

Behavioural Finance and Investment Decision Making: A Bibliometric Perspective from 2002 to 2024

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Abstract

Behavioural finance is an emerging area that combines knowledge from psychology and economics to comprehend the psychological aspects that impact how people make investment choices. In this paper, our goal is to present a bibliometric examination of the trends in behavioural finance research spanning from 2002 to 2024. It emphasizes the increasing significance of behavioural models in clarifying investment anomalies that traditional finance theories do not adequately explain, including phenomena like overreactions, underreactions, and herd behaviour. By extracting information from the Scopus database, the analysis investigates the progression of behavioural finance research, pinpointing essential topics such as overconfidence, loss aversion, and herding, and how these affect asset valuation and investment tactics. The study identifies prominent authors, journals, and emerging research fields by using the bibliometric tool VosViewer to display the co-citation networks, collaboration patterns, and keyword occurrences. The findings show a notable increase in publications after 2013, suggesting that behavioral finance is becoming more widely recognized for its importance in academic and real-world financial contexts. The research concludes by promoting the incorporation of behavioural insights into financial modelling and proposes directions for future investigations, such as cross-cultural studies and interdisciplinary partnerships to improve understanding of worldwide investment behaviours.

Keywords: Behavioural Finance, Investment decision making, Bibliometric, Behavioural Biases.

Introduction

Standard finance, also referred to as traditional finance, is based on a number of theories and ideas, such as the capital asset pricing theory of Sharpe, Lintner, and Black; the arbitrage concepts of Miller & Modigliani; the portfolio principles of Markowitz; and the theory of Black, Scholes, and Merton's option pricing. These methods contend that markets and market participants are methodical and effective. According to the efficient market hypothesis (EMH), when determining the pricing of financial assets, all available information is taken into account. The foundation of EMH is the conviction that financial market participants act rationally (Kumar et al. 2015). A novel idea that combined behavioral and psychological elements in financial and economic decision-making surfaced in the 1980s: behavioral finance. The efficient market theory has been challenged by behavioral finance, which clarifies why When investing in financial assets, investors act in a specific way (Tversky and Kahneman (1979). Behavioural finance is a developing area that combines insights from behavioural and cognitive psychology with the process of making financial decisions. It is a sector within behavioural economics, delves into the intriguing relationship that links human psychology with the financial decisions we undertake. The conventional economic theory discusses efficient markets and individuals making logical decisions to optimize their profits. Nevertheless, this newly emerging perspective suggests that, according to ongoing research by economists, markets are inefficient, especially in the short term, and individuals often fail to make rational choices aimed at profit maximization (Ankita Chaturvedi,2022). It proposes that our financial actions, whether we are acting as investors or as professionals in the field, are not

only dictated by logic and rational thinking but are greatly shaped by various psychological influences and biases

Although the importance of behavioral finance is becoming more widely recognized, the literature on the subject is still dispersed throughout a number of disciplines, including economics, psychology, finance, and even neuroscience (**Ritter, 2003**). This lack of consistency emphasizes the necessity of a thorough bibliometric analysis that can systematically map and assess the existing research environment. Bibliometric tools, which employ quantitative techniques to examine trends in scholarly publications, can be used to integrate the existing body of information regarding behavioral finance and investment decisions (**Van Eck & Waltman, 2014**). A more open picture of the discipline's conceptual framework and development could result from such an analysis, which could also reveal important research areas, well-known authors, fundamental works, and emerging trends.

Behavioural finance contests the conventional finance framework by integrating psychological elements into the comprehension of investment decision-making. It asserts that, investor behavior is greatly influenced by cognitive biases and emotional reactions, which frequently lead to irrational decisions that deviate from the expected utility maximization (**Bashir & Hassan, 2018; Toseef et al., 2020**). These biases can result in less-than-ideal investing choices and include, but are not limited to, overconfidence, herding behavior, and loss aversion (**Amudha & Chander, 2024; Prasetyo et al., 2023**). Notably, some studies have found that some biases, like herding, have little effect on investment decisions (**Prasetyo et al., 2023**), but other studies have found that cognitive biases, like confirmation bias and overconfidence, have a widespread impact on investment behavior (**Noch & Rumasukun, 2024**). Furthermore, financial literacy has been demonstrated to moderate the repercussions of these biases, implying that educational initiatives may serve a pivotal role in alleviating their effects (**Prasetyo et al., 2023**). In conclusion, the existing literature suggests that behavioural finance offers a more intricate comprehension of investment decision-making by recognizing the significance of psychological factors. The empirical findings imply that investors are not always logical decision makers and that a variety of cognitive and affective biases influence their choices (**Amudha & Chander, 2024; Noch & Rumasukun, 2024; Toseef et al., 2020**). It is essential to identify and address these biases in order to promote financial health and make better investing decisions. In order to improve investment strategies and regulatory laws, future research prospects include investigating the cumulative effects of biases and conducting cross-cultural studies.

