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ISSN: 2096-3246
Volume 58, Issue 01, 2026

EXPLORING THE EVOLUTION OF INTRADAY TRADING: A BIBLIOMETRIC REVIEW OF THE SHARE MARKET LITERATURE (2008-2024)

M. Vijayananth
Research Scholar, Department of Commerce, Vellore Institute of Technology, Vellore-632014, Tamil Nadu, India. vijayananth.m@vit.ac.in

N. Saravanabhavan
Assistant Professor (Sr.), Department of Commerce, Vellore Institute of Technology, Vellore-632014, Tamil Nadu, India. saravanabhavan.n@vit.ac.in
***Corresponding author:** N. Saravanabhavan, Email: saravanabhavan.n@vit.ac.in

Abstract
An extensive bibliometric examination of the evolution of intraday trading in the equities market between 2008 to 2024 is conducted in this paper. Using bibliometric methods based on Bradford's Law, Lotka's Law, and Zipf's Law, the research evaluates academic production, determines the prevailing publication patterns, and explores existing research gaps and collaborative associations. The study charts the evolution of literature and identifies the primary information sources, including the top journals, contributors, and articles. A chronology of the conceptual and intellectual frameworks that direct this area of inquiry is also provided by the study. From data collected from the Scopus database, 138 relevant articles were found to be distributed across 111 journals between the given timeframe. Interestingly, "Lecture Notes in Computer Science (with subseries on Artificial Intelligence and Bioinformatics)" is the most published journal, while "Expert Systems with Applications" is the most cited. Manahov Viktor is the most productive author by means of publications (3) and h-index (2), while Cardoso Rodrigo Tomás Nogueira leads the citation count (176). Felipe Dias Paiva, Rodrigo Tomas Nogueira Cardoso, Gustavo Peixoto Hanaoka, and Wendal Moreira Duarte (2019) are the most cited authors, and their article is named as, "Decision-making for financial trading: A fusion approach of machine learning and portfolio selection", published in "Expert Systems with Applications". The findings show a steep surge in publications that corresponds to the number of retail traders on the rise and the implementation of regulatory reforms such as T+0 trading, which indicates the increasing intellectual interest in the intraday trading dynamics.
Keywords: Intraday trading, Bibliometric analysis, Equity markets, Day trading, Share Market, Vos Viewer.

1. Introduction
In recent years, bibliometrics has emerged as a vital instrument for measuring and visualizing the dynamic and structural elements of academic research due to the expanding volume of scientific publications. It systematically identifies publication patterns, author productivity, citation impact, and intellectual collaboration and offers a more reproducible and objective manner of conducting traditional literature reviews (Donthu et al., 2021; Zupic & Čater, 2015). Based on scientometrics and information science, bibliometric approaches enable researchers to identify the most significant contributions, track the evolution of research topics throughout time, and uncover knowledge gaps and hotspots for the future (Aria & Cuccurullo, 2017; van Eck & Waltman, 2010). By applying bibliometric laws such as "Bradford's Law" (for core

journals), “Lotka's Law” (for author productivity), and “Zipf's Law” (for keyword frequency), researchers can deduce important information regarding the structural composition of a given research domain (Ellegaard & Wallin, 2015). Share market, being one of the pillars of the international system of capital, has been a long- standing area of academic interest due to its role in the allocation of capital, generation of wealth, and signaling in the economy. Within this broad area, intraday trading, also known as day trading, has been an extremely busy area of investigation. Intraday trading is the practice of purchasing and selling financial items on the same trading day in an effort to benefit from short-term fluctuations in prices (Lee et al., 2013; Barber et al., 2009). The type of trading is identified by its reliance on high-frequency data, technical analysis, and algorithmic choice, and has become more common among retail investors and algorithmic traders (Subrahmanyam, 2010). Improvements in low-cost trading facilities, regulatory shifts such as T+1 and T+0 settlements, and real-time access to financial data have also contributed to the interest in this segment of the market (Chen & Chen, 2016; Chen & Chen, 2016).

With increased sophistication in financial markets and the development of computational finance, research on intraday trading has become increasingly multidisciplinary, borrowing methods from computer science, econometrics, behavioral finance, and machine learning (Fama & French, 2008; Paiva et al., 2019; Zhang et al., 2020). Research areas such as sentiment analysis, volatility modeling, algorithmic trading, and portfolio optimization are now the focus of the literature. This fertile subject aside, a fine-grained bibliometric survey of intraday trading purely in the share market context is still uncommon. Most reviews are model- specific methods or overall trading strategies, without charting the intellectual and thematic structure.

Using a thorough bibliometric analysis of 138 peer-reviewed publications from 2008 to 2024 that were obtained from the Scopus database, this study seeks to fill the research gap. Utilizing software such as VOS viewer and Biblioshiny in R Studio, this paper analyzes publication trends, lists top journals and authors, depicts co-citation and co-word relationships, and maps the social and conceptual topology of the topic. This effort is to chart the direction of intraday trading research, identify dominant and emerging themes, and provide future research agendas. By means of a systematic and evidence-informed review of the literature, this paper makes a contribution to the scientific cartography of intraday trading research. It serves as a knowledge base for scholars, practitioners, and decision-makers who are interested in the past, present, and future directions of innovation in this rapidly evolving area of financial research.

2. Research questions and objectives

This research seeks to comprehensively explore Intraday trading in the share market. To achieve this, the following four major research questions will be investigated.

1. How has the literature on intraday trading in share market evolved?
2. In terms of the most renowned journals, authors, and articles, which are the most pertinent sources of information?
3. How do conceptual themes and intellectual linkages reflect the evolution of research within the intraday trading literature?
4. How do trending topics and international collaborations reveal knowledge gaps and inform future research directions?

