Behavioural Biases and Its Impact on Investment Decision-Making: A Review Based on Bibliometric Analysis

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Abstract

Behavioural biases play a significant role in influencing investment decision making, often leading investors to make irrational choices based on emotions or cognitive errors. These biases can have a profound impact on individuals' financial outcomes, affecting their ability to achieve their long-term investment goals. Understanding and recognising these biases is crucial for investors to make more informed and rational decisions when managing their portfolios. Conducting a bibliometric analysis on "Behavioural Biases and its Impact on Investment Decision Making" is crucial to comprehensively assess the existing literature, identify seminal studies, and uncover emerging trends, facilitating a deeper understanding of the field's evolution and guiding future research efforts effectively. The present study is an attempt towards it. The Scopus database was utilised to gather pertinent research from the current body of literature, while the PRISMA Model was employed to filter the data. Subsequently, the data was analysed using Microsoft Excel, RStudio, and VOS viewer software. The study showcases the patterns in publication, prominent journals, authors, and highly cited publications. Additionally, it provides insights into the nature of the research, the type of data utilised, and the techniques employed in the top 10 most cited articles. The findings will help future researchers in understanding the current landscape of research in the field of behavioural finance and identify potential areas for further study.

Keywords: *Behavioural finance, behavioural biases, bibliometric Analysis, investment decision, systematic review*

I. INTRODUCTION

Investment decision-making is a complex process. It involves the evaluation of risks and potential returns. Financial and investment professionals, as well as individual investors, are not always rational in their decision-making. They are often influenced by various behavioural biases that can lead to suboptimal investment choices (Baker et al., 2017). These biases stem from a range of psychological factors such as cognitive limitations, emotional influences, and social interactions. Understanding the impact of these biases requires a comprehensive analysis of the psychological factors that influence investor behaviour. The interconnectedness of cognitive biases, emotional influences, and social interactions all contribute to the complexity of the decision-making process in investment strategies. Researchers are exploring the psychological aspects of investment behaviour to understand how cognitive and emotional biases can impact investors' decision-making processes. These biases hinder investors while making logical or rational decision and haul them towards irrationality. Understanding the intricate relationship between behavioural biases and investment decision-making is crucial for both individual investors and institutional fund managers. It not only sheds light on the underlying psychological mechanisms that drive financial markets but also has practical implications for portfolio management, risk assessment, and the design of investment strategies. Further, many studies have confirmed the existence of behavioural biases in decision-making process (Waweru et al., 2008; Tversky and Kahneman, 1974; De Bondt and Thaler, 1995; Pompian, 2011; Evans, 2006; Venkatesh, 2002; Thaler, 1999; Nofsinger & Varma, 2013; Eroglu & Croxton, 2010; Baker, Pan, & Wurgler, 2009; Lim, 2006; Strahilevitz, Odean, & Barber, 2011; Weber & Welfens, 2011; Sembel & Trinugroho, 2011; Merkle, 2017; Mittal & Vyaas, 2011). While numerous bibliometric analyses of behavioural finance exist, none have combined such analysis with a systematic review in a single study. This study aims to fill this void by conducting a bibliometric analysis to identify publication trends, top publishing journal, top contributing authors, and keyword analysis. Additionally, the study endeavours to conduct a systematic review of the top ten most cited research papers to get insights of the type of study, type of data used and tools and techniques employed by other contributing authors to determine the impact of behavioural biases in investment decision making.

II. METHODOLOGY

In the current study, PRISMA model is being adopted to identify the existing literature and select a relevant article. This model helps to generate a flow diagram that provides a clear and standardized process for selecting and including relevant studies in a systematic review or meta-analysis (Motahari-Nezhad et al., 2021). It starts with an initial literature search, where a preliminary search in databases and registers retrieves a certain number of studies. These studies are then screened based on their titles and abstracts, resulting in the exclusion of irrelevant articles (Rosni & Zainol, 2020). After this initial screening, the remaining articles undergo a thorough assessment for relevance and quality (Vu-Ngoc et al., 2018). Fig. 1

