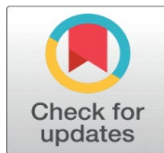
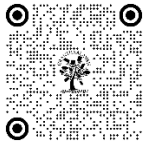


BEHAVIOURAL FINANCE AND INVESTOR PSYCHOLOGY IN CAPITAL MARKETS: A TWO-DECADE BIBLIOMETRIC REVIEW

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DOI

[10.29121/shodhkosh.v3.i1.2022.2874](https://doi.org/10.29121/shodhkosh.v3.i1.2022.2874)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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ABSTRACT

This study conducts a comprehensive bibliometric analysis of behavioral finance literature from 2000 to 2020 using data from the Scopus database. The analysis examines 970 documents from 390 sources, revealing an 18% annual growth rate in research output and significant academic impact with an average of 30.29 citations per document. The United States and China emerge as leading contributors with 324 and 314 publications respectively, demonstrating strong international collaboration patterns with 22.68% of publications involving cross-border partnerships. The analysis identifies key research clusters around market efficiency, investor psychology, and behavioral biases, with prominent authors like Hirshleifer D significantly influencing the field through highly cited works. Publication patterns show increasing interdisciplinary integration, with journals like *Physica A* and *Journal of Behavioural Finance* serving as primary outlets. The keyword co-occurrence analysis reveals evolving research themes from fundamental concepts to specialized applications, particularly in emerging markets and technological aspects of behavioral finance. Network visualization demonstrates strong collaborative ties among developed nations, while emerging economies show growing research contributions. These findings provide valuable insights into the development and current state of behavioral finance research, highlighting its evolution from theoretical foundations to practical applications in understanding market behavior and investment decisions.

Keywords: Behavioral Finance, Bibliometric Analysis, Research Evolution, Scientific Mapping



1. INTRODUCTION

The field of behavioural finance has emerged as a transformative paradigm in financial research, challenging the long-held assumptions of traditional finance theories, particularly the Efficient Market Hypothesis (EMH). By integrating psychological insights with financial theory, behavioral finance provides a more nuanced understanding of how cognitive biases and emotional factors influence investor decision-making and market dynamics. Over the past two decades (2000-2020), this field has experienced significant growth and evolution, making it an ideal candidate for systematic bibliometric analysis.

The most prominent reason for the explosion of research in behavioral finance is the growing recognition of the fact that markets often fail to be rational and investors frequently make decisions on grounds that are emotional and psychological rather than purely economic considerations. This has generated a huge mass of literature examining various aspects of investor psychology, market anomalies, and decision-making biases. As such, it is important that academics and practitioners in finance understand the evolution and the current situation of this research landscape.

This study employs a comprehensive bibliometric analysis of behavioral finance literature indexed in Scopus from 2000 to 2020, aiming to map the intellectual structure and evolution of this field. The choice of this timeframe is particularly significant as it encompasses several major financial events, including the 2008 global financial crisis, which heightened interest in behavioral aspects of financial markets. Scopus, as one of the largest abstract and citation databases of peer-reviewed literature, provides a robust foundation for this analysis.

1.1. Research Objectives

- 1) To map the growth and evolution of behavioral finance literature during 2000-2020.
- 2) To analyze international collaboration patterns in behavioral finance research.
- 3) To identify the most influential themes and research topics in the field.
- 4) To examine emerging trends and changing patterns in behavioral finance research.
- 5) To suggest potential research directions based on the bibliometric analysis.

2. LITERATURE REVIEW

Behavioral finance has revolutionized the way financial markets and investor behavior are studied, challenging the rational assumptions of traditional finance theories. It seeks to understand the cognitive and emotional factors driving decision-making, highlighting how biases and heuristics often lead to market anomalies and irrational behavior. Over the past two decades, this field has evolved significantly, with numerous seminal works advancing theoretical and empirical understanding.