This research achieves the following objectives:

- First, it will examine the evolution of scholarly literature on intraday trading in the share market over the period 2008–2024, with a focus on publication trends and citation patterns.
- Second, it identifies the most influential sources of knowledge by analyzing key journals, highly cited articles, and prolific authors contributing to intraday trading research.
- Third, it will employ co-word analysis, author collaboration networks, co-citation mapping, thematic mapping, and keyword frequency analysis to explore and interpret the conceptual themes and intellectual linkages that define and illustrate the evolution of research within the intraday trading literature.
- Lastly, in order to map out future research directions for intraday trading in the share market, it will identify new trends and knowledge gaps.

3. Methodology

This paper's methodology was borrowed from related works that were recently published in other publications (Hussain et al., 2023; Ahmad et al., 2020; Ahmad et al., 2020; Smajić et al., 2022). In the study, the dynamics of published literature on intraday trading in share market are examined using bibliometric analysis, a quantitative technique, in order to find out the most relevant article, journal, nation, and ranking (Chowdhury et al., 2023).

3.1 Data Source

The data used in the current study was extracted from the Scopus database, which is established as a top-level abstract and citation index of the peer-reviewed literature (Singh et al., 2021). The Scopus offers advanced search and filtering functionalities, including year, document type, source type, country, and language (Oyewola & Dada, 2022). A search was performed on April 1, 2025, employing the following string for thorough coverage: TITLE-ABS-KEY ("Share market" OR "Stock market" OR "Equity market") AND TITLE-ABS-KEY ("Intraday trading" OR "Day trading" OR "Scalping")). The preliminary search strategy produced 174 scholarly outputs from the Scopus database.

3.2 Screening Process

A comprehensive multiple-stage screening process was applied in order to reduce the dataset. The screening process was operationalized using the following Scopus query: *(TITLE-ABS-KEY (“Share market” OR “Stock market” OR “Equity market”) AND TITLE-ABS-KEY (“Intraday trading” OR “Day trading” OR “Scalping”)) AND PUBYEAR > 2007 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, “ECON”) OR LIMIT-TO (SUBJAREA, “COMP”) OR LIMIT-TO (SUBJAREA, “BUSI”)) AND (LIMIT-TO (LANGUAGE, “English”))*. Based on this query, the specified time span as 2008 to 2024 resulted in the elimination of 12 articles. The subject area filter was then restricted to Economics, Econometrics and Finance, Business, Management and Accounting, and Computer Science, and this resulted in the elimination of another 17 articles. The dataset was then restricted to the

documents published in the English language and this resulted in the elimination of 7 articles. The end result after applying the constraints was that the final number of documents that remained accessible for bibliography study was 138. The overall screening and selection process is systematically depicted in Figure 1.