Literature Review:

Behavioural finance and investment decision making

Behavioural finance investigates the manner in which psychological elements and cognitive biases shape investment behaviour, providing insights that challenge the conventional presumption of market rationality. This field highlights how investors' judgments are influenced by a combination of cognitive and emotional elements, which frequently leads to less-than-ideal results. Numerous critical cognitive biases that significantly influence financial decision-making have been identified by scholarly research. For example, high confidence leads investors to overestimate their ability to foresee the future, which leads to excessive trading and heightened risk-taking behaviors (**Suriyanti & Mandung, 2024**). Similarly, loss aversion, a concept developed by Kahneman and Tversky, describes people's propensity to value preventing losses over achieving comparable gains. Behaviors like holding onto underperforming equities for a long time in the hopes of a market comeback are examples of this bias (**Ali et al., 2024**).

Fear and greed are examples of emotional factors that have a big impact on investor behavior. During economic downturns, fear often triggers rash sell-offs, which exacerbates market falls. On the other hand, when investors are drawn to overpriced assets without thoroughly assessing the underlying risks, greed may lead to speculative bubbles. Investors' vulnerability to psychological impacts is shown by the fact that these emotional responses are more noticeable at times of increased market volatility (**Goud et al., 2024**). Investment behavior is influenced by social and environmental factors in addition to psychological causes. The way people interact with the financial markets has changed dramatically as a result of increased awareness of investing options and the introduction of cutting-edge financial products like cryptocurrencies and exchange-traded funds. (**Chauhan**

and Patel 2024) points out that knowledgeable investors are better positioned to take advantage of these advancements since they have more access to resources and education. The surge of online investment platforms has further transformed the investment landscape. These platforms have democratized access to financial markets, allowing individuals from various backgrounds to engage in investment activities. However, this enhanced accessibility has concurrently introduced new challenges, such as vulnerability to herding behaviour, wherein investors make decisions based on collective trends and online sentiment rather than individual analysis (**Chauhan & Patel, 2024**). The incorporation of digital technologies into investment processes has thus evolved into a double-edged sword, providing convenience while simultaneously exposing investors to distinct vulnerabilities.

Despite the significant insights afforded by behavioural finance, it is imperative to recognize that not all investors are equally susceptible to these biases. Elements such as individual knowledge, available resources, and the specific market context can mitigate the degree to which biases influence decisions. Certain investors, particularly those with elevated levels of financial literacy and experience, may exhibit more rational decision-making patterns. This variability accentuates the necessity for customized approaches in the application of behavioural finance principles to diverse investor profiles.

Bibliometric Analysis

Bibliometric analysis is now a key method for grasping how behavioural finance has changed over time. It offers clear data on publication patterns, important authors, and topic progressions. Research indicates a noticeable increase in publications since 2013, showing the rising importance of behavioural finance in both academia and practice (**Novitasari, 2023**). In the recent past, several studies examining bibliometric analysis in finance have taken place, with focuses on aspects such as financial literacy (**Abda-Segura and Gonzalez-Zamar, 2019; Goyal and Kumar, 2019; Bedi et al., 2019**), consumer credit (**Carlsson et al., 2017**), accounting research (**Merigo and Yang, 2017**), environmentally friendly finance (**Zhang et al., 2019**), financing through supply chains (**Xu et al., 2018**), Takaful or Islamic insurance (**Khan et al., 2020**), and the convergence of information and communications technology (ICT) and financial education (**Valencia et al., 2018**). Different bibliometric tools such as VOS Viewer and Biblioshiny have been employed to study citation networks and keyword co-occurrence, providing clarity on collaboration trends and research insights (**Jain & Goyal, 2024; Kumar & Choudhary, 2023**).

Even with its expansion, the literature points out several gaps in behavioural finance research. Many studies concentrate on Western settings, leaving out cross-cultural viewpoints (**Amudha & Chander, 2024**). Additionally, the role of financial technologies and artificial intelligence in influencing investor behaviour opens up new avenues for research.