Early research laid the foundation for behavioral finance by addressing anomalies unexplained by efficient market hypotheses. Kahneman and Tversky's (1979) prospect theory demonstrated how individuals evaluate risk asymmetrically, favoring losses and gains differently, which has profound implications for investment behavior. Shleifer (2000) and Thaler (2005) expanded on these ideas, emphasizing how behavioral biases such as overconfidence, anchoring, and mental accounting distort investor judgments. Barberis, Shleifer, and Vishny's (1998) seminal model of investor sentiment provided a framework for understanding how optimism and pessimism drive mispricing, forming the basis for much subsequent research.

The disposition effect, herding, and loss aversion have also been extensively examined. Odean (1998) identified how investors are prone to selling winning stocks too early and holding onto losing stocks for too long, a phenomenon known as the disposition effect. Herding behavior, particularly during market booms and crashes, has been explored in studies like those by Bikhchandani and Sharma (2000), revealing its role in amplifying market volatility. Similarly, Shefrin and Statman (2000) demonstrated how loss aversion shapes risk-averse behavior among retail investors, often leading to suboptimal portfolio decisions.

By the mid-2000s, the field diversified to examine the role of investor sentiment and market efficiency across varying contexts. Brown and Cliff (2004) documented the impact of sentiment on stock price movements, showing how it can lead to prolonged deviations from fundamental values. Meanwhile, empirical works by Chang, Cheng, and Khorana (2000) highlighted herding in Asian markets, demonstrating how cultural and structural factors influence investor behavior differently in emerging economies.

Between 2010 and 2020, behavioral finance research advanced through the integration of cutting-edge methodologies and interdisciplinary approaches. De Bondt et al. (2015) revisited cognitive biases such as the disposition effect, noting their persistence even under volatile market conditions. Guiso et al. (2018) emphasized the role of financial literacy in mitigating biases, providing actionable insights for policymakers aiming to improve market participation.

Technological developments during this period enabled novel explorations in behavioral finance. For example, Frydman and Camerer (2016) utilized neuroimaging to investigate the neural basis of risk-taking, offering a new dimension to understanding decision-making under uncertainty. Similarly, Jiang and Yang (2018) explored the influence of social media sentiment on stock price volatility, highlighting how digital platforms magnify investor emotions and short-term price movements.

Emerging economies became a fertile ground for behavioral research. Bhowmik et al. (2019) analyzed Indian equity markets, demonstrating strong home bias among retail investors and their tendency to overreact to corporate

announcements. In China, studies revealed that political uncertainty exacerbates herding, while in Brazil, market instability heightened loss aversion among investors (Barberis et al., 2019). The intersection of behavioral finance and corporate decision-making also gained prominence. Studies like Baker et al. (2019) delved into how biases such as overconfidence and optimism affect mergers, acquisitions, and other corporate strategies, shedding light on the behavioral drivers behind firm-level decisions.

Policy applications of behavioral finance were another critical area of development. Benartzi and Thaler (2017) demonstrated the efficacy of behavioral nudges in improving retirement savings, while Hansen et al. (2018) explored how framing effects in central bank communications influence market expectations. Socially responsible investing (SRI) and environmental, social, and governance (ESG) factors became increasingly relevant in the late 2010s. Barber et al. (2020) highlighted how behavioral preferences are reshaping investment landscapes, with growing investor interest in aligning portfolios with ethical and sustainability goals. The incorporation of neuroscience, technology, and policy perspectives in recent years underscores the dynamic and evolving nature of the field, setting the stage for future research directions in both developed and emerging markets.

