

A Systematic Bibliometric Study of Cognitive Finance using Vos Viewer

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Abstract

Cognitive finance, a growing branch of behavioral finance, investigates how cognitive processes, intelligence, and neurocognitive skills influence financial decision-making—especially amid technological and AI advancements. Unlike behavioral finance, which centers on emotional biases, cognitive finance emphasizes rational thinking and cognitive mechanisms. This study presents a bibliometric analysis of 1,016 peer-reviewed articles published between 2015 and 2025, retrieved from Scopus and ABDC databases. Using VOS viewer software, the study maps the intellectual structure of the field. Performance analysis identifies leading authors, institutions, countries, and journals based on publication output and citation metrics. Advanced techniques such as co-citation analysis, keyword co-occurrence, and bibliographic coupling uncover key thematic clusters and research trends. The United States, China, and India emerged as the most influential contributors. Despite its increasing relevance, cognitive finance remains an under explored domain with limited core literature. This paper offers a foundational perspective to guide future scholarly exploration in this emerging area.

Keywords: Neurofinance, Behavioral finance, Bibliometric, Cognitive finance, Investors' decision-making.

I. Introduction

Cognitive finance is a specialized branch of behavioral finance that integrates insights from standard finance, psychology, sociology, and cognitive science to better understand how cognitive processes—such as reasoning, intelligence, and decision-making—influence financial behavior, especially in uncertain or volatile markets (Bosch & Brice, 2022). While numerous theories have emerged to explain both rational and sentiment-driven investor behavior, dedicated bibliometric analyses focusing solely on cognitive finance remain scarce. Previous studies have explored related areas using bibliometric and systematic review methods. For instance, Jain et al. (2021) examined behavioral biases through a combination of SLR, bibliometric, and content analysis from 1995–2019, while Kumar and Choudhary (2023) emphasized thematic cluster development from literature spanning 1994–2022. Paule-Vianez et al. (2020) used mapping tools to analyze trends from 1987–2017, identifying investor sentiment as a core research theme. Singh (2021) advocated integrating behavioral accounting into the behavioral finance framework. Meanwhile, Yin Shi and Xiaoni Li (2019) demonstrated how artificial intelligence, applied to bankruptcy prediction, aligns with the principles of cognitive finance by offering alternatives to traditional statistical methods. The term *bibliométrie* was first coined by Paul Otlet in 1934 and later refined by Pritchard (1969) as "statistical bibliography." In this context, the present study addresses a notable research gap by

conducting a focused bibliometric analysis of publications from 2015 to 2025, specifically within the emerging field of cognitive finance.

II. Literature Review

Investor behavior has traditionally been explained through rational choice theories, the most prominent being Expected Utility Theory and Prospect Theory. Expected Utility Theory, introduced by John von Neumann and Oskar Morgenstern (1944) in *Theory of Games and Economic Behavior*, posits that investors make rational decisions under uncertainty to maximize expected utility. In contrast, Prospect Theory, developed by Daniel Kahneman and Amos Tversky (1979), argues that investors are generally risk-averse and tend to make decisions based on potential losses rather than equivalent gains. Key features of Prospect Theory include reference dependence, loss aversion, diminishing sensitivity, and probability weighting. To address its limitations—particularly its failure to satisfy stochastic dominance—Kahneman and Tversky introduced Cumulative Prospect Theory (CPT) in 1992, which allows for more consistent modeling of decision-making under risk (Fennema & Wakker, 1997).

Another foundational theory is the Efficient Market Hypothesis (EMH) proposed by Fama (1970), which asserts that asset prices reflect all available information, making it impossible to consistently achieve returns above the market average. EMH is categorized into three forms—weak, semi-strong, and strong—depending on the type of information reflected in market prices.

Despite their influence, these theories have been criticized for relying on oversimplified assumptions and failing to capture irrational investor behaviors in real-world market conditions (Prasad et al., 2015).

The evolution from traditional finance to behavioral finance marked a shift toward recognizing investor sentiment, emotional bias, and heuristics in decision-making. Emerging in the 1980s, cognitive finance extends this trajectory by emphasizing the role of cognition and neuro psychological factors in financial choices. Nelson.R.J et al.,(2015), identified three intervention theories and a five step model that significantly improve client's ability to sustain financial transformation over the long term and that will address the emotional characteristics attached to financial decision making processes. On the other hand, the research article authored by Ross, D. B., & Coombs, E. (2018), aimed to investigate the intricate interplay between emotional trauma and the financial decision-making process, and how this relationship influences the behavioral, cognitive and relational dimensions of individual investors.

Glimcher (2011) advocated for integrating neuroscience into financial decision-making to deepen understanding of how the brain processes risk and uncertainty. This interdisciplinary approach is further supported by Camerer (2013), who explored the convergence of economics and neuroscience. James and Grayot (2019) also critically examined dual-process theories in economics, highlighting their conceptual appeal despite limited empirical validation. Mayer, B et al.,(2023) conducted a vignette aimed at examining the interplay between forecast sources, decision preferences, and the receptiveness to advice. The results indicate that an individuals decision preferences and sources of their forecasts are significantly aligned. Recent research conducted by Barone, M. et al. (2024) elucidates the behavioral characteristic of Financial Self-Efficacy and its influence on visual attention towards information presented in crowdfunding campaigns, as well as the perception of investors. The findings reveal that qualitative information is significantly more appealing than quantitative data.

