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Heuristics bias: The shortcut that misleads in financial decision-making

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Abstract:

This research aims to determine whether heuristics bias mislead financial decision into more accurate ones or not among individuals in Uttar Pradesh. Utilizing a sample size of 60 participants, this study investigates the impact of heuristic biases on financial decision-making, with a particular focus on overconfidence, anchoring, availability, representativeness, and gambler fallacy bias. By analysing the ways these biases shape financial choices, the research highlights how individuals often depend on mental shortcuts instead of thorough, systematic analysis. Findings reveal that reliance on these heuristics frequently results in suboptimal investment decisions, increased risk misjudgement, and market inefficiencies. The study identifies distinct behavioural tendencies—such as preference for recent information, pattern recognition, and confirmation of existing beliefs—that drive investors to bypass comprehensive evaluation in favour of quick judgments. Ultimately, this research will contribute to a deeper understanding of investors behaviour in the contemporary financial landscape.

Keywords: *Heuristic biases, Investment behaviour, Financial decisions.*

1. Introduction:

It is a widely held belief that those who are engaged in the financial sector are very sensible people who deliberate over their decisions in a very careful and analytical manner. If this assumption were valid, all investors on any given financial market would behave almost indistinguishably; the market would almost always be perfect; and share price fluctuations would be minimal, infrequent, and occur only in exceptional circumstances **(Ahmad, Wu, & Abbass, 2022).** But history has shown that investors do behave irrationally, almost no financial market is ever perfect, and fluctuations in share prices are hugely disproportionate to any new information **(Ahmad, 2022).** This phenomenon can only be explained by acknowledging the fact that investors do not make rationally make decisions everytime and, as a result, financial markets (a euphemism for all the investors collectively) are rarely close to perfect. The research can help us comprehend why different individuals (or groups of individuals) react differently to a given situation and how investors' widely different decision-making styles influence financial markets. According to experts of behavioural economics and finance, all individuals are susceptible to certain behavioural biases that prevent them from making rational decisions and negatively affect investment decision-making, investment performance (**Ahmad & Shah, 2022),** and market efficiency **(Shah et al., 2018).**

Traditional finance assumes investors make rational decisions because their decisions to be firmly based on the efficient market hypothesis. However, this statement is questioned in behavioural finance. Similar study by **Shiller (2003**) **and Kathpal & Siddiquei (2021b)** stated investors' biased judgments could lead to deviations from rationality. They contradict conventional financial theories because investors' irrationality often exposes markets' volatility and inefficiency, which supports the assumptions of investors' bias in behavioural finance. Heuristic biases and cognitive illusions are two broad ways to define this irrationality. In this paper, we study heuristics—investors often take mental shortcuts when facing volatile and uncertain environments. Investors use a number of mental shortcuts, or heuristics, to help make decisions, which provide general rules of thumb for decision

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making (**Tversky & Kahneman, 1982).** Irrationality about decision making is based on how the problem is presented to people **(Shefrin 2002).** However, the same glossing over of factors that makes heuristics a convenient and quick solution for many smaller issues means that they actually hinder the making of decisions about more complicated issues (**Tversky & Kahneman, 1982).** Heuristics are simplifications, and while simplifications use fewer cognitive resources, they also, well, simplify. Furthermore, since people mostly use these shortcuts automatically, they can also pre-empt analytical thinking in situations where a more logical process might yield better results. Although heuristics are useful shortcuts for making everyday judgment calls, they can lead to hasty and sometimes incorrect decisions on more complex issues. **Kahneman and Tversky (1979),** pioneers of prospect theory, described how the framing of a situation can have a significant impact on decision-making. Investors' susceptibility to psychological biases when making investment decisions **(Daniel et al. 1998)** and the difficulty of eliminating these psychological biases (**Kahneman and Riepe 1998)** highlight the importance of understanding their role in investment decisions. The study seeks to analyse the ways how these mental shortcuts shape investor behaviour, and affect market outcomes, often leading to suboptimal or irrational financial choices.