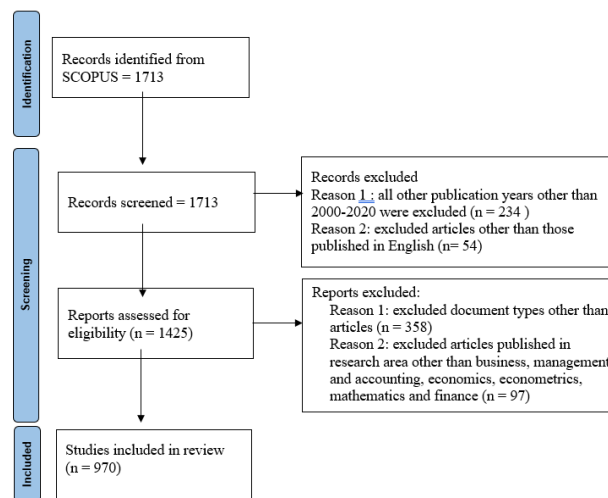
3. RESEARCH METHODOLOGY

A specific dataset is selected for analysis by searching and filtering documents from the Scopus database following the PRISMA protocol (figure 1). The search was conducted using the keywords ("behavioral finance" OR "investor psychology" OR "behavioral biases" OR "herd behavior" OR "overconfidence" OR "loss aversion" OR "anchoring bias" OR "mental accounting" OR "market sentiment") AND ("capital market" OR "stock market" OR "financial market") in the titles, abstract and keywords of articles published between 2000 and 2020, ensuring a comprehensive review of relevant literature. Biblioshiny and VOS viewer are used to conduct performance analysis and scientific mapping of the data set. The criteria employed are shown in the table below.

Table 1: Selection criteria

Keywords	("behavioral finance" OR "investor psychology" OR "behavioral biases" OR "herd behavior" OR "overconfidence" OR "loss aversion" OR "anchoring bias" OR "mental accounting" OR "market sentiment") AND ("capital market" OR "stock market" OR "financial market")
Search In	Title, Abstract and keywords
Publication Year	2000-2020
Fields of Research	Business, management and accounting, economics, econometrics, mathematics and finance
Publication Type	Articles, Conference paper
Language of Documents	English

Figure 1. Identification of documents via SCOPUS



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372: n71. doi: 10.1136/bmj. n71

4. DATA ANALYSIS AND RESULTS

1) Descriptive analysis

Table 2: Description of main information

Description	Results
Main information about data	
Timespan	2000:2020
Sources (Journals, Books, etc)	390
Documents	970
Annual Growth Rate %	18
Document Average Age	9.49
Average citations per doc	30.29
References	1
Document contents	
Keywords Plus (ID)	897
Author's Keywords (DE)	2373
Authors	
Authors	1937
Authors of single-authored docs	182
Authors collaboration	
Single-authored docs	197
Co-Authors per Doc	2.41
International co-authorships %	22.68
Document types	
article	961
Conference paper	9

The dataset, spanning 2000–2020, comprises 970 documents sourced from 390 publications, reflecting an annual growth rate of 18%. The research field shows a strong collaborative nature, with an average of 2.41 co-authors per document and 22.68% international co-authorship. The documents have a high average citation rate of 30.29, indicating significant academic impact. Keywords and author analysis highlight the multidisciplinary nature and evolution of research themes in behavioural finance and investor psychology.

2) Performance Analysis

The evaluation results of top 10 authors, top 10 journals, top 10 documents and top 10 countries are given below.

- Most Relevant Authors According to publication

Table 3: Top 10 Authors based on Publication

Authors	h_index	g_index	m_index	Total Citation	No. of Publications	Publication year
Hirshleifer D	9	9	0.375	3789	9	2001
Teoh SH	7	7	0.304	2130	7	2002
Demirer R	6	7	0.316	554	7	2006
Ahmad Z	5	6	0.455	67	6	2014
Bouteska A	5	6	0.625	74	6	2017
Cipriani M	5	5	0.294	236	5	2008
Guarino A	5	5	0.294	236	5	2008
Kliger D	5	5	0.313	164	5	2009
Tuyon J	5	5	0.556	96	5	2016
Corredor P	4	4	0.286	200	4	2011

The top 10 contributing authors in the dataset exhibit varied research impacts, as indicated by their h-index, g-index, and m-index. Hirshleifer D leads with the highest total citations (3789) and an h-index of 9, reflecting the significant influence of his publications since 2001. Other prominent authors, such as Teoh SH and Demirer R, also demonstrate

substantial contributions to the field with high citation counts and publication productivity. Emerging researchers like Bouteska A and Tuyon J show promising impact with higher m-index values, indicating a strong research trajectory despite their more recent entry into the field.

