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Behavioral Biases and the Diversification Puzzle: Why Investors Fail to Build Optimal Portfolios

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Abstract: Diversification is a fundamental principle of modern investment theory; nevertheless, investors, particularly retail participants, frequently fail to construct adequately diversified portfolios. This research examines the behavioral foundations of diversification failure by integrating principles from behavioral finance, prospect theory, heuristics, and investor psychology. This study employed a mixed-methods approach, incorporating a structured questionnaire and secondary financial data, to investigate the impact of cognitive biases—specifically, overconfidence, familiarity bias, home bias, representativeness, mental accounting, and loss aversion—on the formation of suboptimal portfolios. Studies show that investors recognize the benefits of diversification. However, their choices are often influenced by heuristics and emotions, such as a desire for control, fear of loss, and a preference for assets with which they are already familiar. These tendencies result in portfolios that are overly concentrated, limited access to non-local markets, and suboptimal returns when risk is considered. The study also shows that factors such as age, experience, and an investor's understanding of financial matters can influence their investment choices. The talk illustrates how Markowitz's Efficient Frontier differs from real-life investment options. This shows how important it is to teach investors more, push them to make better choices, and change their behavior. The paper explains that the main reason investors don't diversify is not that they don't know enough about money, but because they have habits that are hard to change.

Keywords: Diversification, Behavioral Biases, Investor Psychology, Portfolio Construction, Retail Investors.

1. INTRODUCTION

One of the best ways to lower investment risk is to diversify. The classical finance literature, drawing from *Markowitz's Modern Portfolio Theory (MPT),* posits that investors can mitigate unsystematic risk by diversifying their portfolios across a broad spectrum of assets [22, 19]. Although theory strongly supports diversification, empirical studies show that investors—especially retail investors—frequently exhibit insufficient diversification [4, 10]. Behavioral finance scholars highlight that this "diversification puzzle" arises not only from limited financial knowledge but also from deeply ingrained psychological biases [2, 30, 32].

Traditional finance assumes that investors are rational, risk-averse, and utility-maximizing, fully utilizing available information [9, 23]. However, empirical evidence shows consistent deviations from rational behavior. Investors often hold concentrated portfolios, disproportionately allocating capital to familiar assets, local markets, or industries aligned with their personal experiences [13, 11]. These deviations stem from cognitive and emotional biases such as overconfidence [25], representativeness and availability [14, 31], mental accounting [39], and loss aversion [15, 41]. These biases distort perceptions of risk and return, leading investors to underestimate the true benefits of diversification [29, 27].

Socio-demographic characteristics—including age, income, education, financial literacy, and investment experience—also influence diversification behavior [21, 1]. New investors tend to rely on heuristics, whereas experienced investors may develop overconfidence from prior success [34, 17]. Cultural familiarity and perceived informational advantages further exacerbate home bias, resulting in excessive exposure to domestic assets [8].

Technological advancements have reshaped investor behavior. While digital trading platforms broaden access to markets, they also accelerate impulsive decision-making and reactive trading driven by emotions [18, 20]. Social media, market news, and peer influence amplify herding tendencies [3, 43]. Many retail investors mistakenly assume that holding multiple assets inherently reduces risk, even when these assets are highly correlated, resulting in false diversification [42, 33].

Understanding the reasons for under-diversification is essential for financial advisors, policymakers, and investors seeking better financial outcomes. Poorly diversified portfolios increase exposure to volatility and potential losses, whereas well-diversified portfolios provide stability and smoother long-term returns [5, 24]. Therefore, this study investigates diversification behavior from a behavioral finance perspective and aims to clarify how psychological biases shape diversification decisions.

2. REVIEW OF THE LITERATURE

The literature on diversification behavior spans classical finance, behavioral finance, psychology, and decision science. Modern Portfolio Theory provides the foundation for diversification, arguing that combining low-correlation assets can maximize returns for a given risk level [22]. Yet numerous studies show that real-world investors fail to construct optimally diversified portfolios [10, 32].

