

Analyzing the Financial Behavior Literature: A Bibliometric Examination Employing the VOSviewer Software

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Abstract

The present study undertakes a comprehensive bibliometric analysis of the extensive body of literature pertaining to Financial Behavior. Employing the sophisticated VOSviewer software, we systematically map and analyze the scholarly landscape in this domain, elucidating key trends, prominent research themes, and notable academic contributions.

Bibliometric analysis, a systematic method for quantifying and evaluating the scholarly output within a specific field, has emerged as a pivotal tool for gaining insightful perspectives into the academic landscape. By employing bibliometric techniques, we aim to discern patterns and structure within the vast expanse of literature concerning Financial Behavior. Our analysis is propelled by the VOSviewer software, a robust computational tool acclaimed for its adeptness in visualizing bibliometric data and enabling the identification of critical connections and emerging trends within a knowledge domain.

Through the application of VOSviewer, we conduct a systematic examination of the bibliographic information embedded within the Financial Behavior Literature. This includes an assessment of publication patterns, co-authorship networks, citation relationships, and thematic clustering. By employing quantitative measures and visualization techniques, we delineate the intellectual structure of this field, unveiling key nodes of research activity and influential research entities.

Our study endeavors to offer an informed and systematic perspective on the extensive body of literature concerning Financial Behavior. By utilizing the VOSviewer program, we intend to provide valuable insights that can aid researchers, practitioners, and policymakers in comprehending the evolving landscape of Financial Behavior research. Ultimately, this analysis strives to contribute to a more comprehensive understanding of the intricate dynamics and dimensions that characterize Financial Behavior scholarship, paving the way for informed decision-making and future research endeavors within this domain.

Key-words: - Financial Behavior, Bibliometric, VOSviewer, Publication Patterns, Decision Making.

1. Introduction

For the Development of any Economy/Nation it is inevitable that its financial market is also well developed. It is the development of the financial markets that ensure the smooth, Steady and progressive development of the nation. Every nation plans such development of their markets by creating a suitable environment for their functioning. The development of the financial markets would result in better efficiency, it can be achieved by the continuous improvement and upgradation of the activities of the market. In the development of the Financial markets it is the Households that play a pivotal role. They use the credit services – Lending and Borrowing – in the best way which would lead to development of the markets and in return in the development of the nation. In most of the developed economies/nations it is the savings and investments of the households that lay the basis for the national economic development*(1). The contribution of the households savings-investments in the national economic development is also important because of their nature of being stable and normally long-term which brings in the stability in the financial markets at micro and the national economy at macro level*(2).

The work of financial institutions is to create a mechanism that would help the flow of funds from households (Excess Money) to industry (Borrowings). However, it is not that easy to create such a network as there are many intermarries involved in such a financial market. It is the presence of so many parties in the system which may be the hurdle in the development of the market and the market systems*(3) The complexity of the markets is aggravated by the fact that any prediction related to the actions of the households with reference to the markets – Savings and Investments – is very difficult and at times almost impossible atleast from the market point of view because of lot of individual and personal factors involved in the financial decision making by the households*(4 – 6).

In this InfoSavvy world the development of the financial markets or even the financial services sector is very complex and complicated as their own functioning is under the transformational condition due to various reasons – viz. Traditional Reasons [Market conditions, Global Crises, Unemployment, Poverty, Natural Calamities, etc.]* (7), Development of Technology and Information Systems*(8-9), Innovation*(10-12).

These kind of factors have lead to volatility in the financial markets demanding more variations and options in the markets. The use of Information Technology Tools and the need and Zeal of Innovation in the markets has been a driving force in developing new instruments as per the requirements of the households and to make the decision process of the investors – households easier and more predictable. This is the initial stage in the evolving new stream of knowledge and it has to go up from this point onwards. This calls for an integration of the results already generated by previous researchers in this area and systematically arrange them for an easy analysis by future researchers which would pave the way for enhanced and articulate research in this area.

The question to be discussed is why Behavioral Finance, how is it different from Finance, What makes it important to discuss about it? And may more questions may arise.