shows the PRISMA framework which is being adopted in the current study. After the selection of the relevant studies, a bibliometric analysis is performed to see the publication trend, top cited research papers, top contributing authors, and top contributing journals Further, the top 10 cited research articles are rigorously reviewed.
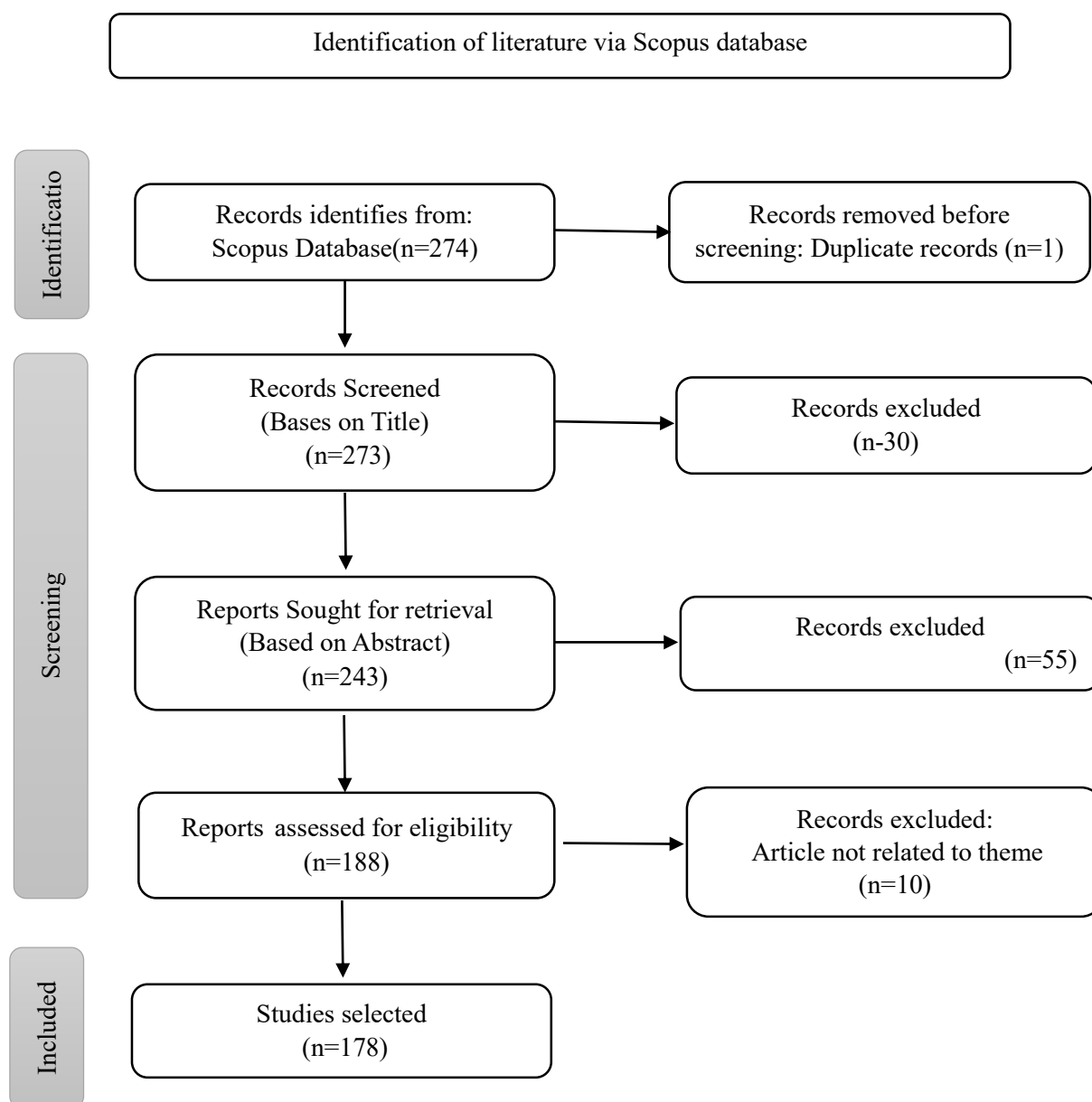

Fig.1: PRISMA Flow Diagram (Authors Compilation)'

Database
The methodology for this research paper emphasizes the use of the Scopus database as the primary source for identifying relevant literature. The use of the Scopus database in this study is justified due to its comprehensive coverage and reputation in bibliometric analysis. (Nunhes et al., 2020). Furthermore, Scopus allows for specific keyword searches in titles, abstracts, and keywords, ensuring that the retrieved articles are relevant to the research topic. Additionally, Scopus provides access to a wide range of disciplines, ensuring that the collected literature represents diverse perspectives and approaches.