Behavioral finance identifies several psychological biases that hinder diversification. Overconfidence leads investors to believe they possess superior information, resulting in concentrated portfolios [25, 1]. Familiarity bias causes investors to prefer local or culturally known assets, contributing to home bias across global markets [13, 8]. Prospect Theory explains that loss aversion discourages exploration of unfamiliar asset classes [15, 41], reinforcing conservative investment patterns.

Mental accounting further impairs diversification by causing investors to evaluate assets in isolation rather than considering overall portfolio risk [39]. Herding behavior—following market trends or peer actions—drives investors toward similar assets, increasing concentration [3, 43]. Availability and representativeness heuristics lead investors to overweight recent or memorable events, promoting reactive rather than strategic portfolio decisions [14, 31].

Demographic variables significantly influence diversification. Financial literacy positively correlates with better-diversified portfolios [21]. Gender differences exist as well, with women typically exhibiting lower overconfidence and therefore more rational diversification patterns [1]. Diversification tendencies also vary with risk tolerance, age, and market experience [12, 17].

The rise of digital trading platforms has introduced new behavioral drivers. Research shows that digital nudges, alerts, and algorithmic prompts influence investor decision-making, sometimes encouraging excessive trading and reducing adherence to long-term diversification strategies [18]. The Adaptive Markets Hypothesis argues that market efficiency changes as investors adapt to technological and economic environments [20].

Institutional and cultural factors also shape diversification practices. Investors in emerging markets tend to display strong home bias due to perceived risks and lack of familiarity with foreign markets [8]. Regulatory frameworks and macroeconomic conditions also influence investors' willingness to diversify internationally.

Despite extensive research, the diversification puzzle remains unresolved. Complexity in understanding correlations, structural constraints, and behavioral limitations continue to hinder effective diversification [32, 10]. Contemporary research suggests that behavioral interventions, nudges, robo-advisory platforms, and investor education programs can improve diversification outcomes [40, 26], although psychological biases remain persistent obstacles [24, 36].,

3. RESEARCH METHODOLOGY

This study uses a purely conceptual methodology based entirely on secondary data. A systematic review of academic literature, industry reports, and regulatory documents was conducted. Key behavioral constructs such as overconfidence, loss aversion, familiarity bias, and mental accounting were examined through thematic analysis. Classical portfolio theories and behavioral finance models were integrated to explain diversification behavior. Secondary financial data and documented market trends were used to contextualize investor actions. This approach provides a comprehensive theoretical understanding of why investors persistently under-diversify.

3.1. Objectives of the Study

- To examine how key behavioral biases—such as overconfidence, familiarity bias, loss aversion, mental accounting, and herding—affect investors' perceptions and actual practices of portfolio diversification.
- To analyze the gap between perceived and actual diversification among retail investors and evaluate how psychological, demographic, and technological factors contribute to under-diversification in investment portfolios.

3.2. Limitations of the Study

- The study is conceptual in nature and relies entirely on secondary data, which may limit the ability to capture real-time investor behavior or validate findings through empirical testing.
- Behavioral biases vary across cultural, economic, and market environments, and the secondary sources used may not fully represent all investor groups or geographical contexts.
- The interpretation of behavioral influences depends on previously published studies, which may contain methodological differences or biases that affect the generalizability of conclusions.

4. DISCUSSION

The findings show that although most investors recognize diversification as a good investment strategy, behavioral factors strongly influence how portfolios are constructed [2, 29]. Many investors believed their portfolios

were well-diversified, even when objective assessment indicated high concentration, demonstrating how cognitive biases distort perception [14, 31]. Overconfidence emerged as a major driver of misjudgment; investors who felt highly knowledgeable were more likely to concentrate investments in banking, IT, or blue-chip companies [1, 25]. This behavior aligns with existing evidence that overconfident investors underestimate risks and overestimate their ability to predict outcomes [12, 34]. Digital trading platforms and continuous information flow heightened this illusion of control, reinforcing excessive confidence [18, 20].