While behavioral finance has received significant scholarly attention, cognitive finance remains comparatively under explored. With the rapid advancement of artificial intelligence and cognitive neuroscience, there is increasing recognition that investor decisions are shaped not only by emotional biases but also by cognitive functions such as reasoning, attention, and memory. This conceptual shift underscores the relevance of cognitive science, neuroscience, psychology, and sociology in finance—collectively informing the emerging domain of cognitive finance. Despite its growing theoretical and practical importance, no comprehensive bibliometric analysis has yet been conducted specifically on cognitive finance for the period 2015–2025. Addressing this gap forms the central motivation and novelty of the present study.

2.1 Research Questions

To guide this bibliometric inquiry, the following research questions (RQs) have been formulated:

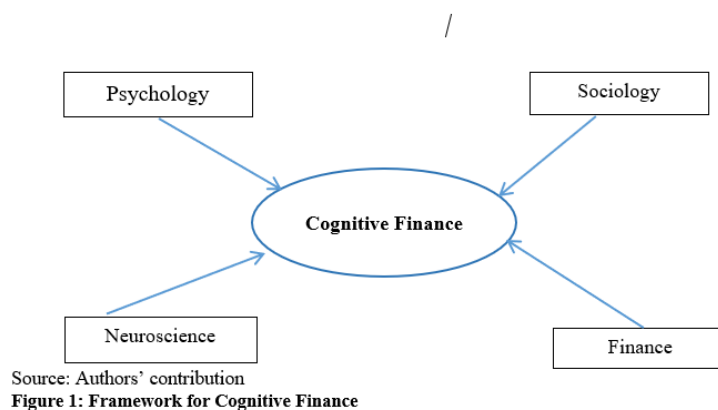
- RQ1: What are the publication trends in the field of cognitive finance during 2015–2025?
- RQ2: Who are the most productive authors, institutions, and nations contributing to cognitive finance research in this period?
- RQ3: Which journals are most influential in disseminating research on cognitive finance?
- RQ4: What are the most highly cited articles in the field from 2015 to 2025?
- RQ5: What thematic insights emerge from scientific mapping techniques like reference analysis, bibliographic coupling, and keyword analysis?

III. Theoretical Framework

Behavioral finance is a broad field that explores how psychological and emotional factors influence individual investment decisions. Unlike the assumption of fully rational investors in traditional finance, behavioral finance acknowledges that investors often act irrationally due to biases such as overconfidence, loss aversion, and sentiment-driven behavior.

Cognitive finance, while rooted in behavioral finance, distinguishes itself by emphasizing the role of rational and neurocognitive skills in financial decision-making process. It draws upon interdisciplinary insights from psychology, sociology, neuroscience and finance. As illustrated in Figure 1, cognitive finance integrates these disciplines to better understand how intelligence, attention, and reasoning shape investor behavior and financial market dynamics. Previous literature suggests a clear distinction between behavioral and cognitive finance. While behavioral finance typically focuses on irrational investor behavior caused by emotional and psychological biases, cognitive finance addresses the deliberate, rational, and intelligence-driven aspects of financial decision-making. This conceptual differentiation underscores the need for a distinct analytical framework to examine cognitive finance as a unique research domain.

3.1 Theoretical Framework for Cognitive Finance



IV. Methodology

4.1 Research Design and Data Source

This study applies a bibliometric analysis to systematically map the scholarly literature on cognitive finance. Bibliometric analysis is a quantitative research method that allows for the evaluation of academic publications, citation patterns, and intellectual structures within a field (Donthu et al., 2021).

The Scopus database was selected due to its comprehensive coverage of peer-reviewed literature and suitability for bibliometric studies in the social sciences (Kumar et al., 2022; Singh, 2021). Compared to Web of Science and Google Scholar, Scopus offers broader metadata and citation records, enabling a more robust and reliable analysis. A single-point data extraction was conducted on June 9, 2025, to avoid inconsistencies caused by ongoing database updates (Jain et al., 2022). The final dataset consisted of 1,016 journal articles published between 2015 and 2025. Keywords such as *cognitive finance*, *behavioral finance*, *neuroeconomics*, and *financial decision-making* were used in the search, developed through collaborative brainstorming with the research team.

4.2 Analytical Tools and Techniques

The study employed VOS viewer (version 1.6.20), a tool for constructing and visualizing bibliometric networks (van Eck & Waltman, 2010). VOSviewer was used to perform the following analyses: **Performance Analysis:** Identifying top authors, journals, institutions, and nations based on quantum of publication and citation. **Scientific Mapping:** Applying reference analysis, keyword occurrence, and bibliographic coupling to explore thematic clusters and intellectual structure. By combining performance metrics and network visualization techniques, this study provides a comprehensive and data-driven understanding of the cognitive finance research landscape.

Table 1: Documents Search and Inclusion Criteria

Criteria	Scopus	
	Exclude	Include
Search Date: 9 June 2025		
Database: Scopus		
Search Term: COGNITIVE FINANCE (OR) BEHAVIOURAL FINANCE, NEURO FINANCE OR NEURO ECONOMICS.		4791
Year: 2015-2025	1697	3094
Subject Area: “Economics, Econometrics and finance, Business Management, and Accounting, Psychology”.	780	2314
Document Type: “Article”	468	1846
Language: Documents in English only	52	1794
Keywords: “Behavioural finance” (OR) “Neuro Economics” (OR) “Investor’s Sentiment” (OR) “Investment” (OR) “Financial Literacy” (OR) “Investment decision” (OR) “Market efficiency”.	704	1090
Source Type: Journal	03	1087
Erroneous Record refinement:(Final)	32	1055
Articles with Incomplete bibliometric Information: (without DOI)	39	1016
Quality Screening Include: Publications in Q1, Q2 (or) documents ranked “A*”, “A”, and “B” only	-	1016
Content Screening: Include the articles that are related to	-	-
Open Access: “All” “Open Access” Without Open Access		421 595

Note(s): This table illustrates the meticulous selection process employed to determine the final count of articles designated for the subsequent review phase. The search terms were meticulously finalized after brainstorming with the authors related to the subject matter.