Search Strategy
Data is being retrieved from Scopus database by selecting Article title, Abstract, Keywords in the search within option and by typing "Impact of behavioural biases on investment decision making" in the search document option in the Scopus interface. Further the following filtrations strategy is being employed to identify and select the most relevant studies in the existing literature:
Subject area: Accounting, Finance, Business, Management, Economics and Econometrics.
Document types: Articles, Reviews, Conference papers.

Source types: Journals & Conference proceedings.
Languages: English.
Time span: 2003-2023 (20 years).

Tools and Techniques
The current study utilizes the PRISMA approach to find the most pertinent studies in the existing literature that are indexed in the Scopus database. RStudio is being utilized to evaluate the csv file extracted from the Scopus database. In addition, the study utilized the VOSviewer to conduct keyword analysis. The initial search result showed 274 research articles, out of which 1 article is found to be a duplicate. The author further screened the retrieved data based on title and abstract and found 95 research articles to be irrelevant and not related to the theme. Finally, 178 articles are being selected for the purpose of analysis.

III.   RESULT AND DISCUSSIONS
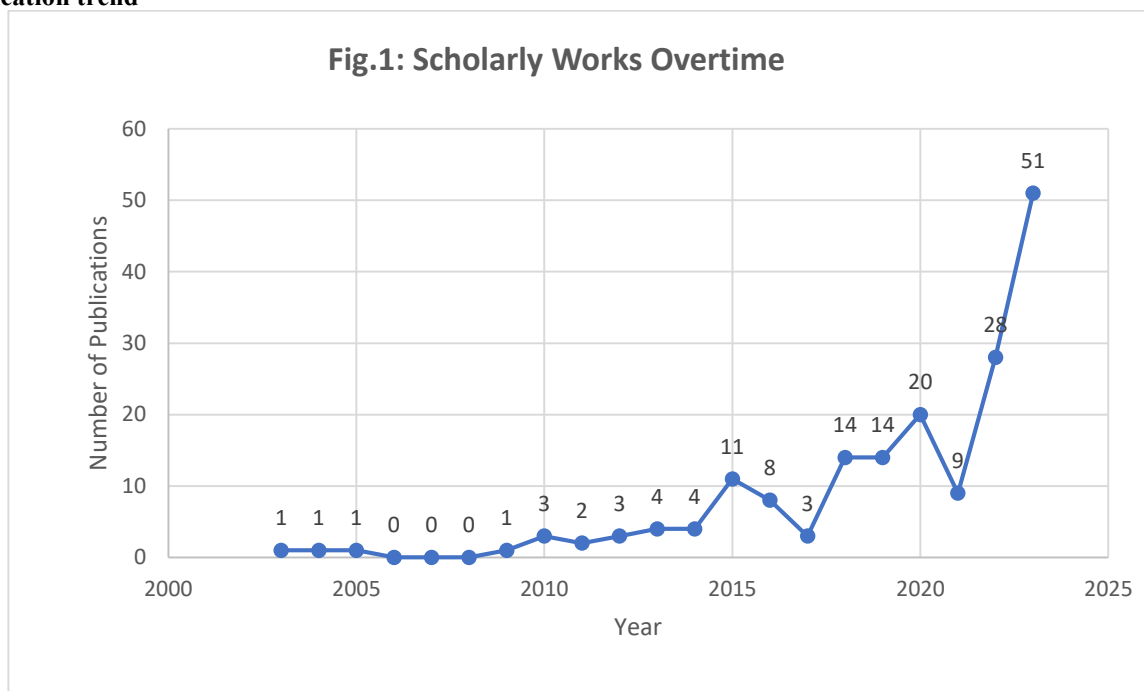
Publication trend

Fig.1 study shows a rising trend in scholarly works published annually, indicating a growing interest in Behavioural Finance, with the peak year being 2023, with 51 papers published, and 28 in 2022.