In conclusion, the literature in behavioural finance showcases its growth as a field and its important role in tackling market anomalies and investment choices. Bibliometric analysis is crucial for outlining the research field, recognizing key contributors, and discovering new topics, while also highlighting areas that need more investigation.

Objectives of the Study:

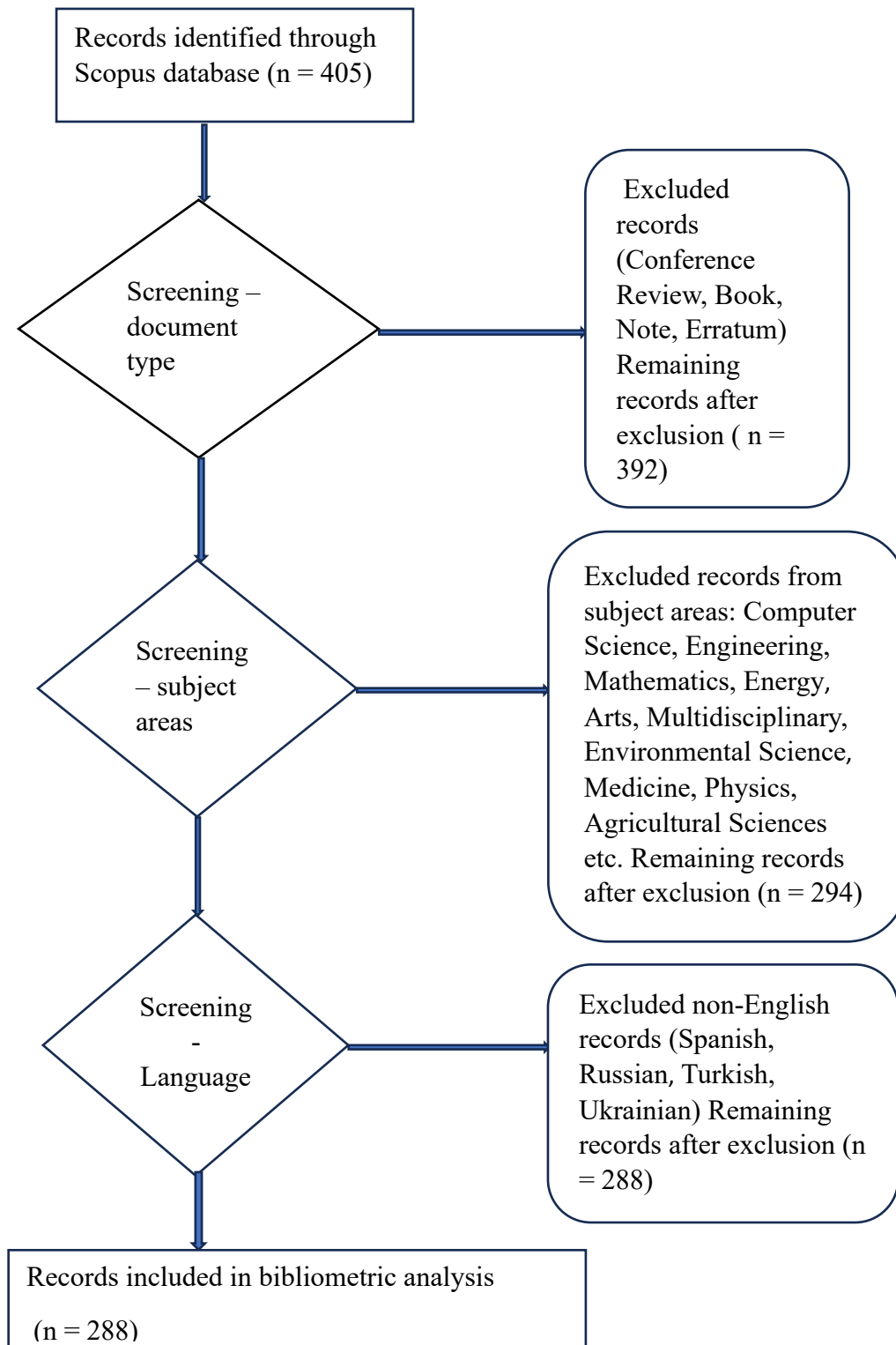
1. To provide a bibliometric analysis of behavioural finance trends from 2002 to 2024.
2. To identify key topics, authors, and journals contributing to this field.
3. To uncover research trends and future opportunities.