Behavioural Finance is the area of study which tries to establish a relation between psychology and Finance, focusing on the individual level cognitive biases. It is understood that the traditional finance theories are more logic based than the behavioural finance. In simple words – Traditional Finance Theories are Brain based and the Behavioural Finance is Heart based*(13-14)

2. Review of Literature

- **(Maxted P, March 2023)** in his article “A Macro-Finance Model with Sentiments” has incorporated the diagnostics expectations in a general equilibrium macro-economic model and have observed that any model that is of diagnostic-expectation would be normally a forward bending and hence would react sharply to any recent news. This kind of over-reaction would lead to spikes in the price movements resulting in short term amplification. They stated this kind of behaviour as a feedback from Behaviour Friction to Financial Friction.
- **(Tahira I. et. al. 2023)** In their paper “Does Financial Mindfulness Make a Difference? A Nexus of Financial Literacy and Behavioural Biases in Women Entrepreneurs” observed that there is a direct relation between financial literacy and impact of anchoring or behavioural factors in the decision making process of the respondents. They also interpreted that a strong financial literacy reduces the herd mentality. Based on this it was stated that the greater the financial literacy lesser will be the impact of behavioural finance – anchoring effect or herd mentality.
- **(Yasmeen A. et. al., 2023)** in the paper “Examining the relationship between financial literacy and demographic factors and the overconfidence of Saudi investors” identified that there is a correlation between the depth of financial literacy and the impact of herd bias. They have stated that only the investors with higher financial literacy are able to overcome the bias and others behave with the herd mentality. They also suggested that the financial literacy of the women investors needs to be enhanced.
- **(Baxi & Palak, 2023)** in the thesis titled “Herd Behaviour in Indian Stock Markets – A study of Selected Sectors” have stated that in spite of various rational decision making systems available in Traditional Finance Theories people still have a high angle tilt in the decision making based on their past experiences, beliefs and most importantly based on the unwarranted information available from the market which may be correct at times but mostly not correct.
- **(S P Owusu & Esther L, June 2022)** in the article “The impact of anchoring bias on investment decision-making: evidence from Ghana” have identified that overall the investors are influenced – significantly by the bias created by anchoring. The study found a very significant relationship between investors susceptibility to anchoring. Irrespective of the gender and the financial knowledge of the investor they are bound to be influenced by the anchoring – Behavioural Aspect.
- **(SK Mittal, 2022)** in paper “Behavioural Biases and Investment Decisions: Theoretical and Research Framework” have found – very little work and research has been done in this area and there is a big research gap. He also stated that there is a dominant role of biases in the investment decisions by the investors, mainly the small and retail investors have greater dependency on the biases than on the technical analysis.
- **(Adil, M., Singh, Y. and Ansari, M.S. 2022)**, "How financial literacy moderate the association between behaviour biases and investment decision?" have established the relationship between the financial literacy and the investments biases based on the behavioural nature of the investor. They have stated that there is an inverse relationship

between the level of financial literacy and the impact of biases on the investment decisions by the investor.

- **(Ingale, K.K. and Paluri, R.A. 2022)**, "Financial literacy and financial behaviour: a bibliometric analysis" have stated that there is an inter-linkage between the financial literacy of the investor and financial behaviour of the investors. They stated that considering the results of the research the government of the other concerned bodies may take the steps to increase the financial literacy of the investors to avoid any losses based on financial behaviour.
- **(Jain & Niyati, 2022)** in thesis "Influence of Behavioural Factors on Adaption of Digital Finance – An Empirical Study" concluded that even the adaption of the Digital finance there is a role of the human behaviour related to finance and this impacts the investment decision related to individual decisions.
- **(Sharma & Himanshu, 2022)** in the research "Portfolio Management Behaviour of Individual Investors in Uttarakhand" observed there is a vast difference between the impact of behavioural Financial decision making by the respondents based on the level of qualification. It states that mostly people who are highly educated are less inclined towards the behavioural action as compared to their counterparts.
- **(AD Cahyono, 2023)** in article titled "The Psychological, Neuroscience, and Socio-Economic Factors of Mindset Investors in Buying Mutual Fund for Investments Decisions" has resulted that psychology has a role in the behaviour of mindset investors in buying reksadana (Fixed Income Funds) for investment decisions. The objective to explore factors buying mutual fund by investors. This research uses six participants. The main outcome measure it can be concluded that investor behavior in mindset stock investment decisions is always based on psychological and socio-economic attitudes when buying mutual funds.
- **(Itzhak Ben-David, Francesco Franzoni, and Rabih Moussawi – 2020)** in the paper "Behavioral Factors in Mutual Fund Flows" Published in The Review of Financial Studies, This paper examines how investor behavior and sentiment impact mutual fund flows and performance. It is not only the case with the investment in the markets directly but also the investments in the mutual funds that the human behaviour/Sentiments/Beliefs play a pivotal role.
- **(B Patel & V Modi, 2019)** in paper "Impact of demographic factors on investment preference for selected investment avenues" observed that the basic demographics like Gender, Age, Etc. doesn't have any direct impact on the investment psychology as most of the investments are uninformed and are based on psychological factors rather than knowledge or some calculation.
- **(Owen Powell, Lawrence J. White – 2019)** in the study titled The Behavioral Economics of Currency Manipulation Published in Journal of Financial Stability. This study examines the behavioral aspects of currency manipulation and its effects on financial stability. It was observed that the changes in the prices of the currency are greatly affected by the behavioural aspect of the investors in the market.
- **(L. Marina, et. el. 2019)** in paper - "The Financial Behavior Traits Impact On Financial Distress At Small Medium Enterprises" published in *International Journal of Scientific & Technology Research* have identified that not only the individuals but also the small businesses have the tendency to do stress investments as they are not sure of how long are they going to have surplus and are mainly looking for a short term returns from the investments and most of the investments are made in short notice hence the possible of a good rational decision is less therefore the psychology plays a major role.
- **(M. V. Deventer 2020)** in paper "African Generation Y students` personal finance behavior and knowledge," published in Investment management and Financial Innovations has

