and then accept the outcome with equanimity. This mindset can be particularly influential in mitigating biases related to emotional responses to risk and uncertainty, such as overconfidence and loss aversion, by fostering resilience and acceptance regardless of short-term gains or losses.

Halal/Haram Screening

A fundamental aspect of Islamic investment is the rigorous screening of investment opportunities to ensure compliance with Sharia. This involves avoiding industries deemed impermissible (e.g., alcohol, pork, conventional finance) and ensuring transactions are free from *riba*, *gharar*, and *maysir*. The necessity of conducting this screening process encourages diligence and independent analysis, potentially reducing reliance on herding behavior and requiring a more considered approach than driven by overconfidence.

Risk Sharing and Zakat

Concepts like *musharakah* (profit and loss sharing partnership) and *mudharabah* (trustee financing) promote shared risk and reward, which can influence perceptions of loss. Knowing that risks are shared equitably may alleviate some of the psychological pain associated with potential losses, potentially reducing loss aversion. Furthermore, the obligatory payment of Zakat (alms-giving) instills a sense of social responsibility and detachment from excessive focus solely on personal accumulation, potentially counteracting the narrow framing often seen in mental accounting.

Theoretical Framework and Hypotheses

Building upon the literature reviewed, this study posits that behavioral finance factors significantly influence the investment decisions of novice retail investors. Furthermore, it proposes that demographic variables (generation, gender, education, and income) moderate these relationships, potentially

influencing the degree to which these biases manifest and affect investment choices, especially within the context where investors may also be guided by Islamic principles. The theoretical model illustrating the hypothesized relationships is presented in Figure 1.

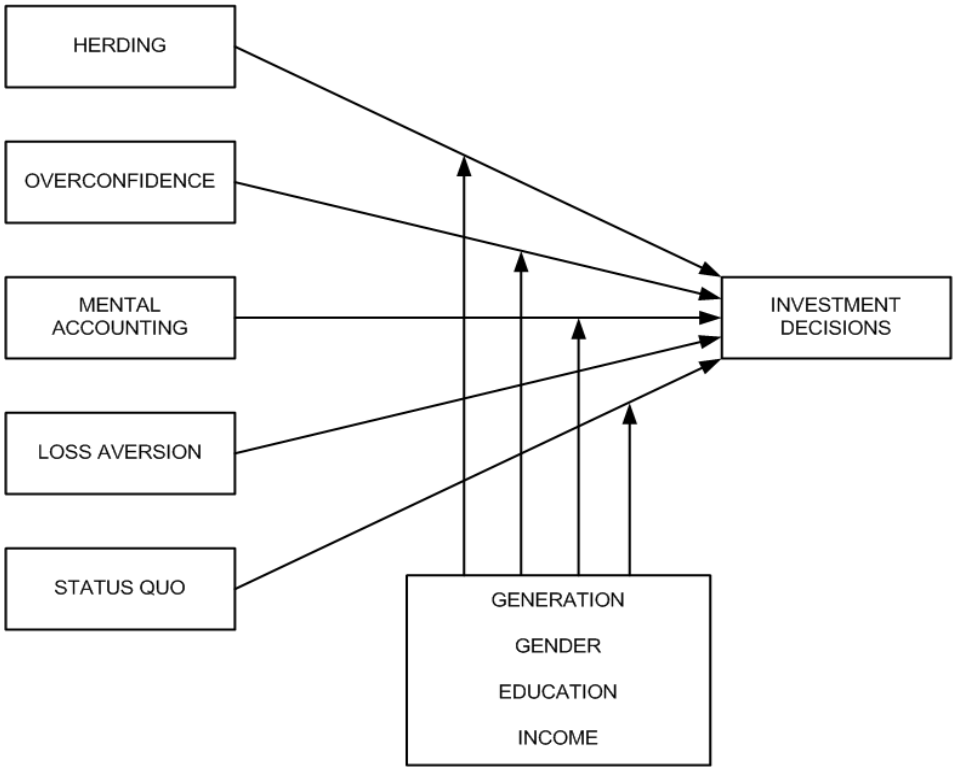

Figure 1. Theoretical Model

Based on the theoretical framework, the main hypotheses guiding this study are as follows:

- H1: Herding has a negative influence on the investment decisions of novice retail investors.
- H2: Overconfidence has a negative impact on the investment decisions of novice retail investors.
- H3: Mental accounting has a negative impact on the investment decisions of novice retail investors.
- H4: Loss aversion has a negative impact on the investment decisions of novice retail investors.
- H5: Status quo bias has a negative impact on the investment decisions of novice retail investors.

Additionally, this study tests the moderating effects of generational differences, gender, educational background, and income level on the relationship between each of the aforementioned behavioral finance factors and investment decisions.

METHODOLOGY

Research Design

This study employed a quantitative research design to examine the influence of behavioral finance biases on investment decisions among Muslim novice retail investors in Indonesia, with a particular focus on demographic moderating variables. The population of interest comprised active retail investors registered in the Indonesian capital market through the Single Investor Identification (SID) system. The study targeted members of the Millennial and Generation Z cohorts, as these groups represent the most significant growth in digital investment participation in recent years.

A purposive sampling technique was applied to recruit participants who met the following inclusion criteria: (1) Indonesian citizenship, (2) possession of an active SID, (3) self-identification as a Muslim investor, and (4) investment experience of fewer than five years, qualifying them as novice investors. A total of 318 responses were initially collected via an online structured questionnaire. After screening for incomplete or non-variable responses, 8 cases were excluded due to insufficient variance or missing data, resulting in a final sample size of 310 valid participants.

Instrument Design and Measures

The data collection process involved a structured, self-administered questionnaire developed in Bahasa Indonesia, which was pretested for clarity and cultural appropriateness. The questionnaire was divided into two main sections. The first section, Demographic Information, captured key sociodemographic variables such as generation cohort (Millennials or Gen Z), gender (Male, Female, Prefer not to say), education level (High School, Undergraduate, Postgraduate), and monthly income level (categorized as Low, Middle, or High based on national income brackets).

The second section, Behavioral Finance Constructs and Investment Decisions, consisted of 25 Likert-scale items measured on a 5-point scale (1 = Strongly

Disagree to 5 = Strongly Agree). These items were grouped into two categories: Behavioral Finance Factors and Investment Decision-Making. The Behavioral Finance Factors included 20 items measuring five constructs—Herding, Overconfidence, Mental Accounting, Loss Aversion, and Status Quo Bias—each represented by 4 items adapted from validated scales in previous literature (e.g. Jiang et al., 2018; Pikulina et al., 2017). The Investment Decision-Making category included 5 items assessing decision-making behavior in investment, such as portfolio adjustment, risk-taking, and diversification.

Validity and Reliability

To ensure construct validity, content experts in behavioral finance and Islamic finance reviewed the instrument. A pilot study was conducted with 30 participants from the target demographic, and minor adjustments were made based on feedback. Construct validity was further tested through Exploratory Factor Analysis (EFA) using principal component analysis with varimax rotation, where all items loaded cleanly onto their respective factors with loadings above the 0.60 threshold.

Reliability analysis was conducted using Cronbach's alpha, yielding the following results for each construct: Herding ($\alpha = 0.812$), Overconfidence ($\alpha = 0.795$), Mental Accounting ($\alpha = 0.824$), Loss Aversion ($\alpha = 0.839$), Status Quo Bias ($\alpha = 0.781$), and Investment Decisions ($\alpha = 0.867$). These values indicate that all constructs demonstrated acceptable to excellent internal consistency.