- Most Relevant Sources

Table 4: Top 10 relevant Sources

Sources	Articles
Physica A: Statistical Mechanics and Its Applications	32
Journal of Behavioural Finance	31
Pacific Basin Finance Journal	27
Journal of Banking and Finance	22
Journal of Economic Behavior and Organization	19
Applied Economics	18
Journal of Behavioral and Experimental Finance	17
Applied Financial Economics	15
Quantitative Finance	15
Review of Behavioral Finance	14

The most relevant sources in the field of behavioral finance and investor psychology demonstrate a strong focus on interdisciplinary research, combining finance, economics, and psychology. Physica A: Statistical Mechanics and Its Applications (32 articles) and Journal of Behavioural Finance (31 articles) are the leading contributors, showcasing the integration of statistical mechanics and behavioral insights in capital markets. Other prominent journals like Pacific Basin Finance Journal (27 articles) and Journal of Banking and Finance (22 articles) highlight the application of behavioral concepts in banking and financial decision-making across regions and institutions.

- Most relevant Documents

Table 5: Top 10 relevant Documents

Paper	Total Citations	TC Per Year	Normalized TC
Hirshleifer D, 2001, Journal of Finance	1156	48.17	4.47
Hirshleifer D, 2003, Journal of Accounting and Economics	1052	47.82	4.64
Chang EC, 2000, Journal of Banking and Finance	760	30.40	1.77
Bikhchandani S, 2000, IMF Staff Papers	745	29.80	1.74
Cont R, 2000, Macroeconomic Dynamics	619	24.76	1.44
Chiang Tc, 2010, Journal of Banking and Finance	540	36.00	10.20
Hirshleifer D, 2003, European Financial Management	503	22.86	2.22
Daniel K, 2002, Journal of Monetary Economics	373	16.22	4.38
Hirshleifer D, 2004, Journal of Accounting and Economics	369	17.57	5.62
Ramnath S, 2008, International Journal of Forecasting	366	21.53	6.64

The most relevant documents highlight key contributions to behavioural finance and investor psychology, with high citation impact and strong academic influence. Hirshleifer D's works dominate the list, with his 2001 Journal of Finance article leading in total citations (1156) and normalized citation score (4.47), underscoring its foundational role in the field. Other notable works, such as Chang EC (2000, Journal of Banking and Finance) and Bikhchandani S (2000, IMF Staff Papers), focus on market dynamics and herding behavior. The inclusion of articles with diverse methodologies and interdisciplinary perspectives reflects the breadth and relevance of this research domain.

- Country wise production

Region	Freq
USA	324
China	314
UK	159
India	104
Germany	89
Australia	50

South korea	48
Spain	48
Italy	47
France	46

Table 6: Top 10 countries based on publication

The country-wise analysis shows that the USA leads in research output (324 publications), demonstrating its dominance in behavioural finance and investor psychology. China follows closely with 314 publications, reflecting its growing contribution to this field. The UK (159) and India (104) also show significant academic activity, indicating their active role in advancing capital market research. European nations such as Germany, Spain, Italy, and France contribute consistently, while Australia and South Korea indicate strong regional representation, highlighting the global interest in this domain.

The production strength of the countries is shown in Figure 2.