done a study on the young students of few African countries to see the influence of personal experiences (Behavioural heuristics) on the investment and financial decisions of the students. The paper concluded that even though at a young age there is an influence of the investors personal experiences and beliefs in the investment and financial decisions it is mainly due to overconfidence and the influence of the peer group.

3. Methodology

The study's methodology is based on a set of standard scientific research techniques, such as measurement, comparison, and observation. There is active use of the system approach methodology; comparative analysis; and statistical research methodologies. The VOSviewer analytical tool was used to visualize the relevant information. Spreadsheet was used for the graphic and analytical representation of the data and its analysis to weed out the unrelated articles/thesis/papers and to get the most relevant topics in the complete corpus of scientific literature; This had two(2) main goals: first, to examine behavioural finance research generally; and second, to thoroughly examine the current status of research focused only on financial behaviour. To achieve the goals by first defining a sample of research papers according to the following criteria:-

Simultaneous use of the words “Finance” and “Behaviour” exclusively in the title of the paper/article/thesis,etc. the period is 2019-2023. Any additional parameters such as – Field, type of document, source of publication country etc. were not used. The data is mainly sourced through the 2 most common reservoirs of the scientific publications – “Scopus” and “Web of Science”.

The basic selection criteria was then added up with some other parameters to make sure that the correct and the most relevant piece of data is used for the paper. The complete data is based on the following parameters –

Key Phrase - (“Behaviour” or “Behavioural”) and “Finance”

As on 11th November 2023 – 2659 Total

Filters used –

English Only – 2600 Left

Open Access Only – 845 Left

Articles and Early Access – 752 Left

Last 5 years only – 2019-2023 – 376 articles Left.

At Least 5 Citations – 83 Left

4. Results and Discussion

To consider Financial Behaviour as a universal field of knowledge is the starting point towards new approaches and concepts to study the Behaviour of Investors in financial decision making also to indendify its impact in the modern digital era so as to identify the possible threats, opportunities, etc. for the investors who have adopted the use of technology in the decision making process but are still dependent on their biases even though they are separated by generations, cultures, ethnics and countries. The scope and the potential for the study of this area is very huge and this can be seen by the increase in the number of researches done in this field over past few decades.

4.1 Top Journals with the most articles published in the field of Behavioural Finance –

Tabel-1: Top Journals with most articles published in Behavioural Finance (Scopus)

Journal	Number of Publications	Country
Journal of Behavioral Finance	653	UK
Journal of Behavioral and Experimental Finance	460	Netherlands
Journal of Banking and Finance	289	Netherlands
Journal of Economic Behavior and Organisation	199	Netherlands
Review of Behaviour finance	145	UK