Data Analysis Techniques

Descriptive statistics were used to profile the respondents and summarize key variables. Inferential analyses were conducted using multiple linear regression to test the direct effects of behavioral finance biases on investment decision-making. To examine moderating effects of demographic variables (generation, gender, education, and income), the study employed moderation analysis using the PROCESS Macro for SPSS (Model 1) developed by Hayes (2012). This method is particularly suited for testing interaction effects in regression frameworks and allows for bootstrapped confidence intervals to increase statistical robustness.

All statistical analyses were performed using IBM SPSS Statistics Version 26. Statistical significance was determined at the $p < .05$ level, and all models were

checked for multicollinearity and heteroscedasticity to ensure the validity of the regression assumptions.

RESULTS AND DISCUSSION

Results

This section presents the findings of the study, including descriptive statistics for the sample and the results of the regression and moderation analyses testing the hypothesized relationships between behavioral finance factors, demographic variables, and investment decisions.

Respondent Profile

A total of 310 valid responses were included in the final analysis after the exclusion of 8 responses due to lack of variance. The demographic profile of respondents is summarized in Table 1. The sample comprised individuals with active Single Investor Identification (SID) numbers in Indonesia, with a focus on Millennial and Generation Z cohorts.

Table 1. Respondent Demographics

Variable	Category	Frequency	Percentage (%)
Generation	Millennials	128	41.3
	Generation Z	182	58.7
Gender	Male	180	58.1
	Female	130	41.9
Education	Senior High School	122	39.4
	Bachelor's Degree	170	54.8
	Postgraduate	18	5.8
Income Level	Low	85	27.4
	Middle	152	49.0
	High	73	23.5

As shown in Table 1, the majority of participants were from Generation Z (58.7%, n=182), followed by Millennials (41.3%, n=128). There were more male participants (58.1%, n=180) than female (41.9%, n=130). In terms of education, the largest group held a Bachelor's degree (54.8%, n=170), followed by Senior High School (39.4%, n=122), and a smaller proportion had postgraduate education (5.8%, n=18). Income levels were distributed across categories, with the middle-income group being the largest (49.0%, n=152), followed by lower income (27.4%, n=85) and higher income (23.5%, n=73).

Model Summary

The influence of five behavioral finance factors—herding, overconfidence, mental accounting, loss aversion, and status quo bias—on investment decisions was analyzed using multiple linear regression. The model summary is presented in Table 2.

Table 2. Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of Estimate
1	.634	.402	.392	2.254

The model yielded an R-squared value of 0.402, indicating that approximately 40.2% of the variance in investment decisions can be explained by the behavioral finance factors included in the model. The adjusted R-squared was 0.392. The Analysis of Variance (ANOVA) results for the regression model are presented in Table 3.

Analysis of Variance

Table 3 provides the results of the ANOVA test for the regression model. The model was statistically significant ($F = 40.832$, $p < .001$), confirming that the five behavioral finance factors collectively contributed to explaining variance in investment decisions.

Table 3. Analysis of Variance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1037.040	5	207.408	40.832	.000
Residual	1544.198	304	5.080		
Total	2581.239	309			

Regression Coefficients

Table 4 presents the unstandardized (β) and standardized (β) regression coefficients, standard errors, t-statistics, and p-values for each predictor in the model. Results in Table 4 indicate that all five behavioral finance factors had a statistically significant negative effect on investment decisions at the $p<.05$ level. Specifically, Herding (X1) was a significant negative predictor with $\beta=-.149$, $t(304)=-2.644$, $p=.009$. Overconfidence (X2) also showed a significant negative effect, $\beta=-.199$, $t(304)=-3.617$, $p<.001$.