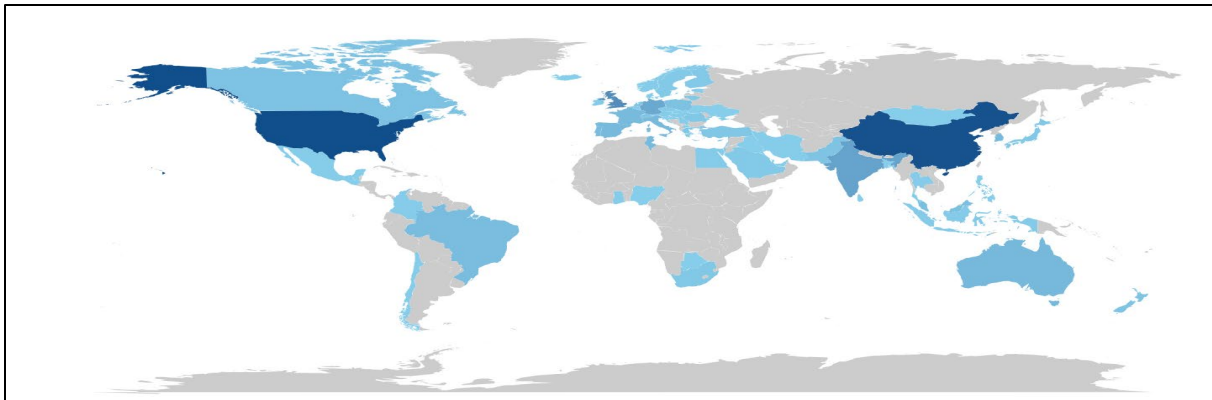


Figure 2: Country-Wise Production

- Three field plot

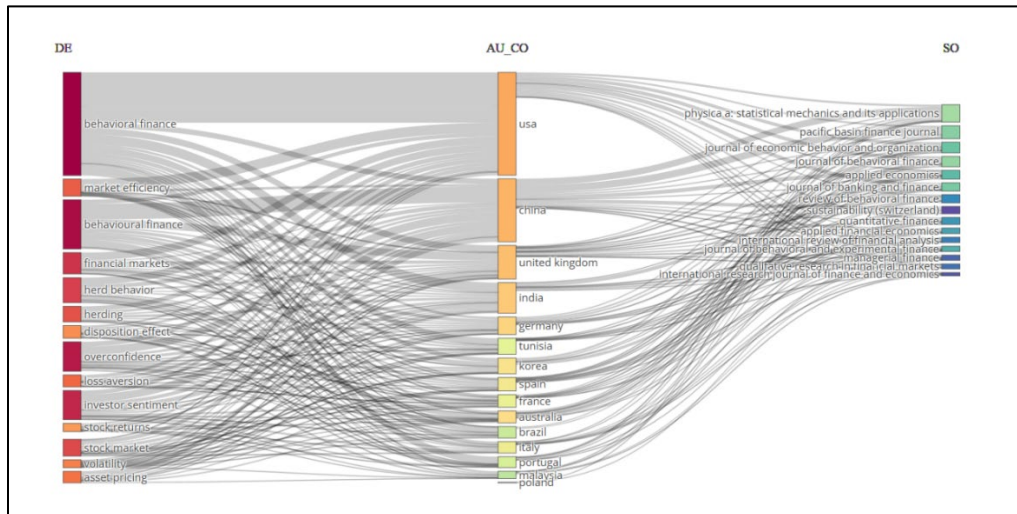


Figure 3: Three field plot

The three-field plot provides a comprehensive visualization of the connections between key research areas, contributing countries, and prominent publication sources in the domain of behavioral finance and investor psychology. The primary research topics, represented by author keywords, include behavioral finance, market efficiency, financial markets, herd behavior, overconfidence, and investor sentiment, highlighting the dominant themes in this field. Among the contributing countries, the USA emerges as the leading research producer, showing extensive connections with diverse topics and publishing in high-impact journals. China and the UK follow closely, contributing significantly to

journals such as the Journal of Behavioral Finance and the Pacific Basin Finance Journal. Emerging economies like India and Germany are also making notable contributions, particularly in areas like herd behavior and overconfidence. The most relevant publication outlets, including Physica A: Statistical Mechanics and Its Applications, Journal of Behavioral Finance, and Journal of Banking and Finance, underline the interdisciplinary nature of this research area, bridging economics, psychology, and market behavior. Overall, the plot demonstrates the global nature of research in this domain, with developed nations leading the field and emerging countries steadily gaining prominence.