5. Analysis And Interpretation

RQ1: What is the publication trend in the field of cognitive finance?

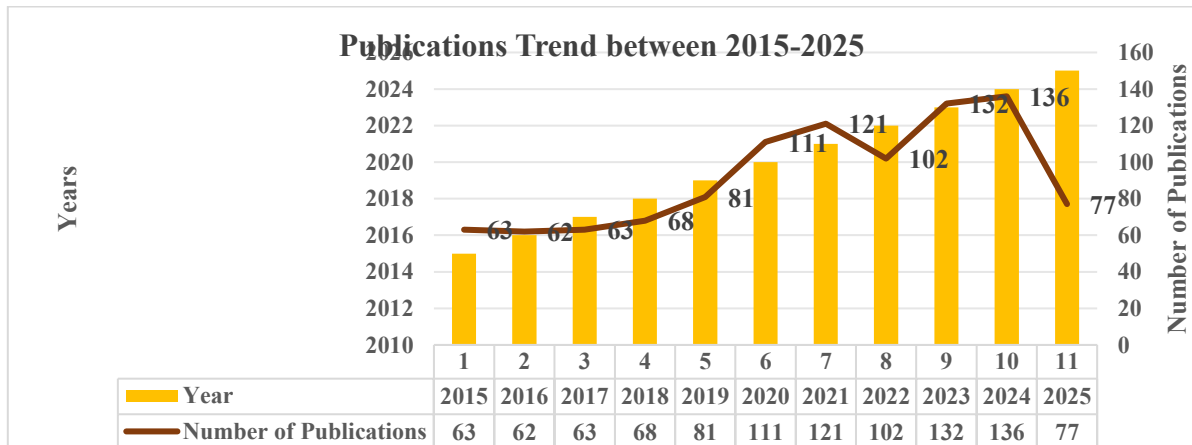


Figure 1: Publication trend in the Cognitive Finance Domain

Source: Scopus database

Figure 2 Publication trend between 2015-2025

Figure 2 illustrates the publication trend in the field of cognitive finance from 2015 to 2025. The data reveals a consistent and significant increase in scholarly output over the years, indicating growing academic interest and recognition of this domain. Starting with 63 publications in 2015, the number of studies rose steadily, reaching between 68 and 121 publications annually from 2008 to 2021. This upward trajectory signifies an expanding research base. The peak was observed in 2024, marking the highest number of publications within the observed period. Based on this trend, it is reasonable to anticipate that the momentum in cognitive finance research will continue in the coming years.

RQ2: Who are the most productive Authors, Institutions, and Nations in the domain of Cognitive finance during 2015-2025?

Table 2: Most productive Authors, Institutions, and nations in the field of Cognitive finance during 2015-2025

TC	Author	TP	TC	Institutions	TP	TC	Coun try	TP
269	Camerer, Colin	3	273	Department of Humanities and Social Sciences, California Institute of Technology, United States	3	4234	Unite d States	242
269	Nave, Gideon	2	265	Faculty of Economics, University of Ljubljana, Kardeljeva Plo?Cad 17, Ljubljana, 1000, Slovenia	1	1390	India	90
265	Ichev, Riste	1	259	Decision Research, Eugene Oregon, United States	1	1238	Unite d King dom	71

265	Marinc, Matej	1	259	Department of Behavioral Sciences and Learning, Linköping University, Sweden	1	1042	China	99
259	Lind, Thérèse	1	259	Jedilab, Division of Economics, Department of Management and Engineering, Linköping University, Sweden	1	918	Germ any	69
259	Skagerlund, Kenny	1	259	The National Center for Priority Setting in Health Care, Department of Medical and Health Sciences, Linköping University, Sweden	1	794	Franc e	48
259	Strömbäck, Camilla	1	239	UA Business School, University of Queensland, 349 Colin Clark Building, Queensland, 4072, Australia	1	640	Austr alia	42
259	Tinghög, Gustav	2	215	Optentia Research Focus area, North-West University, Vanderbijlpark, South Africa	2	541	Nethe rlands	25
259	Västfjäll, Daniel	2	208	Finance Department, University of Mannheim, 15, 2, Mannheim, 68131, Germany	2	476	Italy	37
239	Mccarthy, Scott	1	206	Department of Computation and Neural Systems, California Institute of Technology, United States	1	422	Mala ysia	28
239	Oliver, Barry	1	206	Department of Psychology, University of Miami, United States	1	421	South Afric a	19
239	Song, Sizhe	1	166	Business Analytica and Data Science Center, University of Graz, Graz, 8010, Austria	1	407	Brazil	41
216	Kumar, Satish	3	160	Birla Institute of Technology and Science, Pilani, Pilani Campus, Rajasthan, India	1	395	Spain	43
215	Dhir, Amandeep	2	160	ICFAI Business School, Hyderabad, India	1	358	Pakist an	24
215	Talwar, Shalini	2	160	Institute of Rural Management Anand, India	1	309	Cana da	22
214	Jacobs, Heiko	4	160	K J Somaiya Institute of Management Studies And Research, Mumbai, India	1	304	Switz erlan d	18
206	Mccullough, Michael	1	160	School of Business and Management, Lappeenranta University of Technology, Lappeenranta, Finland	1	299	Swed en	6

175	Teoh, Siew Hong	2	158	National Bureau of Economic Research, Cambridge, 02912, Ma, United States	2	295	Finland	10
166	Königstorfer, Florian	1	154	Department of Management Studies, Malaviya National Institute of Technology, Jaipur, India	2	269	Austria	8
166	Thalmann, Stefan	1	151	Business Communication Area, Management Development Institute, Gurgaon, India	1	267	Tunisia	17
			151	Department of Finance and Real Estate, Kogod School of Business, American University, Washington, Dc, United States	1			
			151	Department of Management Studies, Alliance University, Bangalore, India	1			

Note(s): TC stands for Total Citations, TP stands for Total Publications.