Table 4. Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	6.947	0.918	—	7.568	.000
Herding (X1)	-0.149	0.056	-0.140	-2.644	.009
Overconfidence (X2)	-0.199	0.055	-0.194	-3.617	.000
Mental Accounting (X3)	-0.241	0.055	-0.243	-4.386	.000
Loss Aversion (X4)	-0.138	0.059	-0.131	-2.333	.020
Status Quo Bias (X5)	-0.138	0.060	-0.134	-2.319	.021

Mental accounting (X3) was another significant negative predictor, $\beta=-.241$, $t(304)=-4.386$, $p<.001$. Loss aversion (X4) had a significant negative impact, $\beta=-.138$, $t(304)=-2.333$, $p=.020$. Lastly, status quo bias (X5) was a significant negative predictor, $\beta=-.138$, $t(304)=-2.319$, $p=.021$.

Moderation Effects of Demographic Variables

Moderation analyses were conducted using PROCESS macro to examine whether the relationships between behavioral finance factors and investment decisions were moderated by generation, gender, education, and income.

Table 5. Moderating Effects of Demographics

Interaction Term	t-Statistic	p-Value	Moderation Effect
X1 * Cohort	-2.236	0.026	Significant
X1 * Generation	-2.360	0.019	Significant
X1 * Education	2.403	0.017	Significant
X1 * Income	-2.281	0.023	Significant
X2 * Cohort	-2.070	0.039	Significant
X2 * Generation	-2.387	0.018	Significant
X2 * Education	1.710	0.088	Not Significant
X2 * Income	-2.526	0.012	Significant
X3 * Cohort	-2.335	0.020	Significant
X3 * Generation	-2.491	0.013	Significant
X3 * Education	1.969	0.050	Significant
X3 * Income	-2.034	0.043	Significant
X4 * Cohort	-2.467	0.014	Significant
X4 * Generation	-2.510	0.013	Significant
X4 * Education	1.895	0.059	Not Significant
X4 * Income	-1.636	0.103	Not Significant
X5 * Cohort	-2.750	0.006	Significant
X5 * Generation	-0.991	0.322	Not Significant
X5 * Education	1.252	0.212	Not Significant
X5 * Income	-1.207	0.228	Not Significant

Table 5 summarizes the results for the interaction terms. Note that in Table 5, "Coh" refers to Generation, "Inc" refers to Income, and "X1" through "X5" refer to Herding, Overconfidence, Mental accounting, Loss aversion, and Status quo bias, respectively. "Generation X1", "Generation X2", etc. appear to be redundant interaction terms with "X*Coh" and the results for these terms are presented as listed in the original table.

The results indicate that certain demographic variables significantly moderate the relationships between behavioral biases and investment decisions. For example, cohort and income level were significant moderators in several models, particularly for herding, overconfidence, and mental accounting. In contrast, the moderating effect of education and generation was not consistent across all models.

Discussion

This study investigated the influence of key behavioral finance factors—herding, overconfidence, mental accounting, loss aversion, and status quo bias—on the investment decisions of novice retail investors in Indonesia, and examined the moderating roles of generation, gender, education, and income. The findings contribute to the growing body of literature on behavioral finance, particularly within emerging markets and the context of Islamic finance.

Interpretation of Direct Effects

The results demonstrated that all five behavioral finance factors included in this study—herding, overconfidence, mental accounting, loss aversion, and status quo bias—had a statistically significant negative impact on investment decisions among novice retail investors (Table 4). This finding aligns with established behavioral finance theory, which posits that cognitive biases and heuristics can lead to deviations from rational decision-making, often resulting in suboptimal investment outcomes (Kahneman & Tversky, 1979; Thaler, 1999).

Specifically, the negative relationship between herding and investment decisions suggests that novice investors who are more prone to following the actions of others rather than conducting independent analysis tend to make less effective investment choices, consistent with findings by Jiang et al. (2018). Similarly, overconfidence, while sometimes perceived positively, was found to be detrimental, likely leading investors to take excessive, poorly considered

risks that negatively affect their decisions (Pikulina et al., 2017; Ali, 2008). The negative effect of mental accounting underscores how the irrational categorization of funds can impede a holistic and rational approach to portfolio management (Thaler, 1999). Loss aversion's negative impact highlights the challenges investors face when the fear of losses outweighs the prospect of gains, potentially leading to overly conservative or indecisive behavior (Kahneman & Tversky, 1979; Masruki & Hussin, 2018). Finally, the negative influence of status quo bias indicates that reluctance to adjust investment positions, even when necessary, hinders adaptive decision-making (Samuelson & Zeckhauser, 1988; Mahyudi & Abdul Aziz, 2017).