3) Science Mapping

The co-word analysis, trending topics, thematic map and collaboration among countries are all displayed in this part. Collaboration among Countries

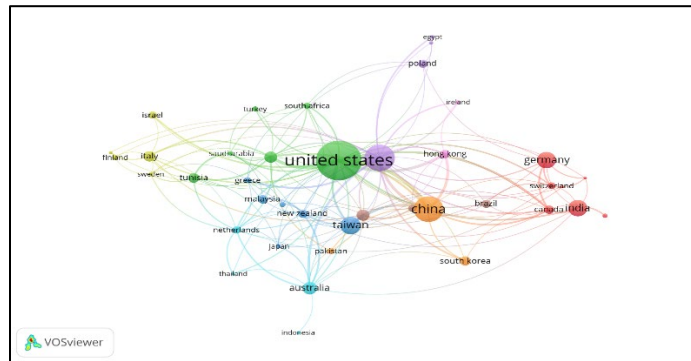


Figure 4: Collaboration Network among Countries

The international collaboration network reveals a complex and interconnected scholarly landscape. The United States emerges as the central hub of research collaboration, as indicated by its largest node size and extensive connections to other countries. The network displays distinct clustering patterns, with major research clusters forming around the United States, China, and Germany, suggesting strong regional and methodological collaboration preferences. The visualization demonstrates that while Western nations maintain traditional research strongholds, Asian countries, particularly China, have developed significant collaborative relationships in this field. Advanced economies like Germany, Australia, and Taiwan show substantial collaborative ties, while emerging economies appear more peripherally connected. This network structure indicates that behavioral finance research benefits from diverse international perspectives, though there remains potential for increased collaboration with peripheral nations to further enrich the field's global research agenda.

- **Co-occurrence of keywords**

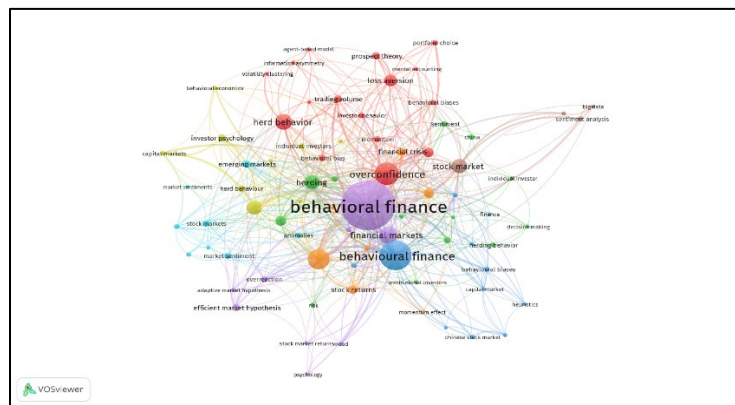


Figure 5: Co-occurrence of keywords

The keyword co-occurrence network reveals the intricate conceptual structure of behavioral finance research from 2000 to 2020. 'Behavioral finance' and 'behavioural finance' (reflecting different spellings) form the central nodes,

demonstrating their role as the field's core concepts. The network shows several prominent clusters of related terms, with 'overconfidence,' 'herd behavior,' and 'financial markets' emerging as key thematic areas. The interconnections between psychological concepts (investor psychology, sentiment) and market phenomena (market efficiency, stock returns) highlight the field's interdisciplinary nature. Notable sub-themes include trading volume, financial crisis, momentum, and the efficient market hypothesis, indicating the broad scope of behavioral finance research. The network also reveals the importance of specific behavioral biases (overreaction, loss aversion) and their connection to market outcomes, suggesting these are crucial areas of scholarly investigation. This visualization effectively captures the field's theoretical foundations and its practical applications in understanding financial markets and investor behavior.