ISSN: 2096-3246
Volume 58, Issue 01, 2026

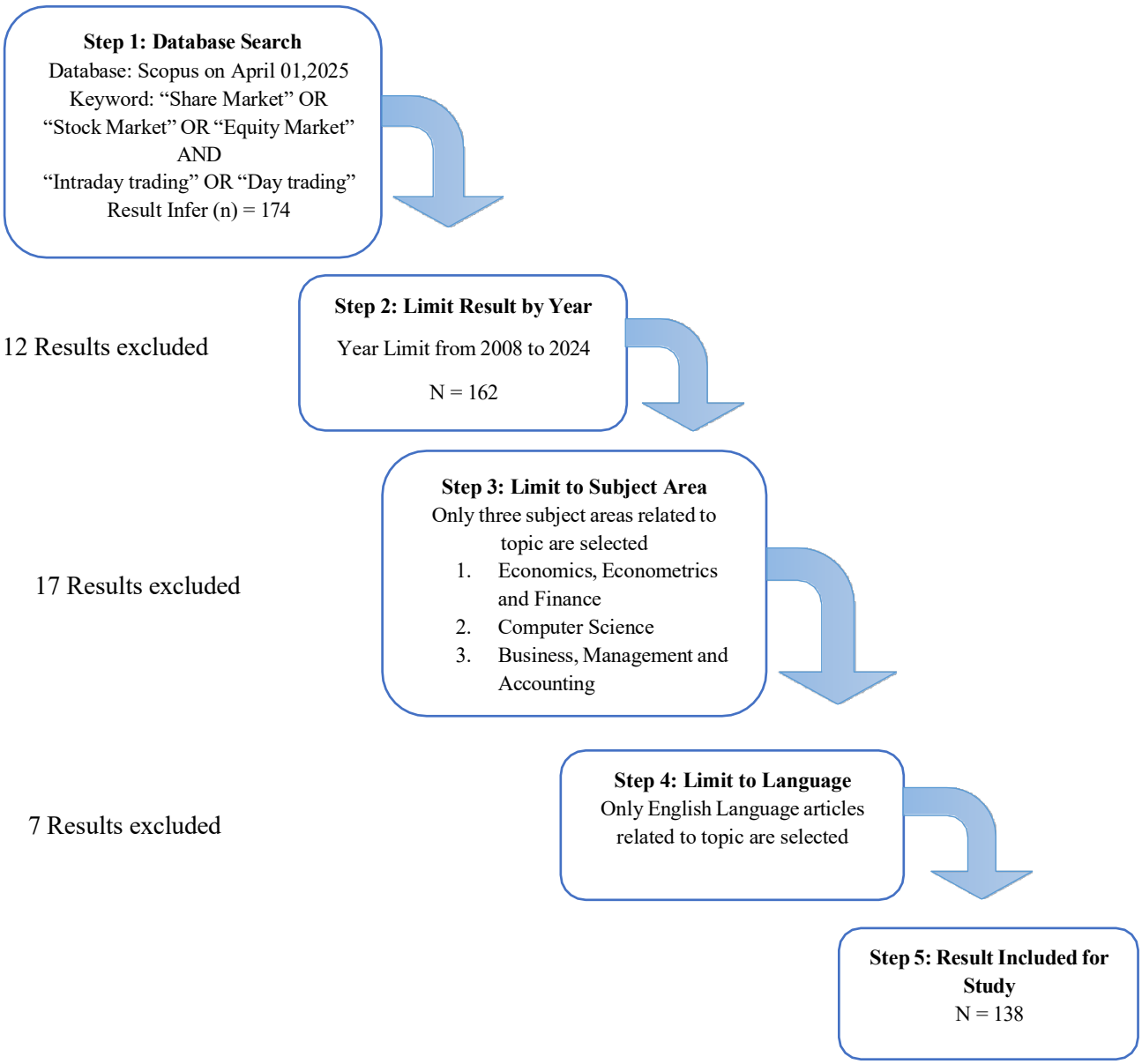

Fig 1. Data extraction process

Inclusion Criteria

- Publications within the timespan **2008–2025** (n = 162 after excluding 12 earlier records).
- Studies indexed under the subject areas of **Economics, Econometrics and Finance**, **Business, Management and Accounting**, or **Computer Science** (n = 145 after excluding 17 outside the scope).
- Documents published in the **English language** (n = 138 after excluding 7 non-English records).
- Document types including journal articles, conference papers, book chapters, books, and reviews.

Exclusion Criteria

- Publications prior to **2008** (n = 12).
- Studies indexed outside the specified subject areas (n = 17).
- Documents published in languages other than English (n = 7).

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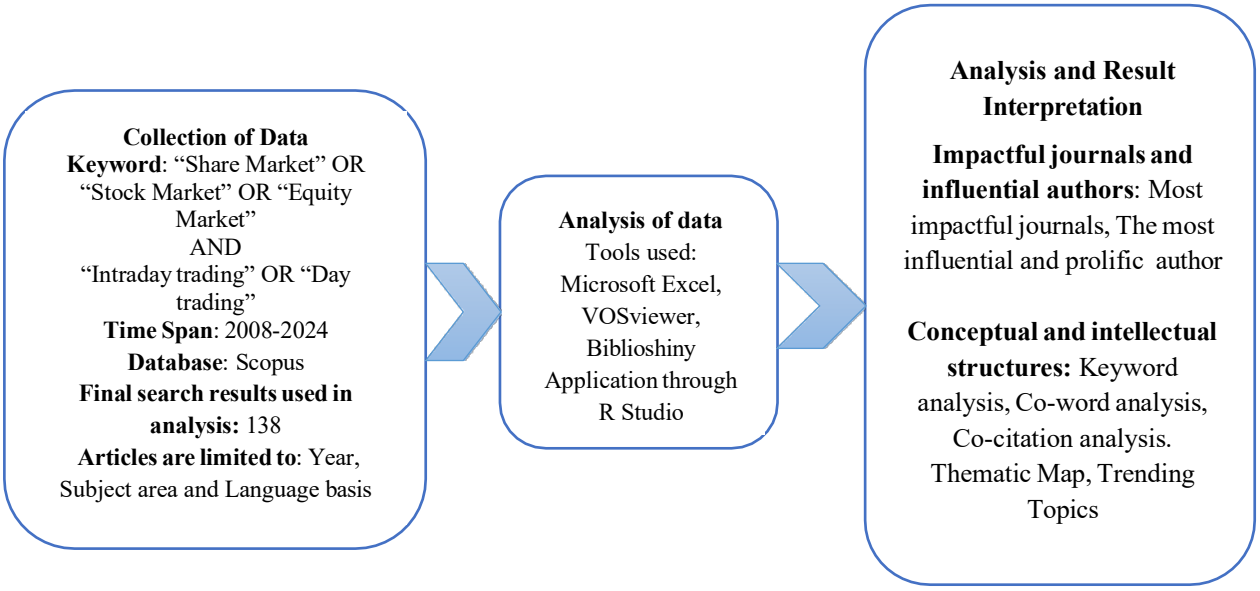

Fig 2. Data Analysis Framework

3.3 Analytical Tools

The current study utilizes an analytical framework presented in Figure 2, which identifies the systematic procedure from the gathering of data to interpreting the results. The analysis was conducted based on a dataset of 138 documents using various bibliometric methodologies. The activities of bibliometric analysis and visualization were conducted using Microsoft Excel (2019), R Studio (version 4.5.1) with the Biblioshiny package, and VOSviewer (version 1.6.20). Specifically, Microsoft Excel was utilized in the activities of data cleaning, tabulation, and descriptive statistical analysis; R Studio allowed the computing of the high-order bibliometric measures as well as the development of thematic maps; and VOSviewer was utilized in the production of visualization of co-authorship, co-citation, and keyword co-occurrence. VOSviewer allows the categorization of prior research into thematic networks, consequently aiding in the identification of intellectual structures and theorizations, while at the same time appraising the novelty of this study (Oyewola & Dada, 2022; Patel & Jhalani, 2023).

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Table 1 "Main information: Scopus data analyzed through Biblioshiny"

Description	Outcomes
Timespan	2008:2024
Sources (Journals, Books, etc.)	111
Documents	138
Annual Growth Rate %	11.55
Document Average Age	6.14
Average citations per doc	10.61
References	4466
DOCUMENT CONTENTS	
Keywords Plus (ID)	580
Author's Keywords (DE)	453
AUTHORS	
Authors	369
Authors of single-authored docs	19
AUTHORS COLLABORATION	
Single-authored docs	22
Co-Authors per Doc	2.83
International co-authorships %	19.57
DOCUMENT TYPES	
Article	87
Book	3
Book chapter	6
Conference paper	41
Review	1

Table 1 displays the main bibliometric attributes of the Biblioshiny-assessed Scopus dataset. The compilation spans the period from 2008 up to 2024 and it comprises 138 documents from 111 various sources, with an annual growth rate of 11.55%. The documents had an average of 10.61 citations per document, a mean age of 6.14 years, and were underpinned with 4,466 references. The dataset comprises 580 Keywords Plus and 453 author keywords and hence implies high thematic diversity. The research involves 369 authors, with the corresponding research being published singly by one person in the number of publications that equals 22, with an average collaboration rate equipping each document with 2.83 co-authors, and foreign co-authorship being only 19.57%. The most prevalent type of document is the journal article (n = 87), followed by conference papers (n = 41), book chapters (n = 6), books (n = 3), and one review. These indicators in tandem highlight the diverse, collaborative, and increasingly prominent nature of intraday trading research.