Table 2 shows the most productive and influential authors, institutions, and countries in the field of cognitive finance from 2015 to 2025. The most productive author is *Jacobs, Heiko*, with 4 publications, followed by *Camerer, Colin* and *Kumar, Satish*, each with 3 publications. Other authors contributed one or two papers during this period.

In terms of influence based on citations, *Camerer, Colin* and *Nave, Gideon* are the top authors, with 269 citations. They are followed by *Ichev, Riste* and *Marinc, Matej* with 265 citations, and a group including *Lind, Thérèse*, *Skagerlund, Kenny*, *Strömbäck, Camilla*, *Tinghög, Gustav*, and *Västfjäll, Daniel* with 259 citations. Among institutions, the *California Institute of Technology* (Department of Humanities and Social Sciences, USA) is the most productive and influential, with 3 publications and 273 citations. It is followed by the *University of Ljubljana* (Faculty of Economics, Slovenia), with 1 publication and 265 citations, and *Decision Research* (Oregon, USA), with 1 publication and 259 citations.

RQ3: What are the highly cited Journals (source of articles) with top ratings during 2015-2025 in the discipline of cognitive finance?

Table 3: Top-cited Journal with rating during 2015-2025.

Source	T P	T C	Total Link Streng th	H- Ind ex	SJ R	ABD C Ran k	2015-2025											
							1 5	1 6	1 7	1 8	1 9	20	2 1	2 2	2 3	24	25	
Journal of Behavioral and Experimental Finance	4 7	12 43	12	24	Q 1	A	2	1	3	2	4	1 0	6	4	5	7	3	
Journal of Behavioral Finance	5 3	70 5	2	23	Q 2	A	6	3	5	5	5	4	5	3	5	9	3	
Journal of Financial Economics	1 5	70 1	18	273	Q 1	A*	1	4		1	1	2		4	1		1	
International Review of Financial Analysis	1 1	52 6	0	69	Q 1	A		2		1				2	1	3	2	

Journal of Banking and Finance	16	525	0	172	Q ₁	A*	3	1	1	1	4	1	2	1	2		
Research in International Business and Finance	20	397	6	51	Q ₁	B	1	2	3	2	1	1	3	1	2	2	2
Finance Research Letters	30	366	0	62	Q ₁	A			1	2	4	3	3	4	3	6	4
Management Science	9	363	8	264	Q ₁	A*			3		3		1			2	
Review of Behavioral Finance	29	246	4	14	Q ₂	B	1		1			1	2	5	10	5	4
Journal of Economic Behavior and Organization	19	237	1	122	Q ₁	A*	1	2	1	3		3	2	2	5		
Perspectives on Psychological Science	2	233	6	152	Q ₁	NA	1			1							
Managerial Finance	9	199	6	41	Q ₃	B	1				1	3	2		1		1
Applied Economics	10	197	8	91	Q ₂	A	1	3		2	2	1			1		
Cogent Economics and Finance	11	193	13	23	Q ₂	B			2	1	1	3	1	1	1	1	
Journal of Retailing and Consumer Services	1	160	6	104	Q ₁	A						1					
Journal of Economic Psychology	8	160	19	103	Q ₁	A	3			2		1	1		1		
Journal of Business Research	4	149	4	217	Q ₁	A				1		2	1				
International Journal of Emerging Markets	4	149	6	32	Q ₂	B						1				1	2
North American Journal of Economics and Finance	10	147	4	41	Q ₂	B			1		2			3	1	3	
International Review of Economics and Finance	7	147	3	59	Q ₂	A	2				1		1			1	2

Table 3 highlights the top 20 journals in cognitive finance from 2015 to 2025 based on publication count, citation impact, and journal quality ratings. The *Journal of Behavioral and Experimental Finance* leads the list with 47 publications and 1234 citations, including 10 papers in 2020; it holds a Q1 ranking in Scopus and an “A” rating by ABDC. It is followed by the *Journal of Behavioral Finance*, a Q2 and “A” category journal, with 53 publications and 705 citations, showing a peak in 2024 with 9 articles. The *Journal of Financial Economics*, despite having only 15 publications, ranks high in influence with 701 citations and is classified as Q1 and A*. The *Review of Behavioral Finance* also stands out with 10 publications in 2023. These findings indicate that a few key journals have significantly contributed to shaping the research landscape in cognitive finance during this period.

Table 4: Top Articles cited during 2015-2025.