Materials and Methodology

The data is extracted from Scopus database from the year 2002 to 2024 by searching the term (TITLE-ABS-KEY ("behavioural finance") AND TITLE-ABS-KEY ("investment decision")) AND PUBYEAR > 2001 AND PUBYEAR < 2025 AND (EXCLUDE (DOCTYPE , "cr") OR EXCLUDE (DOCTYPE , "bk") OR EXCLUDE (DOCTYPE , "no") OR EXCLUDE (DOCTYPE , "er")) AND (EXCLUDE (SUBJAREA , "COMP") OR EXCLUDE (SUBJAREA , "ENGI") OR EXCLUDE (SUBJAREA , "MATH") OR EXCLUDE (SUBJAREA , "ENER") OR EXCLUDE (SUBJAREA , "ARTS") OR EXCLUDE (SUBJAREA , "MULT") OR EXCLUDE (SUBJAREA , "ENVI") OR EXCLUDE (SUBJAREA , "MEDI") OR EXCLUDE (SUBJAREA , "PHYS") OR EXCLUDE (SUBJAREA , "AGRI") OR EXCLUDE (SUBJAREA , "BIOC") OR EXCLUDE (SUBJAREA , "EART") OR EXCLUDE (SUBJAREA , "MATE") OR EXCLUDE (SUBJAREA , "PHAR")) AND (EXCLUDE (LANGUAGE , "Spanish") OR EXCLUDE (LANGUAGE , "Russian") OR EXCLUDE (LANGUAGE , "Turkish") OR

EXCLUDE (LANGUAGE , "Ukrainian")). After identifying the related documents, the following articles are excluded based on the PRISMA method as shown in fig. 1

Figure 1. Flowchart of the retrieval of records using PRISMA method



Initially 405 documents found from the year 2002 to 2024. In the screening stage, 13 documents were excluded which contains books, conference, reviews, notes and erratum. A total of 392 documents were included at this stage. In the later stage, a total of 98 documents were excluded from the record which contains the subject areas other than business management and accounting, economics, econometrics and finance, social sciences, psychology and decision sciences. A total of 294 documents were included at this stage. In the last step total of 6 documents were excluded which contains language other than English. After excluding all the other documents, a total of 288 documents were included after using PRIZMA method.

Analysis

The raw data (288) were extracted from the Scopus search were saved in csv format. We employed the bibliometric instruments known as VosViewer to carry out the analysis of the data (Sganzerla et al., 2021).

Results of descriptive statistics

Publication by year

fig. 2 shows the no. of documents published per year. It shows the no. of documents published on behavioural finance and investment decision making per year from the year 2002 to 2024. The fig. can be divided into two parts one is the origin period (2002-2012) and another is the growth period (2012-2024). The origin phase demonstrates the crucial early stages of inquiry in behavioural finance and how it was being utilized in the process of making investment choices. The discipline was in its formative stages, and the gradual increase in scholarly articles can be linked to a lack of understanding and a smaller number of scholars participating in this particular field. Later in the growth period from 2013 to 2024 showcases exponential growth in interest, particularly in recent years. This reflects the field's increasing importance in both academic and practical finance as researchers explore behavioural biases and their impact on investment decisions.

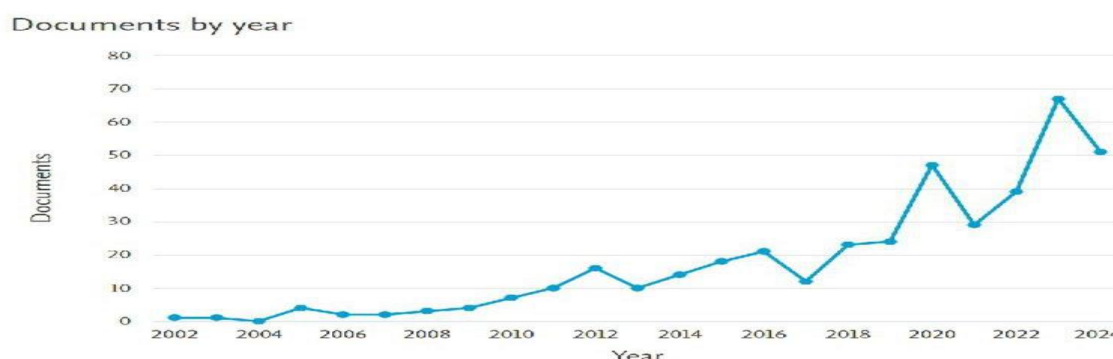


Fig. 2 Publication by year

(Source: extracted from scopus)

Publication by journals

fig. 3 shows the top journals out of 405 documents from Scopus database from area of “behavioural finance and investment decision making”. It was observed that over 66 documents were published by the top 6 journals which accounted for the 16.30% of the total documents(405) included in the sample. The growth in the journals particularly after 2021 shows the increasing trends and rising interest in “behavioural finance and investment decision making”. The sharp increase in journals like “Investment management and Financial Innovations and Qualitative Research in Financial Markets reveals that researcher are more focused on qualitative methodologies and financial innovations. Journals like “*Journal of Behavioural Finance and Review of Behavioural Finance*” remain consistent in publishing and established themselves as a reputed journal and

could be first target for the researcher to publish their papers. The increasing volume of literature from 2021 onward presents an opportunity for the researcher to explore novel topics in new financial conditions.