4. Result & analysis

The comprehensive analytical framework linking the research questions to the appropriate bibliometric tools is depicted in Figure 3. This framework guarantees methodological rigor by associating each

research objective with the best suitable analytical method, thereby establishing a structured framework for upcoming performance analysis and scientific mapping.

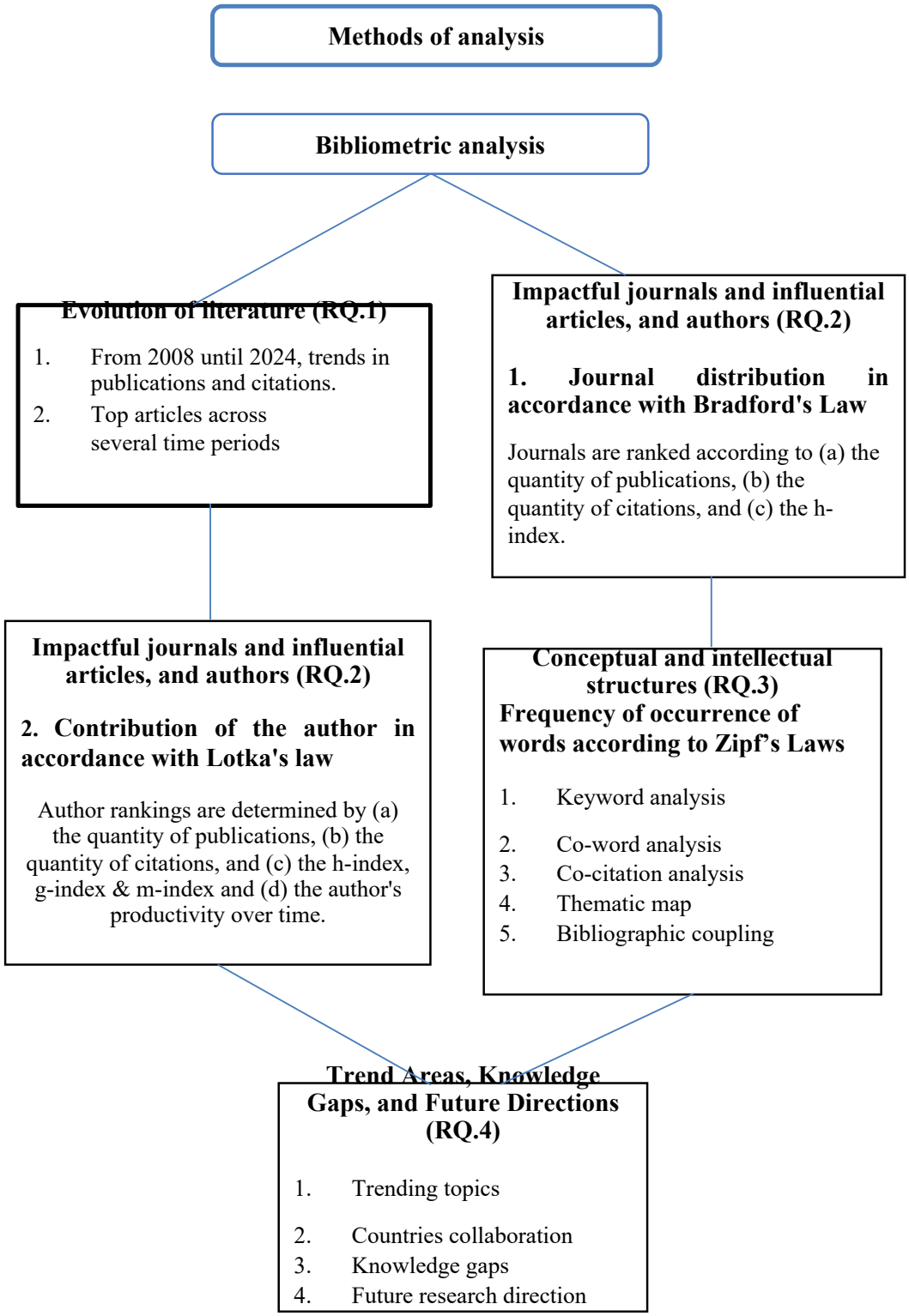

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Fig 3. Scheme of analysis used in present study

4.1. RQ1: Evolution of literature & Current Status of Scholarly Publications and Citation trends

4.1.1. Evolution of the literature

In order to address the first research question **(RQ1), "How has the literature on intraday trading in the stock market evolved?"** this part provides the publication trend and pattern of 138 academic works on intraday trading on the stock exchange. Additionally, it lists the top cited papers from various time periods and provides a brief description of them. The average number of total citations and the number of publications using intraday trading strategies have actually increased significantly, as Figure 4 illustrates. Furthermore, it appears that the majority of highly cited publications are released in subsequent years. An evident rise in the volume of publications is seen during the study period, and a significant rise is witnessed post-2020. The analysis discovers a significant shift by splitting the dataset into two separate time periods: 2008 to 2017 and 2018 to 2024. In fact, 47 papers were published during the first time period (2008–2017), while 91 papers were published during the second time period (2018–2024). The pattern shows that intraday trading research has gained more attention in recent years. This progress has been significantly impacted by the speed at which technology is developing, as evidenced by the widespread modernization of digital trading platforms and the use of quicker settlement methods like T+1 and T+0. Notably, the quantity of articles almost tripled from 33 in the 2008–2015 era to 105 in the 2016–2024 period. This notable surge in scholarly output coincides with a broader change in trading behavior, indicating increased scholarly attention to the evolving intraday trading dynamics since 2016.