Authors	Title	Year	Cited by
Ichev R.; Marinc M.	Stock prices and geographic proximity of information: Evidence from the Ebola outbreak	2018	265
Strömbäck C.; Lind T.; Skagerlund K.; Västfjäll D.; Tinghög G.	Does self-control predict financial behavior and financial well-being?	2017	259
McCarthy S.; Oliver B.; Song S.	Corporate social responsibility and CEO confidence	2017	239
Nave G.; Camerer C.; McCullough M.	Does Oxytocin Increase Trust in Humans? A Critical Review of Research	2015	206
Königstorfer F.; Thalmann S.	Applications of Artificial Intelligence in commercial banks ? A research agenda for behavioral finance	2020	166
Seth H.; Talwar S.; Bhatia A.; Saxena A.; Dhir A.	Consumer resistance and inertia of retail investors: Development of the resistance adoption inertia continuance (RAIC) framework	2020	160
Baker H.K.; Kumar S.; Goyal N.; Gaur V.	How financial literacy and demographic variables relate to behavioral biases	2019	151
da Gama Silva P.V.J.; Klotzle M.C.; Pinto A.C.F.; Gomes L.L.	Herding behavior and contagion in the cryptocurrency market	2019	148
Oehler A.; Wendt S.; Wedlich F.; Horn M.	Investors' Personality Influences Investment Decisions: Experimental Evidence on Extraversion and Neuroticism	2018	132
Gurdgiev C.; O'Loughlin D.	Herding and anchoring in cryptocurrency markets: Investor reaction to fear and uncertainty	2020	129
Graham J.R.; Harvey C.R.; Puria M.	A corporate beauty contest	2017	124
Raut R.K.	Past behaviour, financial literacy and investment decision-making process of individual investors	2020	121
Jacobs H.	What explains the dynamics of 100 anomalies?	2015	116
Jain J.; Walia N.; Gupta S.	Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process	2020	111
French D.; McKillop D.	Financial literacy and over-indebtedness in low-income households	2016	111
Grassi G.; Pallanti S.; Righi L.; Figuee M.; Mantione M.; Denys D.; Piccagliani D.; Rossi A.; Stratta P.	Think twice: Impulsivity and decision making in obsessive-compulsive disorder	2015	109
Chang C.-H.; Lin S.-J.	The effects of national culture and behavioral pitfalls on investors' decision-making: Herding behavior in international stock markets	2015	108
Hirshleifer D.; Levi Y.; Lourie B.; Teoh S.H.	Decision fatigue and heuristic analyst forecasts	2019	106

Metawa N.; Hassan M.K.; Metawa S.; Safa M.F.	Impact of behavioral factors on investors' financial decisions: case of the Egyptian stock market	2019	102
Chau F.; Deesomsak R.; Koutmos D.	Does investor sentiment really matter?	2016	98

Table 4 presents the top 20 most cited articles in cognitive finance between 2015 and 2025. The most cited article is “*Stock prices and geographic proximity of information: Evidence from the Ebola outbreak*” by Ichev and Marinc (2018), with 265 citations. This study examined how investor sentiment, influenced by media coverage of the Ebola outbreak in the U.S. (2014–2016), affected stock prices, concluding that geographically relevant information has a stronger market impact. The second most cited article, “*Does self-control predict financial behavior and financial well-being?*” by Strömbäck et al. (2017), received 259 citations. It found that investors with higher self-control tend to manage finances better, save more, and feel less financial stress. Another highly cited work is “*Corporate Social Responsibility and CEOs' Confidence*” by McCarthy et al. (2017), with 239 citations, which explored how CEO overconfidence influences CSR engagement. The study concluded that overconfident CEOs are less likely to support CSR initiatives due to their lower perception of risk. These influential studies highlight key behavioral dimensions such as sentiment, self-control, and overconfidence in shaping financial decision-making.

RQ5: How would you elucidate the outputs of various scientific mapping analyses?

The scientific mapping technique has various clustering analyses. In this study, the most crucial methods were adapted. They are Reference analysis, Bibliographic coupling, Keyword analysis, and the most cited countries.

a. Co-citation Analysis

Co-citation analysis is a key method used to explore the relationships between frequently cited research papers, helping to identify the foundational themes within a research field. This technique measures how often two documents are cited together in other studies, which suggests a close subject connection (Small, 1973). It is widely used in scientific mapping and consists of two main steps: clustering related references and linking current studies to these clusters (Boyack & Klavans, 2010). In a co-citation network, nodes represent journal articles and edges represent how often they are cited together (Leydesdorff, 2011). Research shows that documents frequently co-cited tend to be related in content and usually fall within the same research area (Hjorland, 2013). This makes co-citation analysis a powerful tool for understanding the structure and evolution of a research domain.