These findings are particularly relevant in the Indonesian context, where a significant increase in novice retail investors has been observed (OJK, 2023). The digital accessibility that facilitates this growth (Tahir & Danarsari, 2023) may also inadvertently amplify the influence of certain biases, such as herding, through readily available but unfiltered online information and social trends.

Contextualizing Findings within Islamic Finance

While the direct effects of behavioral biases are consistent with general behavioral finance literature, their manifestation and impact on Muslim investors warrant specific consideration. As discussed in the literature review, Islamic finance principles emphasize rational decision-making based on knowledge (*'ilm*), prudence (often linked to *tawakal*), transparency, and avoidance of gharar (excessive uncertainty) and *riba* (interest) (Hasan, 2009; Hassan & Mahlknecht, 2011). The finding that behavioral biases negatively impact investment decisions suggests that these biases can lead Muslim investors to make choices that are not only suboptimal in financial terms but potentially also in conflict with their adherence to Sharia principles, such as engaging in transactions driven by speculation (related to herding or overconfidence) or failing to manage wealth holistically (related to mental accounting).

The negative influence of herding, for instance, directly conflicts with the Islamic emphasis on independent, knowledge-based decision-making and avoidance of gharar (Adielyani & Mawardi, 2020). Overconfidence can lead to taking on excessive, imprudent risks that may contravene the principle of prudence and potentially involve gharar (Badola et al., 2023). Mental accounting may complicate the proper segregation and distribution of wealth

according to Islamic principles like Zakat (Muehlbacher & Kirchler, 2019; Hasan, 2009). Loss aversion, while potentially stemming from a fear of haram losses, can paradoxically lead to irrational decisions (like holding losing assets) that might conflict with rational, Sharia-compliant risk management (Zhang et al., 2021; Mahyudi & Abdul Aziz, 2017). Status quo bias can hinder the necessary adjustment of portfolios to ensure ongoing Sharia compliance as new instruments or market conditions arise (Dean et al., 2017; Sundararajan & Errico, 2002). These interpretations highlight the importance of not just understanding the presence of biases but also how they uniquely challenge investors seeking to align their financial actions with Islamic values.

Interpretation of Moderation Effects

A significant contribution of this study is the identification of statistically significant moderating effects of demographic variables—generation, education, and income—on the relationship between behavioral finance factors and investment decisions (Table 5). These findings underscore that the susceptibility to behavioral biases and their impact on investment decisions are not uniform across novice investor populations but are contingent on individual characteristics.

The consistent significant moderation by Generation (Millennials vs. Gen Z) for most behavioral biases (Herding, Overconfidence, Mental accounting, Loss aversion, Status quo bias - except for Status quo bias moderation by "Generation X5*" in Table 5, though "X5*Coh" was significant) aligns with previous research suggesting generational differences in financial behavior and susceptibility to biases (Adielyani & Mawardi, 2020). This could be attributed to differences in exposure to digital platforms, financial education received, risk tolerance shaped by life stage, or social influences prevalent within each cohort. Gen Z, having grown up with ubiquitous digital technology and social media, might experience herding differently than Millennials.

Education level was found to significantly moderate the impact of Herding and Mental accounting. This supports the notion that higher levels of education can equip individuals with better analytical skills and cognitive abilities to recognize and mitigate certain biases (Stanovich & West, 2008). Educated investors may be better equipped to resist herd behavior by critically evaluating information or to manage their finances without falling prey to irrational mental accounting frameworks.