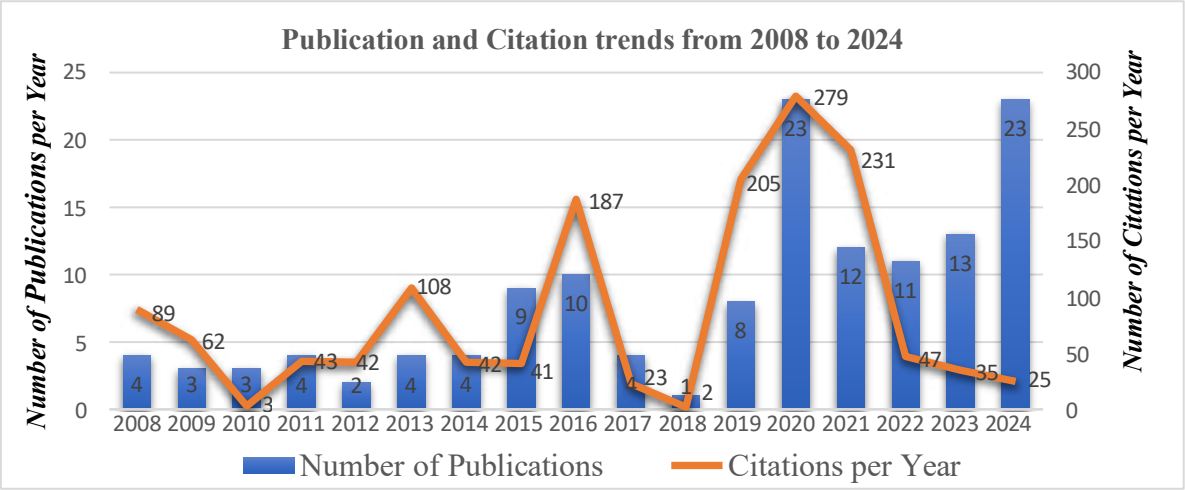

Fig. 4. Publication and Citation trends from 2008 to 2024

We believe that the increase in publications in recent years can be partially explained by the increased use of intraday trading. According to the citation trend shown in Figure 4, the total number of citations appears to be increasing in tandem with the number of publications. However, Fig. 5 presents a more interesting

picture, showing the average number of citations each year for the best publication in each 3-year sub-period. With an average of 32.40 citations annually across our whole dataset, Carta et al. (2021), is the most referenced paper.

Martinez et al. (2009) are among the other noteworthy highly referenced works over the years, with an average of 2.82 citations annually during the 2008–10 period. Lee et al. (2013), with an average of 6.46 citations from 2011-13, and Chen & Chen (2016), with an average of 7.10 citations from 2014-16. Paiva et al. (2019) received an average of 25.14 citations in 2017-19, while Alaminos et al. (2024), on average, received 3.50 citations in 2023-2024. Examining the main ideas of these highly cited publications in each sub-period and the rapid growth of the literature on intraday trading (share markets) are also fascinating. Among the interesting earlier papers, Martinez et al. (2009), explores the design of a day trading system with artificial neural networks. Lee et al. (2013) primarily focus on examining how spoofing traders exploit market microstructure by placing deceptive orders to manipulate prices. Chen and Chen (2016), identifying the profitable trends and signals in stock market data. Paiva et al. (2019), Combining machine learning techniques with portfolio selection methods to enhance decision-making in financial trading. Carta et al. (2021), application of Deep Q-Learning (DQN) for market forecasting. Alaminos et al. (2024) primarily focus on Hybrid econometric and machine learning models. These highly cited papers from various sub-periods have themes that are generally consistent with the evolution of intraday share market trading.

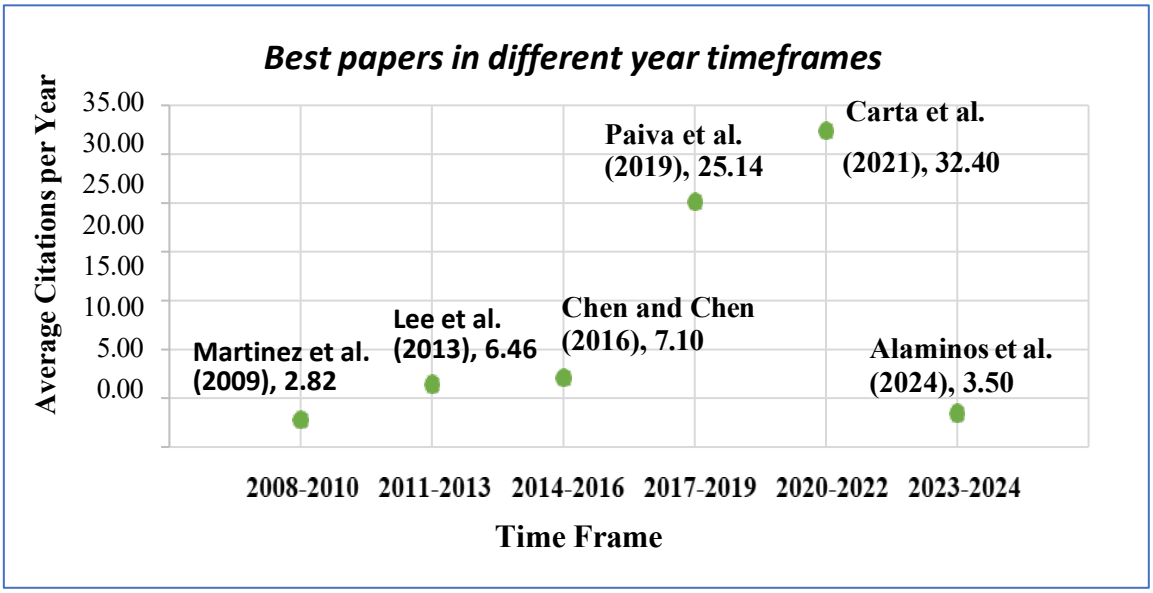

Fig. 5. Top articles across several time periods (based on the average number of citations per year)