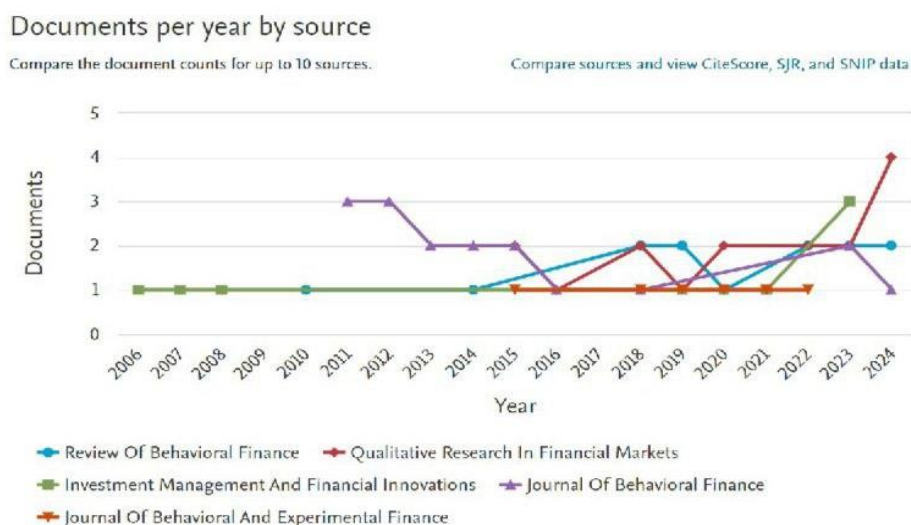


Fig. 3 Publication by Journals

(Source: extracted from scopus)

Publication by countries

Fig.4 shows the no. of documents published by the different countries and the territories. From the fig. it is observed that top 10 countries own almost 79% of the documents published by all the countries. In which India leads the table with 30.84% of the total documents published followed by United States with 10.38% of the total documents. It is also depicted from the fig. that most of the work done by all the countries were in Asia (India 135, Pakistan 24, China 16, Malaysia 16, Indonesia 15) and also there is significant contribution by European countries (UK 31, Germany 26, France 12, Netherlands 10). The least contribution was from the countries like Russia (01), New Zealand (01), Oman (01), United Arab Amirat (02), Japan (02), etc. So, there is a future scope in the countries like Russia, Japan, New Zealand, Oman etc. where the top nations can encourage the collaboration with these nations to provide better opportunity for the collaborative research work.

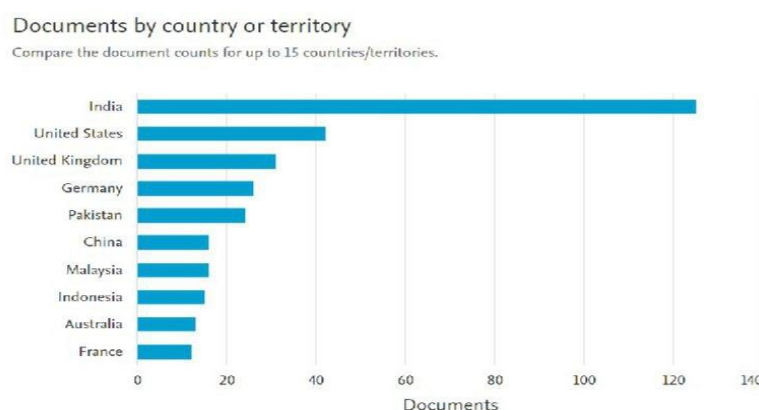


Fig.4 Publication by countries or territories

(Source: extracted from scopus)

From 2002 to 2024, 167 authors were contributing in “behavioural finance and investment decision making”. The top 10 significant authors were shown in fig.5 in which **Shiva, A.** is recognized as the primary author, having authored slightly more than four written works. Whereas there are significant contributions by Several authors, including **Ahmad, M., Ayton, P., Gupta, S., Jain, J., Bansal, R., Das, N., Guerrero, F., Hens, T., and Kathiravan, C.**, have all contributed a round 3 documents each.