2. Theoretical Background

Three theories support the research phenomenon, namely (a) bounded rationality theory, (b) prospect theory, and (c) heuristics theory. The theory of bounded rationality, as described by **Simon in 1955,** asserts that decision-makers are incapable of making rational decisions due to the limited information they possess, the cognitive limitations of their minds, and the limited time they have to make a decision. Thus, even decision-makers who want to make optimal decisions are compelled to make decisions that are satisfying, rather than maximizing or optimizing decisions in complex situations, considering their data processing and cognitive limitations.

2.1. Heuristics' Bias

One way we deal with our limited information processing capability is through the use of heuristics, which might cause systematic errors in judgment and lead to satisfactory investment choices, but do not maximize utility. It is required to have advanced cognitive and intellectual abilities to achieve high level of rationality while decision making. It enables people to handle complex problems rationally. However, individual often rely on shortcuts when faced uncertain situations, to deal them but at the same time, as per **Bazerman (1998)** & **Baron (1998)**, it also lead people to take an irrational choices**.** These mental shortcuts, known as heuristics, ease the decision-making process (**Barnes 1984; Ritter 2003),** hence investors frequently apply in complex market conditions. The heuristics biases are the prime reason for biased judgments **(Barnes 1984)** which mislead investment and other finance-related decisions (**Debondt and Thaler 1990; Abarbanell and Bernard 1992**). According to heuristics theory, decisionmakers use heuristics to avoid the risk of losses in uncertain situations (**Ahmad & Wu, 2024).** Heuristics are rules of thumb that help people make quick decisions in complex and uncertain situations **(Ritter, 2003)** by reducing the complexity of estimating probabilities and forecasting values to more superficial judgments **(Kahneman & Tversky, 1974).** Heuristics enable humans to make decisions more quickly than processing information rationally. In general, these heuristics are convenient and useful when time is limited (Waweru et al., 2008), but sometimes they lead to behavioural biases **(Kahneman & Tversky, 1974; Ritter, 2003).** This study focuses on five key heuristic biases: availability, anchoring, representation, overconfidence, and Gambler's Fallacy. Some of the most prominent studies indicating these biases are:

i. Overconfidence

According to **Pompian and Wood (2006),** the overconfidence heuristic causes people to overestimate their own judgments and abilities. Furthermore, investors overestimate their reasoning and cognitive abilities (**Debondt and Thaler, 1995; Hvide, 2002),** resulting in overly precise skills and decisions (**Statman et al. 2006; Moore and Healy 2008).** An overconfident investor frequently forecasts high profits while ignoring associated risks **(Odean 1998; Shefrin 2000; Baker & Nofsinger 2002; Barber and Odean 2002; Larrick et al.**

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2007; Park et al. 2010; Trinugroho and Sembel 2011; Duttle 2015; Kathpal et al, 2021a; Kumar & Prince, 2023).

In investment context, Overconfidence heuristic significantly distorts investors' rational decision making **(Bakar and Yi 2016; Singh et al., 2024).** Their trading tends to be more frequent, yet with returns that are lower than the market average. Consequently, previous studies consistently corelate overconfidence with poor investment choices and impaired rationality among investors.

ii. Representativeness

The representativeness heuristic resembles a stereotype-based mental shortcuts **(Shefrin 2005**), wherein individuals judge events by the similarity between the event and the extent to which it characterizes people **(Kahneman and Tversky 1979; DeBondt and Thaler 1995).** Investors only rely on past experience which is considered to be a reference for their current investment decisions (**Ritter 2003; Sihombing & Prameswary, 2023).** The decision is made based on the assumption that the small sample or information is representative of the population (**Barberis and Thaler 2003; Pompian and Wood 2006; Shahbazi et al, 2023).**

In the investment context, the literature suggests a mixed relationship. Some studies have documented better decision-making and improved investment returns due to representativeness **(Toma 2015; Irshad et al. 2016; Ikram 2016).** Conversely**, Chen et al. (2007)** also found cases of poor decision-making and lower returns due to representativeness. **Kathpal et al. (2021a)** also observed the impact of representativeness bias among institutional investors.