While highly cited papers in the post-2017 era have mostly dealt with volatility modeling appropriate for intraday data and the application of Deep Q-learning, Hybrid econometric, and machine learning models for forecasting liquidity, volatility, and market trends, influential papers in the pre-2017 era, as measured by the number of citations, tended to focus on the development of day trading systems, identifying profitable share market trends, and addressing market microstructure issues. The emergence of digital trading platforms and the influence of T+1 and T+0 settlements on the surge of retail investors caused a

significant shift in markets, which in turn sparked study on intraday trading. Retail investors now account for 52% of daily transactions in the share market. After presenting and analyzing the publication and citation trend, we constructed Table 2, which lists the top ten works in the Scopus database in terms of citations.
Table 2. The Top 10 Internationally Cited Documents.
Source: Scopus database

Author/Year/Journal	DOI	Total Citations	TC per Year	Normalized TC
Paiva fd, 2019, Expert Systems with Applications	10.1016/j.eswa.2018.08.003	176	25.14	6.87
Carta s, 2021, Expert Systems with Applications	10.1016/j.eswa.2020.113820	162	32.40	8.42
Peress j, 2020, Journal of Finance	10.1111/jofi.12863	95	15.83	7.83
Lee ej, 2013, Journal of Financial Markets	10.1016/j.finmar.2012.05.004	84	6.46	3.11
Chen t-l, 2016, Information Sciences	10.1016/j.ins.2016.01.079	71	7.10	3.80
Martinez lc, 2009, Proceedings of the International Joint Conference on Neural Networks	10.1109/IJCNN.2009.5179050	48	2.82	2.32
Rantapuska e, 2008, Journal of Financial Economics	10.1016/j.jfineco.2007.12.001	42	2.33	1.89
Sattarov o, 2020, Applied Sciences (Switzerland)	10.3390/app10041506	41	6.83	3.38
Chang rp, 2008, Journal of Banking and Finance	10.1016/j.jbankfin.2007.12.036	38	2.11	1.71
Thenmozhi m, 2016, Neural Computing and Applications	10.1007/s00521-015-1897-9	32	3.20	1.71

4.2 RQ2: Impactful journals and influential authors

This section gives a general analysis of all the pertinent articles (138) through citation analysis to identify the key and impactful journals, as well as top authors. The application of the bibliometric analysis method is intended to give a response to the second research question of the present study, i.e., **RQ2: " In terms of the most renowned journals, authors, and articles, which are the most pertinent sources of information?"**. This analysis is a very handy tool for future authors to apply, guiding them not only to where the pertinent published materials can be found but also where suitable outlets can be found to publish their work.

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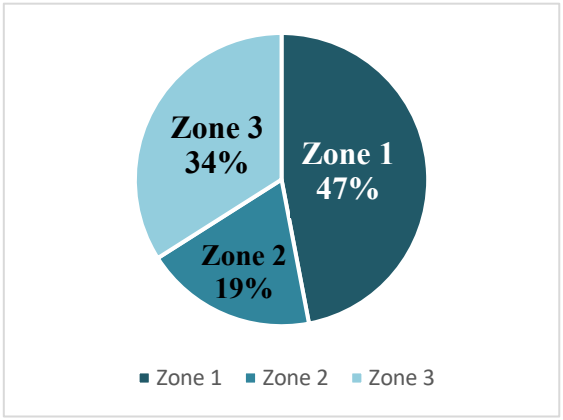
4.2.1 Most impactful journals

Bradford (1934) proposed a strategy for categorizing journals into three zones according to the total number of published articles within a certain topic. The quantity of published scholarly articles in a specific discipline is almost equal in each zone (Brookes, 1969; Drott, 1981). Bradford (1934) formulated it as a law that states "If scientific journals are arranged in order of decreasing productivity of articles on a given subject, they may be divided into a nucleus of periodicals more particularly devoted to the subject and several groups or zones containing the same number of articles as the nucleus when the numbers of periodicals in the nucleus and succeeding zones will be as 1: n: n^2 …". More precisely, the number of journals in the second and third zones is n and n2 twice that of Zone 1, respectively. For the sake of this analysis, we have separated the journals into three zones with about equal numbers of articles, as shown in Fig. 6 (panel a). About one-third of the papers in our database are from the 46 articles that were found in 19 core journals. There are 47 journals in the second zone and 45 in the third zone. The distribution of citations for each zone is shown in Fig. 6 (panel b). Journals in Zone 1 have accounted for 47% of all citations. It shows that compared to Zone 2 and Zone 3 journals, researchers are far more interested in Zone 1 journals.

a) Journal distribution across Bradford's productivity zones

b) Citation distribution within each Bradford zone



Zone 1: Core Journals 19 Journals, 46 Articles (Sorted by number of publications in descending order) 1. Lecture notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics) 2. International Review of Financial Analysis 3. ACM International Conference Proceeding Series 4. Emerging Markets Finance and Trade 5. Journal Of Banking and Finance 6. 2016 IEEE Congress on Evolutionary Computation, CEC 2016 7. Advances in Intelligent Systems and Computing	8. Applied Economics Letters 9. Applied Financial Economics 10. Communications in Computer and Information Science 11. Economies 12. Expert Systems with Applications 13. Journal of Futures Markets 14. Journal of Investment Strategies 15. Journal of Risk and Financial Management 16. Lecture Notes in Networks and Systems 17. Neurocomputing 18. Proceedings of the International Joint Conference on Neural Networks 19. 2017 Intelligent Systems Conference, Intellisys 2017