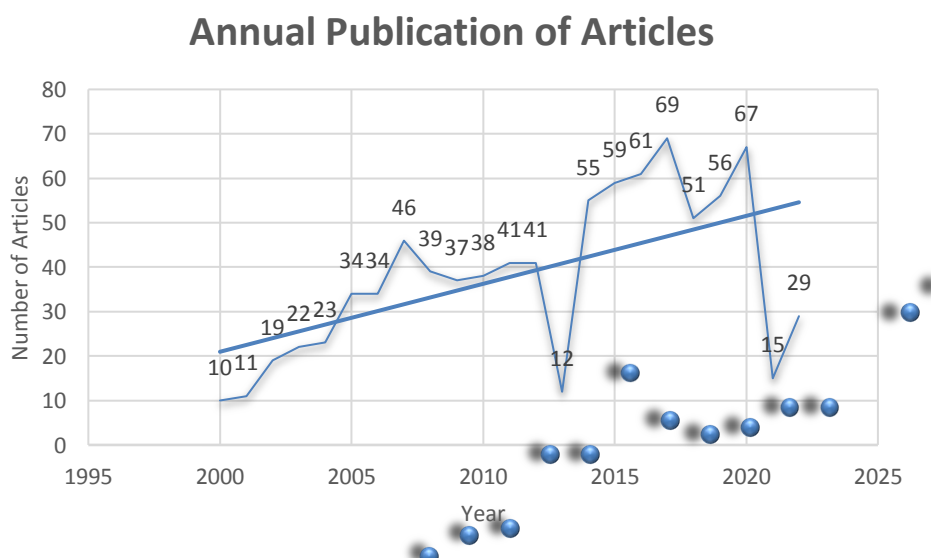
From the Table-1 we can identify that the top 5 journals publishing the articles on Behavioural Finance are mainly from UK and Netherlands, however with further investigation we could find that these journals are published by various publication houses like Elsevier, Emerald Group and Taylor & Francis. The Journal of Behavioral Finance has the highest publication of 653 articles followed by the Journal of Behavioural and Experimental Finance (460 articles).

4.2 Year wise Publications

With an intention to have a better study and understanding of the topic and the way this area of study has moved we tried to study the trajectory of the publications over past 20 years and have noticed that there have been approx. 2659 publications starting from 2000 till November 2023. We have noticed a constant growth in the number of articles published on YoY basis. The AGR has increased for the first time in 2014 and since then the per annual publications in the relevant area have showing a good trend till 2020, however in the next year 2021 we have seen a significant reduction in the annual publications which again increased in 2022.

** The complete data of 2023 is not yet available and hence for this purpose it is not considered.*

Figure-1: The yearly and total number of research papers/articles published in Scopus between 2000 and 2022 on Behavioural Finance.



4.3 Countries with Most Publications

The study of Table-2 reveals that the top nations in the world who have contributed in the research and development in the field of Behavioural Finance and helped it make it a popular area or study and research. From the table we can identify that more than 60% of the total publications have come from only 2 countries - United States of America and China with USA at the top position. The other countries which have contributed significantly are UK, Germany and India.

Tabel-2: Top Countries with most articles published in Behavioural Finance (Scopus)

Country	No. of Publications
USA	844
China	302
UK	287
Germany	224
India	165

The Table-3 below depicts the Countries with Top Performance in publishing the articles on Behavioural Finance which are published in the journals indexed in Web of Science(WoS)

Tabel-3: Top Countries with most articles published in Behavioural Finance (WoS)

Country	No. of Publications
USA	471
China	192
UK	142
Taiwan	101
Germany	85

4.4 Co-Authorship and Inter-Country Co-Authorship Network Analysis

The analysis as done by the VOSviewer in relation to the coauthorship states that there is a very limited relation among the authors as about 100 authors have co-authored with and have some network. However a lot more authors have preferred to write a solo paper or have co-authored only once. The below figure – 2 shows the coauthorship relation among the authors. The analysis also helps us to understand that the relation between the authors is very strong in some cases. There are 17 authors who have had collaborations in publications at multiple times and have a good presence in the map.

timely manner with plenty of citations by the Hot Articles feature. Future studies spanning longer time periods should incorporate more scientific papers to improve generalizability. Recognizing emerging challenges and trends associated with this research area is crucial. Given the relatively recent nature of the field, it is essential to revisit and replicate earlier quantitative studies on Business Finance (BF). However, due to limitations in bibliographic research, the conceptualization of groups as the theoretical foundation for BF work may be subject to distortion. Future research endeavors should shift their emphasis towards creating an innovative categorization tool for examining job patterns and development. It is worth noting that, since this study exclusively utilizes the VOSviewer application, there is potential to employ various bibliographic analysis methods in forthcoming investigations.

6. Conclusion

Utilizing papers from the Scopus and Web of Science databases, this study has presented a comprehensive overview of advancements in Business Finance (BF) research. The analysis reveals a significant growth in publications during the study period, with indications pointing towards a continued upward trend. Notably, numerous nations exhibit a substantial volume of publications and engage in extensive international cooperation, exemplified by countries like China and the United States. Some universities from these nations may even incentivize researchers from other countries, such as Canada and Indonesia, to foster collaborative research efforts. The study also delves into current research focal points. Furthermore, we anticipate noteworthy contributions from Indian authors and universities in the realm of BF, poised to enhance their presence in this research domain.

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