- **Trending topic**

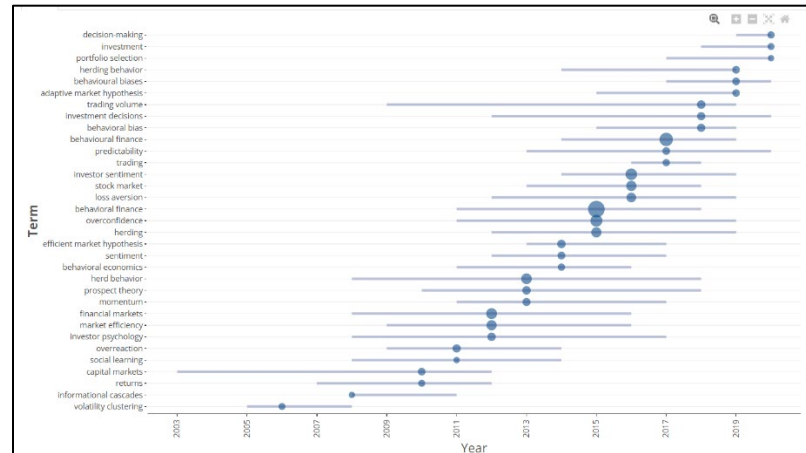


Figure 6: Trending Topic

The temporal analysis of trending topics in behavioral finance research from 2003 to 2019 reveals a fascinating evolution in scholarly focus and research priorities. The early period (2003-2007) was characterized by foundational concepts, with researchers primarily investigating fundamental aspects such as volatility clustering and informational cascades. This initial phase laid the groundwork for understanding market dynamics through a behavioral lens, though the scope of research topics was relatively narrow compared to later periods.

A significant expansion in research themes occurred during the middle period (2009-2013), marking a crucial phase in the field's development. During this time, scholars broadened their focus to encompass wider concepts including market efficiency, investor psychology, and financial markets. The emergence of topics like prospect theory, momentum, and behavioral economics during this period suggests a growing recognition of the need to integrate psychological insights with traditional financial theory. Social learning and capital markets also gained attention, indicating an increased interest in understanding the collective behavior of market participants and its implications for financial markets.

The most recent period (2015-2019) demonstrates a sophisticated evolution towards more specialized and practical applications of behavioral finance concepts. This era is marked by a surge in research on specific aspects such as decision-making processes, investment portfolio selection, and herding behavior. The prominence of topics like behavioral biases, trading volume, and investment decisions suggests a shift towards more applied research with practical implications for market participants. Notably, some themes, such as overconfidence, loss aversion, and behavioral finance itself, have maintained consistent importance throughout the timeline, underscoring their fundamental role in the field. This recent trend indicates a maturation of the discipline, moving from theoretical foundations to more nuanced understanding of specific behavioral phenomena and their practical applications in financial markets. The emergence of adaptive market hypothesis and behavioral biases as recent trending topics suggests that the field continues to evolve, incorporating new theoretical frameworks while maintaining its focus on understanding the psychological aspects of financial decision-making