Table 1: Top Publishing Journals	
Sources	**Articles**
QUALITATIVE RESEARCH IN FINANCIAL MARKETS	11
REVIEW OF BEHAVIORAL FINANCE	9
INVESTMENT MANAGEMENT AND FINANCIAL INNOVATIONS	4
ADVANCES IN INTELLIGENT SYSTEMS AND COMPUTING	3
ECS TRANSACTIONS	3
FRONTIERS IN PSYCHOLOGY	3
INDIAN JOURNAL OF FINANCE	3
INTERNATIONAL JOURNAL OF APPLIED BUSINESS AND ECONOMIC RESEARCH	3
INTERNATIONAL JOURNAL OF EMERGING MARKETS	3
JOURNAL OF BEHAVIORAL AND EXPERIMENTAL FINANCE	3

Studies on Behavioural Finance have been published in a number of scientific journals. While selecting a journal for publication, the author tends to consider both its relevance to the subject matter and its broad readership base. Analysis reveals that a total of 45 publications have been published in top journals. Table 1 shows the overview of the top 10 journals based on articles published. It is found that the journal titled "Qualitative research in financial markets" hold the top position with 11 articles followed by 9 articles in the journal titled "Review of Behavioral Finance.
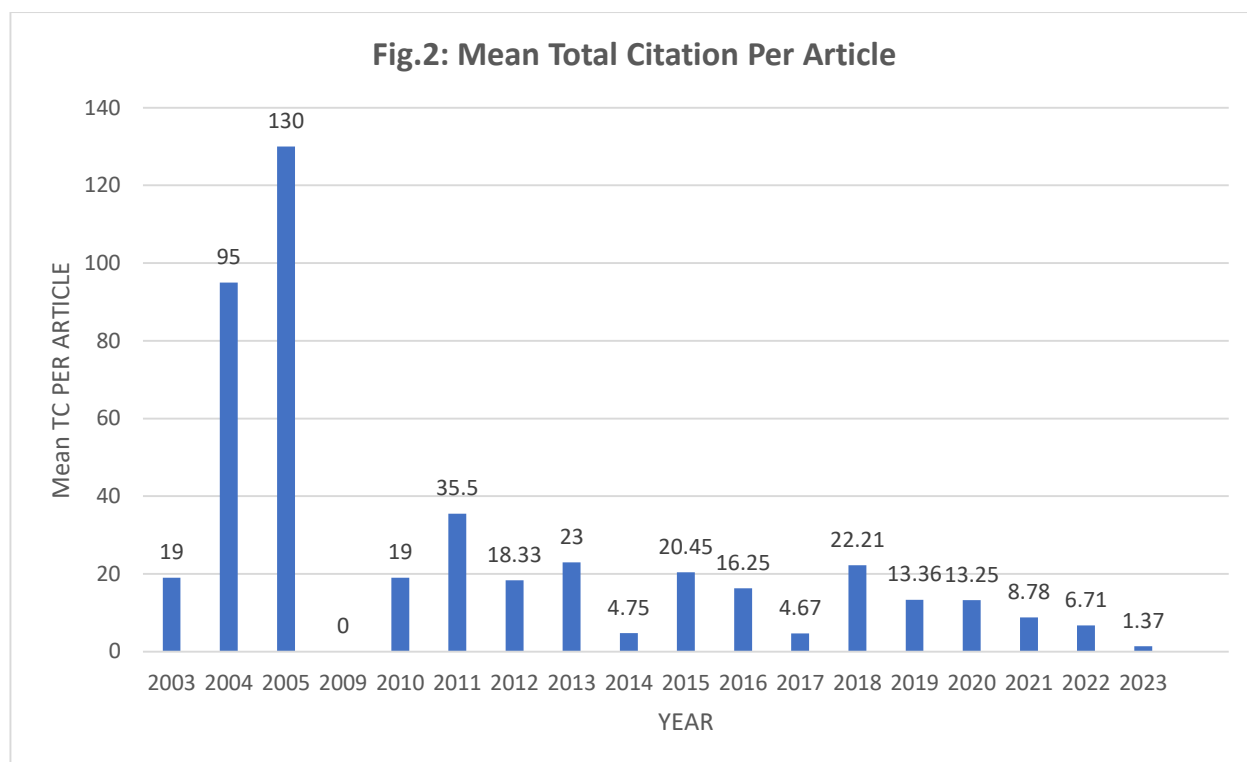
Figure 2 indicates the average citations per year from 2003 to 2023. The highest citation was received in 2005 with 130 mean citations per article followed by 95 mean citations per article in 2004. Further, it is found that the mean total citation per article is in decreasing trend.