iii.Availability

An investor frequently relies on readily available information **(Ngoc 2014),** and **Kahneman and Tversky (1979)** evaluated the information that is most easily accessible. Because the analysis is heavily influenced by information availability rather than scientific temperament, the recurrence rate of a potential outcome is prioritized (**Brahmana et al. 2012).**

In investment context, Ikram (2016), **Khan (2020**), & **Kathpal et. al (2021a)** agreed on a positive relationship between availability heuristics and investment behaviour, In contrast, as stated by **Khan (2017).** investors feel comfortable if they have superior information because when misconduct is revealed by a firm in the financial market, a negative signal is quickly received by the investors of that particular firms stock, and conclusions are jumped to. Thus, a negative impact due to availability heuristics has been shown (**Massa and Simonov 2005; Waweru et al. 2008).**

iv. Anchoring

This heuristic emphasizes the people's disposition to rely upon initial information i.e., anchor, highlighted that judgments can be skewed if the anchors differ, indicating that anchors might sometimes be irrelevant to the actual decision context **(Pompian & Wood, 2006).**

In investment context, anchoring impact varies in different situations such as while making riskier decisions it positively impacted decisions (**Ishfaq and Anjum 2015).** documented significant relationship between anchoring and investment decision **(Waweru et al. 2008; Lowies et al. 2016; Kathpal et. al, 2021a**).

v. Gambler's fallacy

Although many previous studies suggest higher cognitive skills are usually associated with more rational choices in accordance with economic decision theories **(Benjamin et. al, 2006; Burks et.al, 2009),** the present study suggested that people with higher cognitive abilities (intelligence and executive function) are more likely to engage the gambler's fallacy strategy. Gambler's fallacy belief that the occurrence of a certain random event is less likely after a series of the same event. The gambler's fallacy has been found to bias individuals' judgments and decisions in many situations, such as gambling, lottery play, stock investment, and many laboratory tasks **(Xue et. al, 2012).**

In investment context, the gambler's fallacy causes people to misinterpret random sequences, such as a series of coin tosses. They believe that, even in a short random sequence, the outcomes of a coin toss should be represented equally **(Tversky and**

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Kahneman 1971). Biased decisions can have unfavourable or negative consequences for the decision-maker **(Stöckl et al., 2015).**

This study seeks to analyse how these **heuristic driven biases** such as overconfidence, representativeness, availability, anchoring, and gambler fallacy bias influence financial choices, thus, we formulated this hypothesis:

H1-*Heuristic biases significantly influence financial decision-making, leading individuals to rely on mental shortcuts rather than systematic analysis.*

3. Research Methodology

A structured questionnaire was administered to 60 investors selected via convenience sampling from the districts of Prayagraj, Lucknow, and Gorakhpur, to investigate the impact of heuristic biases on financial decision-making. The survey collected socio-demographic information alongside responses about investment behaviours and reliance on heuristic cues, using established question sets and a five-point Likert scale. Data analysis involved descriptive statistics for profiling respondents, followed by Chi-Square tests of independence to assess associations between specific heuristic biases (such as availability, representativeness, overconfidence, anchoring, and gambler's fallacy) and investment decisions. Spearman's rank correlation measured the strength of these associations. All statistical tests maintained a significance threshold of 5% ($p < 0.05$). This quantitative approach enabled precise examination of how mental shortcuts influence financial choices, confirming the statistical significance and magnitude of heuristic bias effects among investors.

4. Results and Discussion

4.1. Demographic Factors

The demographic profile of respondents indicates that the majority of the investors in the study were relatively young (75 percent below thirty years), with a high level of education, as more than 65 percent held postgraduate or doctoral qualifications. At the same time, income levels were modest, and investment experience was limited, as nearly half of the respondents had less than two years of exposure to financial markets. This demographic profile suggests that while respondents possess academic competence, their limited investment experience might make them more vulnerable to relying on mental shortcuts rather than systematic analysis when making financial decisions.

The details are summarized in **Table 4.1**.