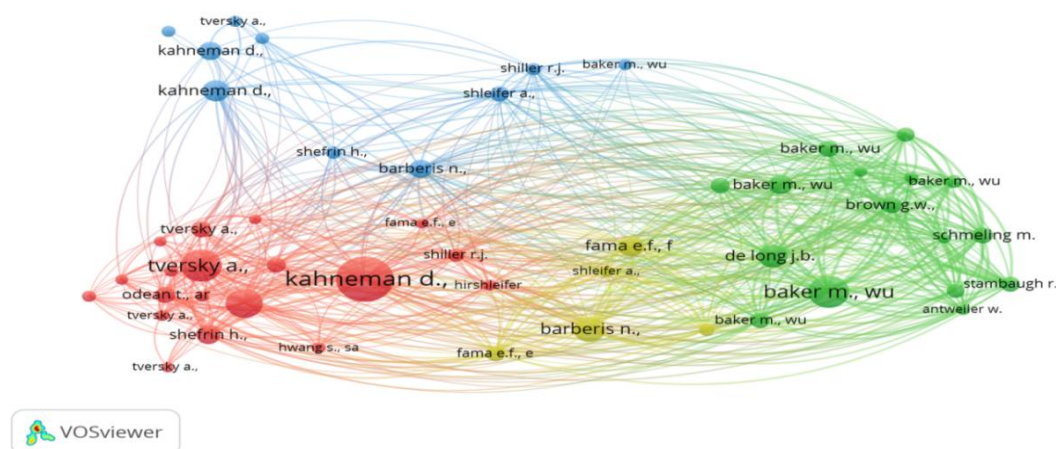


Figure 3: Reference Co citation analysis

The co-citation analysis presented in Figure 3 addresses the first part of Research Question 5 (RQ5), identifying key cited references in cognitive finance between 2015 and 2025. A total of 50,275 citations were analyzed, applying a minimum citation threshold of 14, which resulted in the selection of the top 50 most co-cited articles. These were grouped into four thematic clusters, represented by red, green, blue, and yellow, with a total of 648 connections and a link strength of 1,925. **Cluster 1 (red)**, consisting of 19 articles, features the most influential work—*Prospect Theory: An Analysis of Decision Under Risk* by Kahneman and Tversky (1979), cited 71 times, which introduced prospect theory as an alternative to utility theory. Also notable in this cluster is Kahneman’s 1982 work on heuristics and biases in decision-making, with 49 citations. **Cluster 2 (green)** includes 16 items, led by Baker and Wurgler’s studies (2004, 2006) on investor sentiment and its inverse relationship with stock returns, highlighting the impact of irrational behavior on market outcomes. **Cluster 3 (blue)**, with 10 items, is anchored by Kahneman’s *Thinking, Fast and Slow* (2011), cited 31 times, which explains dual-system thinking (intuitive vs. logical) and its role in financial decision-making. **Cluster 4 (yellow)** contains 5 items, notably Barberis and Thaler’s 2003 *Survey of Behavioral Finance*, cited 37 times, which distinguishes between rational and irrational investor behavior, and Fama and French’s (1993) article on common risk factors in asset returns, cited 30 times. Together, these clusters illustrate the intellectual foundations and thematic structure of research in cognitive finance.

b. Bibliographic Coupling

Bibliographic coupling occurs when more than one article shares a common reference, thereby establishing a bibliographic connection. It evaluates the similarities between the two articles based on common citations. In the bibliographic coupling, the size of nodes represents the number of citations an article has gained; Similarly, the bigger the size of the circles, the greater the frequency of citations, and the edges represent the connections between the articles.

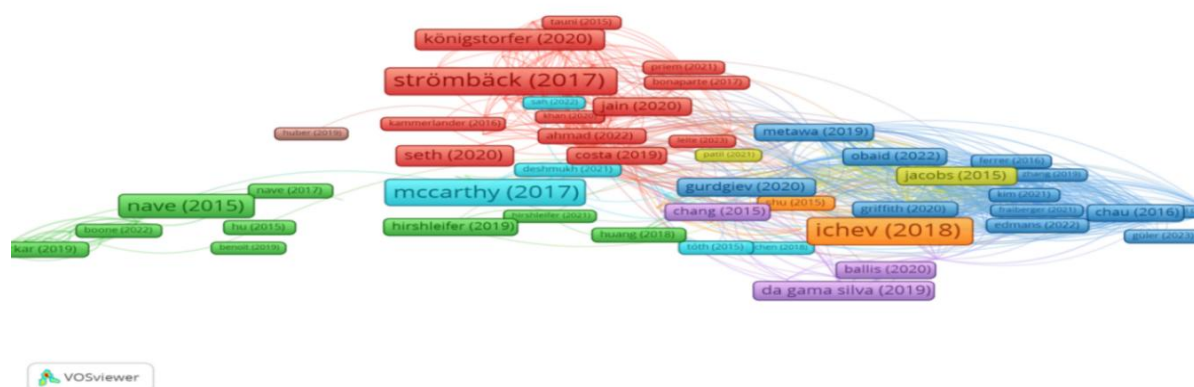


Figure 4 Bibliographic coupling: Author

Top cited authors Cluster classification

Table 5: Author Cluster classification

Cluster 1	TC	Cluster 2	TC	Cluster 3	TC	Cluster 4	TC
Strömbäck (2017)	259	Nave (2015)	206	Gurdgiev (2020)	129	Jacobs (2015)	116
Königstorfer (2020)	166	Grassi (2015)	109	Metawa (2019)	102	Jacobs (2016)	92
Seth (2020)	160	Hirshleifer (2019)	106	Chau (2016)	98	Ito (2016)	67

Baker (2019)	151	Karmarkar (2019)	86	Obaid (2022)	90	Danbolt (2015)	62
Oehler (2018)	132	Huang (2018)	69	Griffith (2020)	86	Adachi (2017)	50
Graham (2017)	124	Hu (2015)	66	Rupande (2019)	85	Birru (2022)	41
Raut (2020)	121	Nave (2017)	63	Li (2016)	78	Dickason (2018)	41
French (2016)	111	Vasileiou (2021)	62	Birru (2016)	76	Chui (2022)	31
Jain.J (2020)	111	Goto (2017)	59	Mcgurk (2020)	65	Zaremba (2020)	31
Hoffmann.A (2015)	96	Webb (2019)	58	Edmans (2022)	64	Altinkiliç (2016)	28