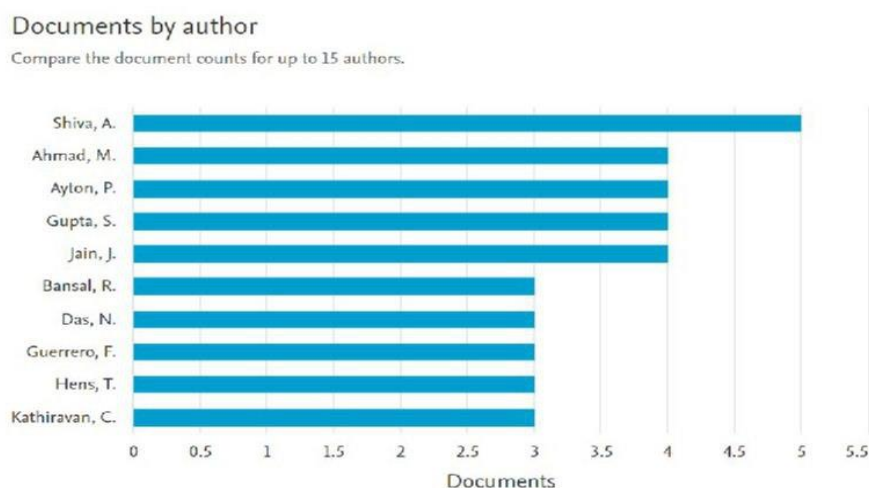


Fig.5 Publications by Authors

(Source: extracted from scopus)

Publication by Subject Area

The fig.6 represents the distribution of documents by subject area. Out of 405 documents taken from Scopus database, the most significant contribution is in the field of Economics which contributes to the 36% of the total documents published. The second largest contribution is in the field of Business Management representing 27.4% of the total documents. Other significant contributions were in the field of Social Science (7.6%), Computer Science (7.5%), Engineering (5.3%), Psychology (4.4%), Decision Sciences (2.9%), Mathematics (2.4%), Energy (1.7%), Arts and Humanities (1.3%), and Other (3.6%) of all the documents taken as sample.

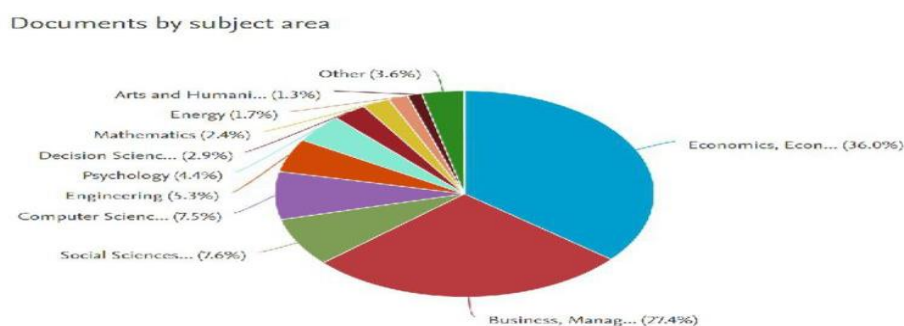


Fig. 6 Publication by Subject Area

(Source: extracted from scopus)

Network Analysis

Co – citation analysis for Authors

Fig. 7 represents the co- citation network analysis for authors derived using software VOSviewer. This network analysis shows how often pairs of documents are cited together in other documents. For this analysis, we selected the minimum number of citations of an author as 15, in which 196 out of 18,667 authors meet the threshold of 15 citations. From the analysis we find Daniel Kahneman stands out as one of the most impactful writers, showing that his contributions have a considerable effect in many different fields of study. The other major authors are Terrance Odean and Brad M. Barber, as they are also frequently co-cited with others. So, for the researchers who wants to pursue their study in this field have to study their papers as they are very influential authors in this field.