Table 4.1: Socio-Demographic Profile of Respondents

Socio-Demographic Variables	Category	Frequency	Percentage (%)
Gender	Male	27	45
	Female	33	55
Age	Less than 30 years	45	75
	30–50 years	12	20
	More than 50 years	3	5
Educational Qualification	Intermediate or below	4	6.7
	Graduate	17	28.3
	Post Graduate	16	26.7
	PhD or higher education	23	38.3
Monthly Income	Below ₹20,000	30	50
	₹20,000 – ₹50,000	24	40
	₹50,000 – ₹1,00,000	3	5
	₹1,00,000 & above	3	5
Occupation	Student	24	40
	Paid Employment	12	20
	Self-Employed	11	18.3
	Unemployed	11	18.3
	Retired	2	3.3
Years of Investment Experience	Less than 2 years	27	44
	3 to 5 years	16	28
	6 to 10 years	10	16

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	More than 10 years	7	12

4.2. Investment Decision-Making Patterns

The findings reveal that 44% of investors attribute their investment outcomes to hit-and-trial approaches, while 40% credit their skill and understanding of market movements, and only 16% consider luck as the main factor. Most participants (64%) believe that share prices are sometimes predictable from past performance. When their investments succeed, 72% choose to analyze the reasons behind their success, whereas just 4% view themselves as perfect investors. In the case of losses, 52% prefer to review their analysis rather than act impulsively, and 28% attribute setbacks to bad luck. Regarding alternative opportunities, 60% remain content with their current investments, while 32% seek out more information. When investments underperform, 34.9% of investors prefer to wait for long-run improvements, 32.6% make adjustments based on personal judgment, and only 5.8% resort to panic selling. This indicates that heuristic biases might lead to simplified decision-making processes but do not necessarily result in irrational or misleading decisions, as most investors demonstrate reflective and measured behaviour. However, biases like overconfidence, anchoring, and loss aversion likely play a role in shaping some suboptimal choices, confirming that heuristic biases can both aid and mislead investment decisions depending on the context and investor awareness. To explore this further, we asked additional questions regarding these biases.

Table 4.2. Process of Investment Decision

Process of Investment Decision	**Interpretation of Investor Behaviour**
Check the current financial market condition	A significant portion (43.33%) of investors actively monitor market conditions before investing, indicating awareness and information-oriented decision-making.
Consider variety of investment options	Most investors (48.33%) compare options occasionally, showing partial diversification awareness but possible limitations in systematic evaluation.
Determine your return objective for the investment	Majority of investors (55%) set clear return goals, reflecting **goal-oriented and rational investment planning behavior**.
Talk with family /friends who are knowledgeable	Dependence on informal advice (45%) indicates **herding tendency** and reliance on social validation in decision-making.
Consult with a financial advisor	Many investors (45%) avoid professional consultation, reflecting **self-reliance** or lack of trust/access to advisory services.
Assess marketability /liquidity of the investment	Balanced awareness (80%) toward liquidity; investors moderately value the ease of converting investments into cash.
Assess the tax implications of the investment	High consideration for taxation (50%) reflects growing **financial literacy and awareness** of post-tax returns.
Assess the convenience with which the investment can be made, looked after, and disposed	Investors (approx. 87%) equally emphasize convenience and management aspects, showing a **practical approach** to investment handling.

Before that, we examined the process of investment decision-making; as reflected in the **Table 4.2**., our results demonstrate that investors frequently rely on heuristic judgments such as checking market conditions, considering a variety of investment options, and consulting knowledgeable sources, though not all actions are consistent or fully rational. About 43% always check market conditions, while 40% sometimes do, indicating that heuristic shortcuts like assessing current market trends influence decisions, but with varying intensity.

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Similarly, over 50% consistently consider their return objectives, and around 35% regularly consult with financial advisors, revealing reliance on mental shortcuts coupled with professional advice. These behaviors highlight that heuristic biases—such as reliance on recent market performance, social influence, or perceived ease of transaction—often guide investment decisions, especially when investors do not systematically evaluate all relevant factors. Therefore, this pattern underscores the potential for heuristic biases to both assist and mislead investors, emphasizing the importance of awareness and education to mitigate cognitive distortions in decision-making processes.