Cluster 5	TC	Cluster 6	TC	Cluster 7	TC	Cluster 8	TC
Da Gama Silva (2019)	148	Mccarthy (2017)	239	Ichev (2018)	265	Hellmann (2016)	24
Chang (2015)	108	He (2019)	91	He (2018)	65	Huber (2019)	24
Ballis (2020)	94	Cortés (2016)	66	Shu (2015)	51		
Sherif (2020)	83	Baginski (2018)	48	Peillex (2021)	26		
Evrin Mandaci (2022)	54	Tóth (2015)	45	Li (2021)	25		
Coskun (2020)	50	Deshmukh (2021)	43	Bernile (2021)	20		
Shaikh (2021)	32	Bodnar (2019)	34	Klein (2017)	20		
Mezghani (2018)	30	Shah (2017)	32				
Sah (2022)	25						
Wong (2020)	24						

Table 5 presents the bibliographic coupling analysis, which identifies eight distinct clusters formed from 182 documents cited at least 20 times between 2015 and 2025. These clusters represent major research themes within cognitive finance, based on citation patterns among authors. Table 6 further categorizes these clusters by their core research focus. Cluster 1 centers on financial literacy, behavioral biases, and investment decisions, with consistent contributions from 2015 to 2023, led by authors like Ahmed and Tauni. Cluster 2 focuses on neuroscience and neuropsychological processes in financial decision-making, with a noticeable rise in publications after 2015, particularly from authors like Nave and Webb. Cluster 3 explores emotional and sentiment-driven biases in investment behavior, where Liu is a key contributor. Cluster 4 includes studies on market anomalies, risk, and return, with a surge in research after the COVID-19 pandemic; Jacob stands out as a leading author in this area. The remaining clusters delve into topics such as herding behavior, volatility, risk

aversion, and the influence of environmental factors on financial decision-making. These clusters collectively map the intellectual structure and evolving research priorities in the field of cognitive finance over the past decade.

Table 6: The Eight major cluster classifications and their areas of research themes

The Eight major cluster classifications and their areas of research focus

Cluster	Number of Research Papers	Area of Research Themes
Cluster 1	59	Financial Literacy, Behavioral Bias, and Investment Decisions.
Cluster 2	39	Neuro Science and Neuro Psychological Process in Decision process.
Cluster 3	37	Emotional and Sentimental Bias in Investment Decisions.
Cluster 4	16	Market Anomalies, Risk, And Return.
Cluster 5	12	Herding Behaviour and Volatility across Different Markets.
Cluster 6	10	Risk aversion, Hedging & Overconfidence behaviour.
Cluster 7	7	Volatility Due to Various Environmental Issues.
Cluster 8	2	Relevance of Prediction And Unbiased

Table 7: Number of published documents contributed to each cluster

Number of published documents contributed to each cluster

Author	Number of published documents contributed to each cluster								Total
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Ahmad	2		1						3
Birru			1	1					2
Jacobs				2					2
Li			1				1		2
Liu			2						2
Nave		2							2
Tauni	3								3
Webb		2							2
Zhang	1		1						2
Da Gama Silva					1				1
Mccarthy						1			1
Hellman n								1	1
Huber								1	1

Table 8: The number of Published documents at each cluster between (2015-2025)

Year	Number of published documents at each cluster between 2015-2025							
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8
2015	7	6	1	3	1	1	1	
2016	3	3	8	3		1		1
2017	11	7		1		2	1	
2018	4	3	2	2	1	3	2	
2019	5	9	6	1	1	2		1
2020	11	4	7	2	4	-		
2021	11	5	4	2	2	1	3	
2022	2	2	6	2	3			
2023	5		3					
2024								
2025								
Total	59	39	37	16	12	10	7	2

Key Word Analysis:

Keyword analysis is a crucial method for identifying key themes and trends in the literature, as keywords help refine searches across academic databases (Nazir et al., 2021). In this study, three types of keyword analyses were conducted using VOSviewer. Figure 5.1 presents the **all keyword analysis**, which identified 54 keywords occurring at least 13 times. Among these, *behavioral finance* emerged as the most dominant keyword with 734 occurrences, followed by *neuroeconomics*, *investor sentiment*, *investment*, and *financial literacy*, each appearing over 100 times. *Decision-making* and the *stock market* also stood out as important terms in the cognitive finance domain. Figure 5.2 shows the **author keyword analysis**, based on 50 keywords with a minimum of 10 occurrences. Here, too, *behavioral finance*, *neuroeconomics*, *investor sentiment*, *financial literacy*, and *market efficiency* were the most frequently used author-assigned keywords. Finally, Figure 5.3 illustrates the **index keyword analysis**, in which 55 keywords with at least 5 occurrences were examined. Notable index terms included *human*, *investment*, *adult*, and *female*, reflecting the growing focus on individual financial behavior and personal finance themes in cognitive and behavioral finance research.



Figure 5.1: All keyword analysis



Figure 5.2 : Author Keyword analysis

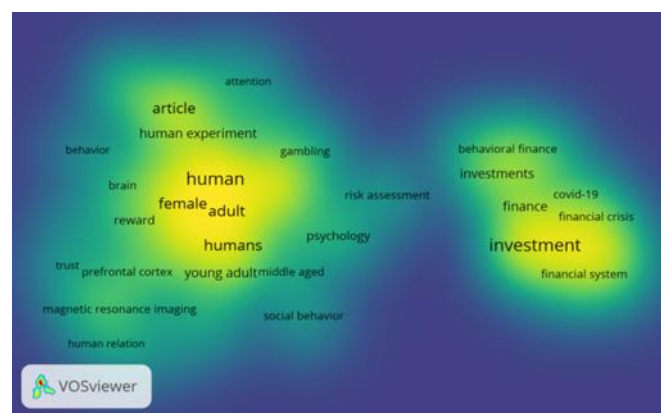


Figure 5.3: Index keyword analysis

Most cited country

Figure 8 depicts the country with the largest number of publications and highest citations in the realm of cognitive finance during 2015-2025. It can be understood that the United States is at the top with the most productive and influential country in cognitive finance, with 242 publications and 4234 citations, followed by China with 99 publications and 1042 citations, India with 90 publications and 1390 citations, and the United Kingdom with 71 publications and 1238 citations.