Fig. 6. Zone-wise Journal Classification and Citation Analysis as per Bradford's law

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The top 10 journals are ranked in Fig. 7 according to (a) the quantity of published articles, (b) the total number of citations for those articles, and (c) their h-index, respectively. As can be seen in Fig. 7 (panel a), the journal with the most published articles on intraday trading, particularly in the share market, is Lecture Notes in Computer Science (including the subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics). It publishes about 4% (6 articles) of the total number of articles (138 papers). The International Review of Financial Analysis, Emerging Markets Finance and Trade, Journal of Banking and Finance are ranked second, third, and fourth, respectively with publishing 4, 3, and 3 papers, respectively. Together, these four publications published 12% of all articles about intraday trading. However, Fig. 7's panel b presents another intriguing finding. With 2 articles on this topic, the Expert Systems with Applications journal seems to be the most prominent one in terms of overall citations (338 citations). The Journal of Finance, Journal of Financial Markets, and Journal of Banking and Finance, occupy the second, third, and fourth rank, respectively, with 95, 84, and 82 citations.

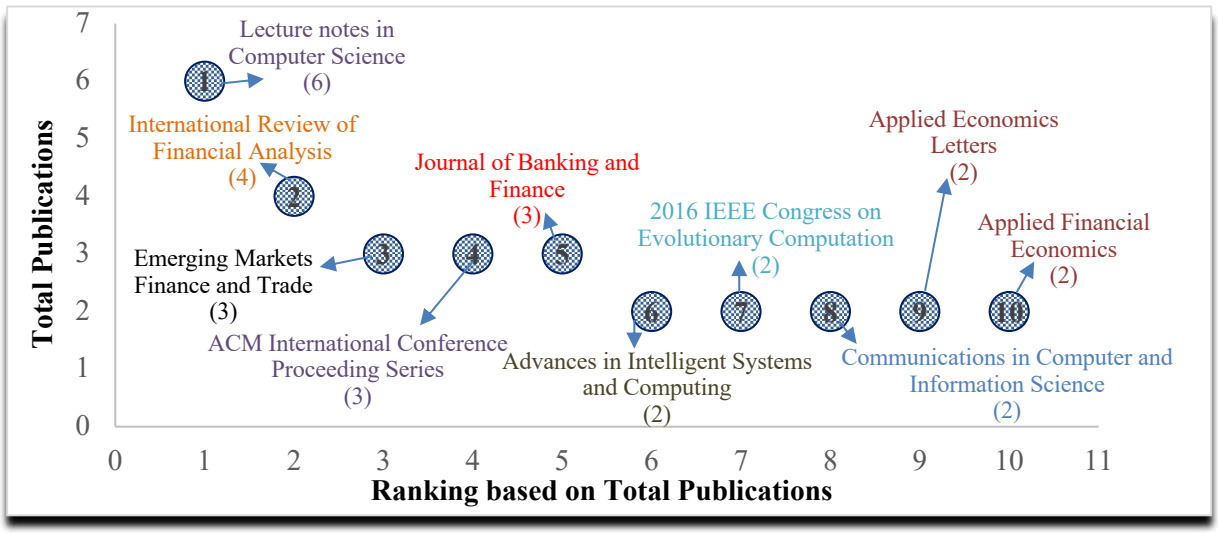

Fig. 7 a) Ranking based on Total Publications

Fig. 7 b) Ranking based on Total Citation

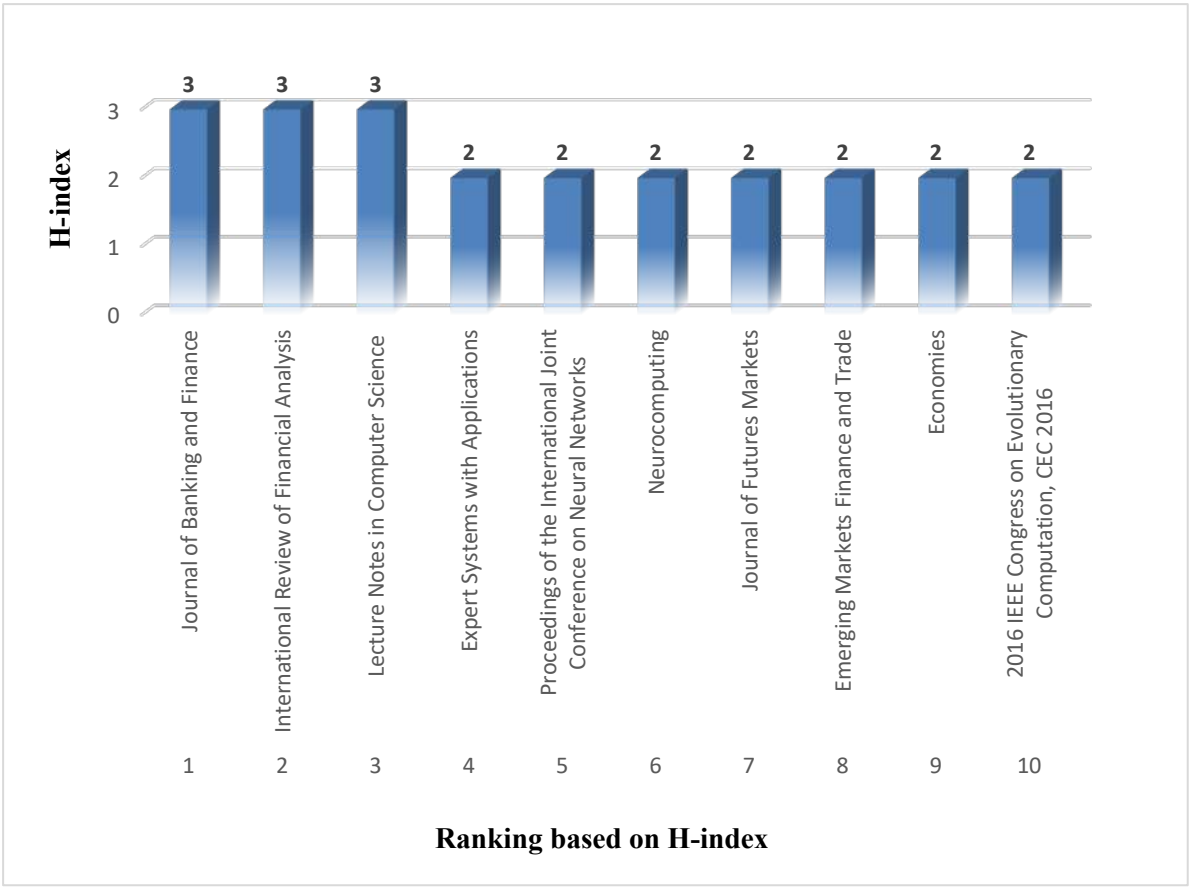

Fig. 7 c) Ranking based on H-index

Fig. 7. Ranking of Core Journals Using Tri-Criteria Evaluation: a) Publications, b) Citations, and c) h-Index.

The journal ranking based on the h-index is next examined, as illustrated in panel c of Figure 7. The h-index is derived from counting the number of a journal's publications that have been cited at least the same number of times. In this case, the Journal of Banking and Finance has the top h- index of 3, followed by

the International Review of Financial Analysis, the Lecture Notes in Computer Science (which includes the subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), and the Expert Systems with Applications, which together constitute the top four journals.

4.2.2. The most influential and prolific author