Table 2: Top Cited Research Papers		
Sl. No	**Paper Title**	**Total Citations**
1	Behavioural Biases in Investment Decision Making-A Systematic Literature Review	146
2	An empirical test of heuristics and biases affecting real option valuation	95
3	Do investors exhibit behavioral biases in investment decision making? A systematic review	93
4	Herding and anchoring in cryptocurrency markets: Investor reaction to fear and uncertainty	89
5	Evidence on rationality and behavioural biases in investment decision making	81
6	Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process	75
7	An Exploratory Inquiry into the Psychological Biases in Financial Investment Behavior	69
8	Behavioural Economics and Behavioural Finance: A Bibliometric Analysis of the Scientific Fields	68
9	Investors' trading activity: A behavioural perspective and empirical results	64
10	Factors influencing investor's decision making in Pakistan: Moderating the role of locus of control	55

Table 2 shows top-cited research papers from the year 2003 to 2023 published in the Scopus Indexed Journals. The paper titled "Behavioural Biases in Investment Decision Making- A Systematic Literature Review" is the most cited paper with 146 citations followed by "An empirical test of heuristics and biases affecting real option valuation" with 95 citations.

Table 3: Top Contributing Authors	
Authors	**Articles**
JAIN J	6
SINGH S	5
GUPTA S	4
SOOD K	4
WALIA N	4

KUMAR S	3
ADIL M	2
AHMAD M	2
ALAM PA	2
ARORA M	2

The table 3 presents the top contributing authors in the field of behavioural bias based on articles published from 2003 to 2023. Jain J has the highest number of articles published, followed by Singh S, Gupta S, Sood K, and Walia N with 6, 5, 4, 4, and 4 publications respectively.

Keyword Analysis
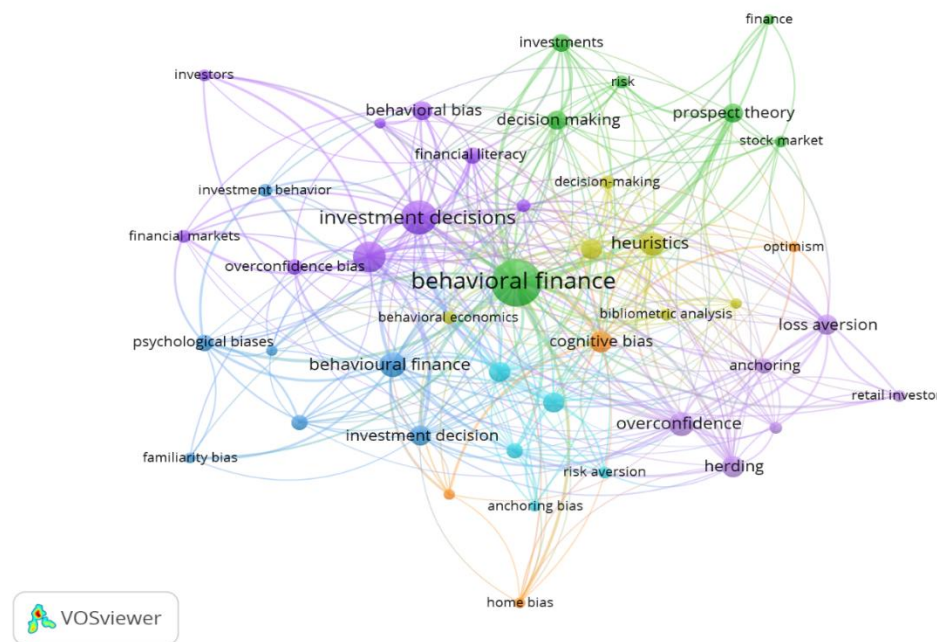
For identifying the most commonly used keywords, a co-occurrence analysis is being performed using VOSviewer and it is being found that a total of 42 keywords are frequently being used by the authors. Mainly authors used the terms behavioural finance, behavioural biases, and investment decisions as their top three keywords with total link strength of 70, 43, and 29 respectively. Other frequently used keywords include psychological biases, behavioural economics, prospect theory, heuristics, overconfidence, loss aversion, cognitive bias, and herding bias.