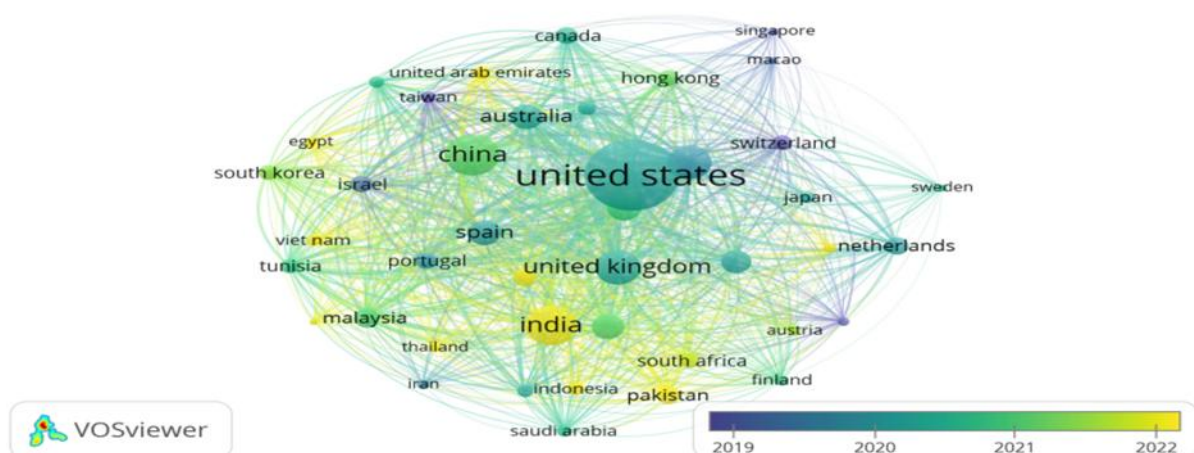


Figure 6: Most Cited Country

V. Results & Discussion

Through this bibliometric analysis, it shows a clear picture of the publications and citations of research articles from 2015 to 2025 in the domain of cognitive finance is exhibited, a remarkable trajectory, with more publications being done in 2024. The most influential authors are Camerer and Nave with 269 citations, followed by the most influential institutions is Department of Humanities and Social Sciences, California Institute of Technology, with 3 publications and 273 citations, and the United States is at the top, with the most productive and influential country in cognitive finance, with 242 publications and 4234 citations.

Concerning the most cited journal “Journal of Behavioral and Experimental Finance”, Scopus indexed with a Q1 rating and categorized as an A by the ABDC (Australian Business Deans Council), placed the premier position in terms of most cited journal with 1234 and 47 publications in cognitive finance, including a noteworthy 10 publications in the year 2020. For Co-citation analysis, 4 clusters have been identified. Bibliometric coupling has been done by identifying 8 clusters in terms of the most cited documents in different periods helps in the area of research focus identified key. Behavioral finance and neuroeconomics are the most repeated keywords in the field of cognitive finance. The USA, China, and India have the most productive authors in behavioral finance. This study strongly suggest that the emerging area of cognitive finance has the potential to establish a platform for financial advisors, financial counselors and investors, enabling them to improve their financial knowledge before making investment decision.

VI. Limitations Of The Study

Firstly, the term *cognitive finance* is relatively new and not consistently defined across the literature, which may have led to the omission of relevant studies labelled differently. Secondly, the analysis is confined to the Scopus database. Although comprehensive, this excludes potentially valuable contributions indexed in other platforms like Web of Science or EconLit. Thirdly, Bibliometric methods prioritize publication counts and citation metrics, which may overlook the qualitative depth or theoretical rigor of certain studies. Finally, Data collection was conducted at a single point in time (June 9, 2025), and recent publications may have been missed or not yet cited, affecting visibility in the analysis.

VII. Scope For Future Research

Complementing bibliometric data with qualitative methods can enhance understanding of theoretical frameworks and conceptual contributions in this emerging domain. There exists a substantial scope for investigating the influence of artificial intelligence, machine learning, and neuroeconomics on cognitive financial behavior due to technological advancements. Future research could investigate how cognitive finance manifests across various cultural and economic contexts. Future researcher can also initiate their research work in Comparative bibliometric analyses between behavioral and cognitive finance can help chart the evolution and overlap of these domains.

VIII. Conclusion

This bibliometric study presents a comprehensive assessment of cognitive finance literature published between 2015 and 2025. By applying performance analysis and scientific mapping techniques—including reference analysis, keyword co-occurrence, and bibliographic coupling—the study identified major contributors, thematic trends, and intellectual clusters within the field. The United States, China, and India emerged as the most influential countries, while authors such as Camerer and Nave significantly shaped the domain.

Despite a growing number of publications, cognitive finance remains an underdeveloped research area compared to behavioral finance. The limited number of core publications signals substantial opportunities for scholarly contributions, particularly in applying cognitive models, neuroscience, and AI to financial decision-making. This

study not only provides the intellectual structure of the field but also provides strategic direction for future research, encouraging further academic engagement in this interdisciplinary and evolving domain.

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