- **Thematic map**

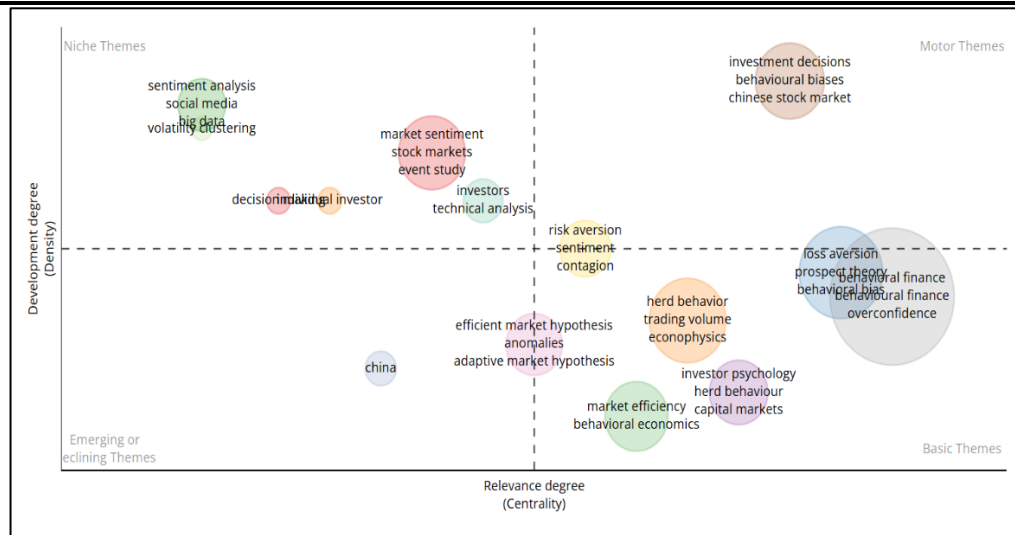


Figure 7: Thematic Map

This thematic map reveals the strategic positioning of various research themes in behavioral finance, organized along the dimensions of development (y-axis) and centrality (x-axis). Basic Themes, located in the lower right quadrant, represent the core foundations of the field, including behavioral finance, behavioral economics, investor psychology, and overconfidence. These themes demonstrate high centrality but lower development, indicating their role as established, fundamental concepts that form the theoretical backbone of the discipline. The presence of herd behavior and capital markets in this quadrant further emphasizes the field's focus on collective market dynamics and institutional frameworks.

The Motor Themes, positioned in the upper right quadrant, represent highly developed and central research areas, including investment decisions, behavioral biases, and the Chinese stock market. These themes are currently driving the field forward, combining theoretical robustness with practical applications. Their position suggests they are mature, well-developed areas that continue to generate significant research interest and practical implications. The presence of the Chinese stock market in this quadrant particularly highlights the growing importance of emerging markets in behavioral finance research.

In contrast, the Niche Themes (upper left quadrant) include emerging specialized topics such as sentiment analysis, social media, and volatility clustering. While these themes show high development, their lower centrality suggests they represent specialized research areas that might become more prominent in the future. The presence of big data in this quadrant indicates an emerging technological dimension to behavioral finance research.

The Emerging or Declining Themes (lower left quadrant) include China as a broader concept and shows potential for future development despite current lower centrality and development. Notably, themes like market sentiment, stock markets, and technical analysis occupy intermediate positions, suggesting their transitional nature in the field's evolution. The efficient market hypothesis and adaptive market hypothesis appear in transition zones, reflecting ongoing debates about market efficiency in light of behavioral factors.

5. CONCLUSION AND IMPLICATIONS

The bibliometric analysis of behavioral finance literature from 2000-2020 reveals significant developments in the field's research landscape. The analysis of 970 documents from 390 sources demonstrates robust growth and academic impact, evidenced by the high average citation rate of 30.29 per document. The research environment shows strong collaborative tendencies, with researchers typically working in teams of 2-3 authors, and over 22% of publications involving international collaboration.

The publication patterns highlight the dominance of established researchers like Hirshleifer D, who leads with 3,789 citations, while emerging scholars such as Bouteska A and Tuyon J show promising impact with higher m-index values. The most influential outlets for behavioral finance research include *Physica A: Statistical Mechanics and Its Applications*

and the *Journal of Behavioural Finance*, indicating the field's interdisciplinary nature. Geographic analysis reveals the USA and China as the primary contributors, with 324 and 314 publications respectively, followed by significant contributions from the UK (159) and India (104), showing the global spread of research interest.

The collaboration network analysis reveals complex interconnections between countries, with the USA serving as a central hub for international research partnerships. Key research themes emerging from the keyword analysis include market efficiency, investor psychology, and behavioural biases, with growing attention to emerging topics like sentiment analysis and technological influences on market behavior. The temporal evolution of research topics shows a progression from fundamental concepts to more specialized applications, particularly in areas like investment decision-making and market sentiment analysis. This comprehensive analysis suggests that behavioral finance has matured as a field while continuing to evolve with new methodological approaches and research focuses, particularly in response to changing market dynamics and technological advancements. The implications of this analysis are manifold for both academia and practice. For researchers, the findings suggest promising opportunities in emerging areas such as technological integration, cross-cultural studies, and crisis behaviour analysis. Practitioners can benefit from these insights by developing more sophisticated investment strategies that account for behavioural biases and incorporating sentiment analysis into decision-making processes.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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