Review of Top 10 Papers

Table 4: Type of study, data, and tools in Top 10 Research Papers			
Title of the Paper	**Type of Study**	**Type of Data**	**Tools/ Techniques Applied**
Behavioural Biases in Investment Decision Making-A Systematic Literature Review	Qualitative	Secondary	Bibliometric and content Analysis
An empirical test of heuristics and biases affecting real option valuation	Quantitative	Primary	ANOVA
Do investors exhibit behavioral biases in investment decision making? A systematic review	Qualitative	Secondary	Systematic Review
Herding and anchoring in cryptocurrency markets: Investor reaction to fear and uncertainty	Qualitative	Secondary	Correlation Matrix
Evidence on rationality and behavioural biases in investment decision making	Quantitative	Primary	Confirmatory Factor Analysis, Structure Equation Modelling, ANOVA

Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process	Qualitative	Primary	Fuzzy Analytic Hierarchy Process (AHP), Multi-criteria decision-making (MCDM) Technique
An Exploratory Inquiry into the Psychological Biases in Financial Investment Behavior	Qualitative	Primary	Open Analysis (A type of Content Analysis)
Behvioural Economics and Behavoural Finance: A Bibliometric Analysis of the Scientific Fields	Qualitative	Secondary	Bibliometric Analysis
Investors' trading activity: A behavioural perspective and empirical results	Quantitative	Primary	K-Means Cluster Analysis, ANOVA
Factors influencing investor's decision making in Pakistan: Moderating the role of locus of control	Qualitative	Primary	Correlation, Structure Equation Modelling

IV. CONCLUSION OF THE STUDY

Globally, Research on Behavioural Biases, Behavioural Finance, Financial Investment Behavior, and Impact on Investment Decision-Making, has increased significantly, demonstrating the significance of the field. To identify research trends and provide valuable guidance for researchers, the current study uses a bibliometric analysis of the literature that is already available in the Scopus database. The tools and techniques used in the study are PRISMA, MS EXCEL, RStudio, and VOSviewer. The findings indicate that from the year 2003 to 2023, there have been 274 documents. The scholarly work has seen a significant increase, with 51 publications in 2023 and 28 in 2022, with the top journals being "Qualitative research in financial markets" with 11 articles and "Review of Behavioral Finance" with 9 articles. The highest citation was received in 2005 with 130 mean citation per article followed by 95 mean citations per article in 2004. Further, it is found that the mean total citation per article is in decreasing trend. The paper titled "Behavioural Biases in Investment Decision Making- A Systematic Literature Review" is the most cited paper with 146 citations followed by "An empirical test of heuristics and biases affecting real option valuation" with 95 citations. The study revealed that Jain J has the highest number of articles published, followed by Singh S, Gupta S, Sood K, and Walia N with 6, 5, 4, and 4 publications respectively. Mainly authors used the terms behavioural finance, behavioural biases, and investment decisions as their top three keywords with total link strength of 70, 43, and 29 respectively. Other frequently used keywords include psychological biases, behavioural economics, prospect theory, heuristics, overconfidence, loss aversion, cognitive bias, and herding bias. The study analyzed the top 10 papers to identify the type of study (qualitative, quantitative), data types (primary and secondary), and tools and techniques used in these papers. The study, despite its potential to significantly contribute to the literature, also has some limitations. Firstly, it uses only published literature and overlooks unpublished ones, which may introduce publication bias. Secondly, the study considers only publications which have the word "Impact of behavioural biases on investment decision making" in the search document option in the Scopus interface with filtrations restricting the scope of the study to fewer publications. Future researchers should include more publications by expanding the search metrics.

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