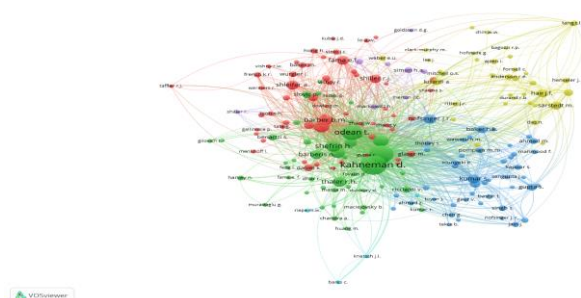


Fig. 7 Co – citation analysis for Authors

(Author's original work)

Co – occurrence Authors keyword

Author keywords are terms that are designated by the original authors themselves. In the fig. 8 the threshold is set at 3 occurrences, out of 886 total keywords only 73 met the threshold of appearing at least 3 times. This process effectively narrows down the primary topics in behavioural finance while leaving out more specialized areas. Key terms such as "behavioural finance," "overconfidence," "heuristics," and "herding" create substantial clusters, highlighting the field's concentration on cognitive biases and the processes involved in investment decision-making. Emerging trends, along with keywords that are less interconnected, might point to topics that have not received enough research attention, thereby presenting potential new avenues for inquiry. The network highlights the prevailing topics like behavioural biases while also revealing chances for collaboration across disciplines and areas for future investigation.

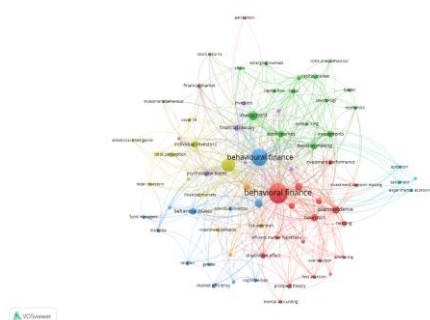


Fig. 8 Co – occurrence Authors keyword

(Author's original work)

Fig. 9 shows the visualization of the network illustrates worldwide research partnerships, where each node signifies a country and the lines depict connections of co-authorship. The dimensions of the nodes correspond to the amount of research output, while the lines reveal the intensity of collaboration. Countries are organized into clusters that are color-coded, showcasing specific regions or thematic partnerships. India serves as a pivotal node, signifying substantial research output along with extensive international collaboration. Prominent partners consist of the United States, United Kingdom, Germany, and Australia. The clusters illustrate robust regional collaborations, such as those in Asia (India, Malaysia, Indonesia) and historical or thematic associations (UK, Nigeria). The visualization comprises only those countries that have at least 3 documents and 10 citations, concentrating on the most significant contributors to global research.

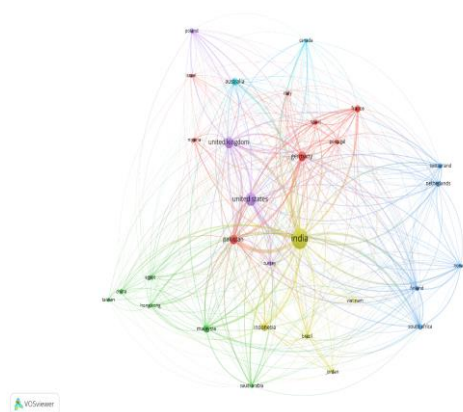


Fig.9 Bibliographic Coupling of Countries

(Author's original work)

Bibliographic Coupling of Research Organisations

Fig. 10 illustrates the connections among various organizations based on their research papers and citation counts. Out of a total of 556 organizations, only 12 fulfilled the requirements of having no fewer than 2 documents and at least 9 citations, which signifies their greater impact. The nodes in the diagram symbolize the organizations, where larger nodes are likely to represent a greater number of documents or citations. The links that connect the nodes demonstrate collaborations or mutual citations. Additionally, the diagram reveals groupings of organizations that engage in collaboration more often, with prominent nodes such as Johns Hopkins University and Anna University Chennai highlighting significant contributors in the realm of research.

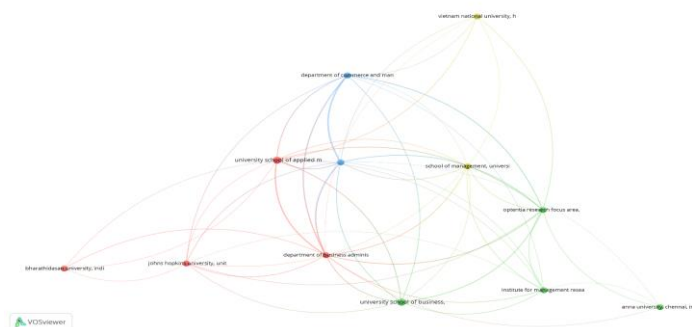


Fig. 10 Bibliographic Coupling of Organizations

(Author's original work)