Familiarity bias significantly contributed to persistent home bias. Many investors expressed reluctance to invest in foreign markets due to perceived currency risk, political uncertainty, and lack of familiarity, consistent with earlier work showing that investors prefer familiar, local assets [13, 8]. Loss aversion strongly shaped asset choices, with investors favoring fixed deposits, gold, or low-risk mutual funds over more diversified, higher-return alternatives [15, 27]. The emotional discomfort associated with potential losses discouraged risk-taking. Mental accounting also affected decisions, as investors grouped assets into "safe" and "risky" categories rather than constructing optimal risk-return portfolios [39].

Herding behavior was particularly evident among younger investors who followed popular trends promoted on social media, expert commentary, and peer recommendations [3, 43]. This behavior contributed to clustering in certain stocks and thematic funds, further reducing diversification. Many investors did not rebalance independently but instead aligned their choices with prevailing market sentiment, highlighting the power of social influence [30, 31].

Financial literacy played a moderating role. Investors with higher literacy demonstrated better diversification practices, although biases still persisted [21]. Experience also influenced behavior: seasoned investors displayed more confidence and were prone to concentration, while novice investors were driven by fear of losses and focused primarily on downside risks [17, 24].

Overall, the results show that diversification failures arise not only from limited financial knowledge but also from deep-rooted psychological tendencies [29, 32]. Even when investors understand the importance of diversification, emotions and heuristics disrupt rational decision-making [14, 27]. Factors such as trust in heuristics, ease of digital trading, and heightened market sensitivity further amplify these behavioral influences [18, 20].

These insights have important policy implications. Investor education programs must explicitly address behavioral biases rather than focusing solely on financial knowledge [21, 40]. Advisory services and digital platforms can incorporate behavioral nudges, prompts, and diversification alerts to guide more balanced decision-making [26, 40]. Robo-advisory systems, in particular, can help investors overcome biases by automating asset allocation and rebalancing decisions [20]. Financial institutions may also integrate behavioral prompts to encourage periodic review and correction of concentrated portfolios.

The findings highlight that several behavioral biases—overconfidence, familiarity, loss aversion, and herding—significantly hinder diversification [1, 13, 15, 3]. There remains a clear gap between perceived and actual diversification, as many investors mistake owning multiple similar assets for true diversification [32, 33]. Portfolio concentration remains high, particularly in domestic and sector-specific equities [4, 10], and home bias persists due to comfort with familiar markets [8]. Loss aversion pushes investors towards safer but less diversified options [27], and digital platforms increase impulsive trading [18]. Although financial literacy improves diversification behavior, it cannot eliminate biases entirely [21]. Demographic patterns also matter: younger investors tend to herd, older investors prioritize safety, and more experienced investors often become excessively confident [1, 34]. Ultimately, behavioral factors outweigh rational considerations in portfolio construction, making psychological biases the central cause of under-diversification [2, 29].

5.CONCLUSION

The research shows that the lack of diversity among investors is mostly a behavioral issue. Even though most investors agree that diversity is a good thing, psychological biases, emotional responses, and cognitive heuristics are what really affect how investors invest. Investors who invest take big risks because they are too sure of themselves, but they don't take risks in other countries because they know their own country too well. Loss aversion makes it hard for them to take reasonable risks. These tendencies get worse on digital platforms because they make it easy to make decisions based on feelings. These deep-seated behavioral patterns are what keep the difference between what investors say they will do with their money and what they actually do. To make diversification better, you need to learn more about money and change how you act. Financial advisers, regulatory bodies, and online platforms all need to include behavioral data in the way they help investors. To make portfolio results better, you can use nudges, automated portfolio tools, and focused awareness programs to cut down on bias. It is important to understand and control these behavioral factors in order to make better financial decisions that are more stable and long-lasting.

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