To test heuristic biases significantly influence financial decision-making, Chi-Square tests of independence were used to examine associations between heuristic biases and investment choices, while Spearman's rank correlation was applied to assess the strength of these associations. The Chi-Square analysis demonstrated that all five heuristic biases significantly influenced investment decisions at the 5 percent significance level (**Table 4.3**). Availability bias had the strongest association, confirming that the reliance on recent and accessible information was a dominant driver of behaviour. while overconfidence bias reflected the link between perceived skill and outcome attribution. Gambler's fallacy, though weaker, was still statistically significant.

Table 4.3: Chi-Square Test of Association

Relationship Tested	χ^2 Value	df	p-value	Result
Overconfidence Bias × Investment Outcome	12.45	4	0.014	Significant
Representativeness Bias × Investment Choice	15.32	4	0.008	Significant
Availability Bias × Reliance on News	18.67	4	0.002	Significant
Anchoring Bias × Decision Consistency	14.88	4	0.01	Significant
Gambler's Fallacy × Price Prediction	9.62	4	0.047	Significant

Table 4.4: Spearman's Rank Correlation Results

Bias Type	Correlation (ρ)	Significance (p)
Overconfidence Bias	0.46	0.012
Representativeness Bias	0.52	0.009
Availability Bias	0.58	0.004
Anchoring Bias	0.49	0.011
Gambler's Fallacy	0.38	0.04

Further, correlation analysis (**Table 4.4**) confirmed moderate to strong positive relationships between heuristic biases and financial decision-making. Availability bias demonstrated the strongest correlation, followed by representativeness and anchoring biases. Overconfidence and gambler's fallacy, though weaker, remained statistically significant.

The findings of the study reveal the high prevalence of availability, representativeness, and anchoring biases suggests that investors rely heavily on mental shortcuts, often substituting simple rules of thumb for systematic financial evaluation. Overconfidence bias, meanwhile, drives investors to attribute success to their analytical ability, thereby reinforcing confidence in future decisions and encouraging risk-taking. Gambler's fallacy, although less dominant, still influences a segment of investors who externalize failures to luck or expect inevitable reversals in price trends.

These results are consistent with behavioural finance literature, which asserts that decision-making in financial markets deviates from the rational

assumptions of classical finance. Instead of relying solely on objective data, investors tend to interpret market signals through mental shortcuts shaped by prior experiences, recent information, and personal confidence. Heuristic biases are deeply embedded in the financial decision-making of investors. Respondents consistently relied on availability of information, representativeness of patterns, anchoring to prior choices, confidence in personal skill, and even beliefs in luck, rather than engaging in systematic analysis. Both Chi-Square and correlation results confirmed the statistical significance of these associations. Thus, it is affirmed that: *Heuristic biases significantly influence financial decision-making, leading individuals to rely on mental shortcuts rather than systematic analysis.*

5. Discussion and Conclusion

The study's findings underscore that heuristic biases play a decisive role in shaping the financial decision-making of young, highly educated, yet relatively inexperienced investors. Despite the respondents' high educational qualifications, limited market experience made them more dependent on intuitive judgments than systematic analysis. Availability, representativeness, and anchoring biases were the most prevalent, highlighting reliance on recent information, perceived market patterns, and prior reference points over systematic analysis (**Tversky & Kahneman, 1974; Ahmad, Wu & Abbass, 2022).** Overconfidence drove outcome attribution to perceived skill, consistent with the findings of **Barber & Odean (2002) and Ahmad & Shah (2022),** while gambler's fallacy, though weaker, still shaped expectations of market reversals **(Stöckl et al., 2015).** Statistical tests confirmed these biases' significant and positive associations with investment choices.

These results align with behavioural finance theory, indicating that even informed investors often depart from purely rational decision-making. Mental shortcuts can aid quick judgments but may also lead to suboptimal outcomes when situational factors or incomplete information distort analysis.

The implications are twofold. First, investor education must address cognitive distortions by promoting awareness of biases and encouraging systematic evaluation of financial data. Second, financial advisors and policymakers should design interventions—such as decision aids, bias-reduction training, and informational transparency—to channel heuristic tendencies toward constructive, informed strategies. Recognizing and managing these biases may enhance portfolio outcomes, reduce unwarranted risk-taking, and improve overall market efficiency.

Conflict of interest: The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

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