Fig. 11 is a network diagram illustrates the connections between authors based on their research papers and citations. Out of 704 authors, just 50 fulfilled the requirement of having a minimum of 2 documents and 4 citations, which signifies their elevated productivity and impact. The nodes symbolize the authors, with larger nodes indicating more substantial influence. The connections between the nodes represent co-authorships, while various colours signify groups of authors who collaborate more often. Prominent authors such as "**Nisha Goyal**" and "**Thorsten Hens**" occupy central positions in the network, highlighting their important contributions to the research community. The diagram showcases a collaborative and interdisciplinary research atmosphere

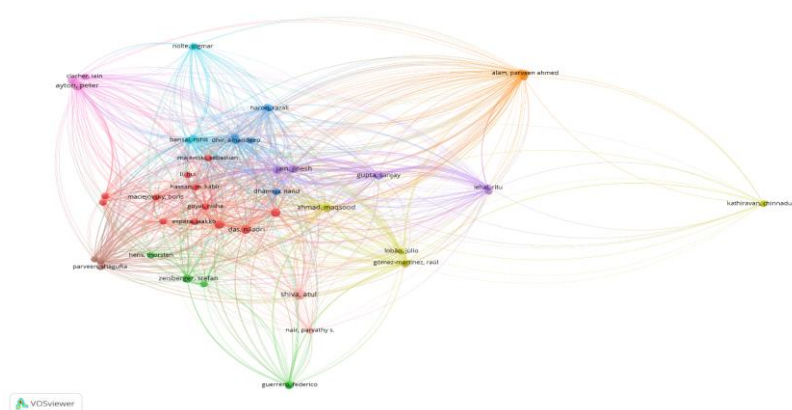


Fig. 11 Bibliographic Coupling by Authors

(Author's original work)

Conclusion And Suggestions

The present study examines the rising significance of behavioural finance in the realm of investment choices, scrutinizing data spanning from 2002 to 2024. It emphasizes the increasing importance of behavioural finance in the examination of investment choices, signifying its evolution from a somewhat specialized area into a prominent domain of both academic and practical focus. This change is evident in the notable rise in publications, particularly throughout the timeframe from 2013 to 2024, which is termed the "growth phase." The significant increase in the research output during this timeframe indicates a wider acknowledgment of the significance of behavioural finance, propelled by its capacity to clarify anomalies and irrational behaviours in financial markets that conventional finance theories are unable to completely explain.

The Geographical spread of research contributions finds out India as a major contributor, representing over 30% of the total publications in this domain. Following closely is the United States, which contributes approximately 10%. A large portion of the research activity is concentrated in Asia and Europe, while areas such as Russia, Japan, and New Zealand have minimal contributions. This uneven distribution highlights considerable opportunities for expanding research in less represented regions, suggesting that future partnerships and initiatives could aim at improving the global inclusivity of research in behavioural finance.

Prominent themes in behavioural finance research, as outlined in the study, centre around cognitive biases like overconfidence, heuristics, and herding tendencies. These concepts play a vital role in comprehending how psychological elements affect investment decisions, often resulting in departures from rational behaviour as anticipated by traditional finance theories. Key figures in this field, such as **Daniel Kahneman**, **Terrance Odean**, and **Brad M. Barber**, have made essential contributions that continue to influence the trajectory of ongoing research.

The document further emphasizes the significance of reputable academic journals, including the “**Journal of Behavioural Finance**” and the “**Review of Behavioural Finance**”, in spreading innovative research. The rise in publication activity in these journals after 2021 reflects an increasing academic engagement and the solidification of behavioural finance as a recognized area of study.

The network analysis carried out within the study uncovers robust international collaboration, with India standing out as a key hub in the global research network. Institutions such as **Johns Hopkins University** and **Anna University Chennai** are recognized as major contributors, highlighting their leading roles in promoting behavioural finance research.

The study indicates that behavioural finance has established itself as an essential field in the analysis of finance, offering important insights into the psychological foundations of investment behaviour. The rapid expansion of the field and growing academic interest underscore its current and future significance. Furthermore, the potential for additional research is extensive, especially in areas and subjects that have been inadequately explored. The study advocates for ongoing investigation and collaboration in behavioural finance, stressing its significance in delivering a more complete understanding of financial markets and decision-making processes.

Limitations Of The Study

There are few limitations for this study, as this study has analysed the data extracted from the Scopus database only. The result possibly varies if we include the data from Web of Science, Google Scholar and other database. Another limitation of the study is we excluded all the documents other than language English and the subject area of Economics, Econometrics and Finance, Business Management and Accounting, Social Sciences, Psychology and Decision Sciences.

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