Income level significantly moderated the effects of Herding, Overconfidence, and Mental accounting. This finding suggests that financial resources and stability may influence how individuals perceive and react to biases. Higher income individuals might have greater access to financial information or advice, influencing their susceptibility to herding or overconfidence. Income levels also affect the complexity of financial management, potentially interacting with mental accounting tendencies (Rasyid et al., 2018).

These specific moderation effects highlight that interventions aimed at mitigating behavioral biases should be tailored to specific demographic segments of the novice investor population. While the original text focused on the potential moderating role of Islamic values or education in general, these results demonstrate that demographics are concrete factors influencing the bias-decision relationship in this population. Further research is needed to explore how Islamic principles are enacted differently across these demographic groups and whether that contributes to the observed moderation patterns.

Research Significance and Implications

This study holds significant theoretical and practical implications. Theoretically, it extends behavioral finance research by providing empirical evidence on the interplay between multiple behavioral biases and a comprehensive set of demographic moderators within the under-explored context of novice retail investors in an emerging, predominantly Muslim market. It validates the relevance of established biases in this specific population and demonstrates that demographic segmentation is crucial for understanding variations in bias susceptibility. It also sets the stage for further theoretical work exploring the mechanisms through which demographics influence behavioral biases in diverse cultural and financial environments, potentially integrating the influence of religious or cultural values more explicitly.

Practically, the findings are invaluable for stakeholders involved in the Indonesian capital market. Financial educators can use these results to design targeted financial literacy programs that address specific biases prevalent in different generational, educational, or income groups. For example, programs for Gen Z might focus more on critical evaluation of social media investment trends (herding), while programs for individuals with lower education might emphasize the importance of holistic financial planning (mental accounting).

Financial advisors can better understand their novice clients' potential behavioral pitfalls based on their demographic profile. Policymakers can leverage this understanding to develop investor protection measures or educational campaigns that are sensitive to the demographic diversity of the investor base. For novice Muslim investors, recognizing how these biases manifest and how they might conflict with Sharia principles is the first step towards making more informed and compliant investment decisions. Promoting financial literacy that integrates both general financial concepts and Islamic finance principles, while acknowledging demographic differences in how biases operate, is essential for fostering responsible and effective participation in the capital market.

CONCLUSION

This study investigated the influence of five key behavioral finance factors on the investment decisions of novice retail investors in Indonesia, examining the moderating roles of generation, gender, education, and income. The findings revealed that herding, overconfidence, mental accounting, loss aversion, and status quo bias each have a significant negative impact on investment decisions within this group. Furthermore, the research demonstrated that the strength of these relationships is not uniform, as the influence of behavioral biases on investment decisions is significantly moderated by investors' generation, education level, and income level, highlighting the heterogeneous nature of bias susceptibility.

The results carry significant implications for both theory and practice. Theoretically, the study validates the relevance of established behavioral biases in an under-explored emerging market context and contributes by empirically showing that demographic factors significantly condition the impact of these biases, suggesting the need for more nuanced theoretical models of investor behavior. Practically, these findings are crucial for designing targeted interventions. Financial educators, advisors, policymakers, and financial institutions in Indonesia can leverage this demographic-specific understanding to develop more effective financial literacy programs, investor protection measures, and tailored services aimed at mitigating the detrimental effects of behavioral biases on novice investors' decisions, particularly within the context of aligning choices with Islamic finance principles.

Despite these contributions, the study is subject to limitations, including its cross-sectional design, reliance on self-report data, and focus on a specific set of biases and moderators. Future research should employ longitudinal designs to capture the evolution of behavior, utilize experimental methods to test interventions, explore other potential biases or moderators, and conduct comparative studies across different markets or investor groups. Further qualitative inquiry could also provide deeper insights into the mechanisms underlying demographic moderation and the interplay of behavioral biases with religious or cultural values.

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