Lotka's Law describes the authors' scholarly output in a particular field. Lotka's law suggests that the hyperbolic, inverse square function predicting the relative frequency distribution of author productivity in a given field results in a minority of the authors publishing most of the articles (Youngblood & Lahti, 2018). More specifically, as per this law, writers publishing 'n' contributions are roughly $1/n^2$ of those publishing one contribution: and the percentage of all the writers publishing one contribution is roughly 60% (Lotka, 1926). Of all writers, 60% of authors contribute just one article; 15% of authors will have two publications; 7% of authors will have three.

Figure 8 illustrates the theoretical and empirical distributions of authors' contributions based on Lotka's law. Compared to the estimations given by Lotka's law, the above figure shows that an exceptionally high 94% of authors submitted one article. Conversely, around 5.2% of authors published two papers, which is consistent with the Lotka's law-based estimates. On comparing the actual and estimated frequencies for authors with three publications, it can be seen that the actual frequency is less than the estimated figure.

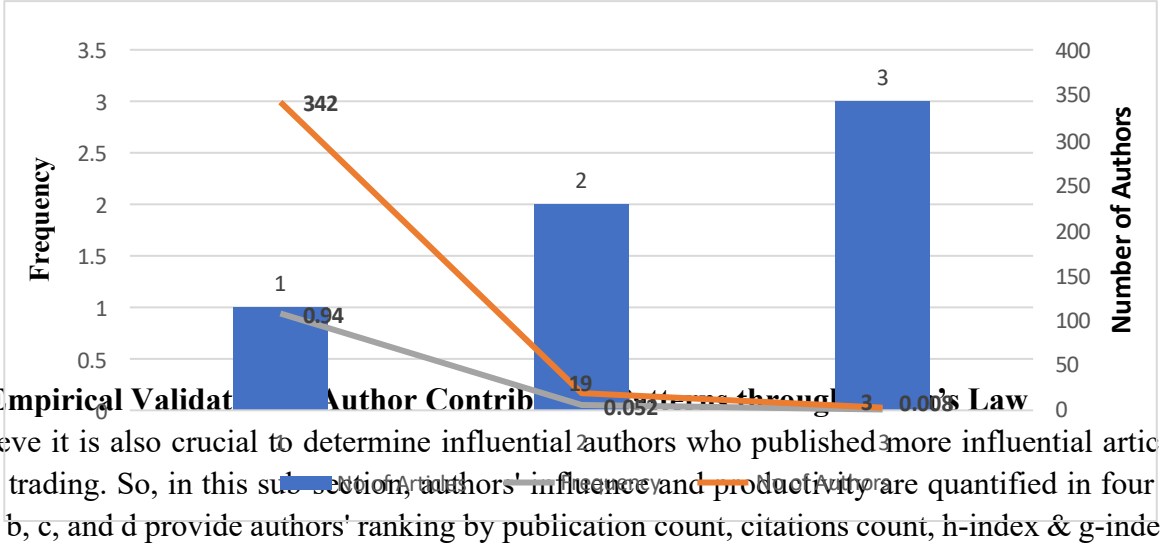

Fig. 8. Empirical Validat Author Contrib s through s Law

We believe it is also crucial to determine influential authors who published more influential articles on intraday trading. So, in this sub section, authors' influence and productivity are quantified in four ways. Fig. 9 a, b, c, and d provide authors' ranking by publication count, citations count, h-index & g-index, and authors' productivity timeline, respectively. In authors' ranking by the number of publications (Fig. 9a), the highest number of publications on the topic is held by Manahov Viktor with 3 articles and Bulkowski Thomas with 3 articles. In authors' ranking by total citations (Fig. 9b), the highest number of citations is held by Cardoso Rodrigo Tomás Nogueira with 176 citations, respectively

With respect to h-index & g-index (Fig. 9c), it is also significant that Manahov Viktor occupy the top positions with h-index & g-index of 2 and 3, respectively, in line with their position according to total publications and h-index. On the whole, Manahov Viktor seems to be the most influential authors in two indicators (total publications and h-index), and Cardoso Rodrigo Tomás Nogueira is the influential author in total citations (176), respectively.

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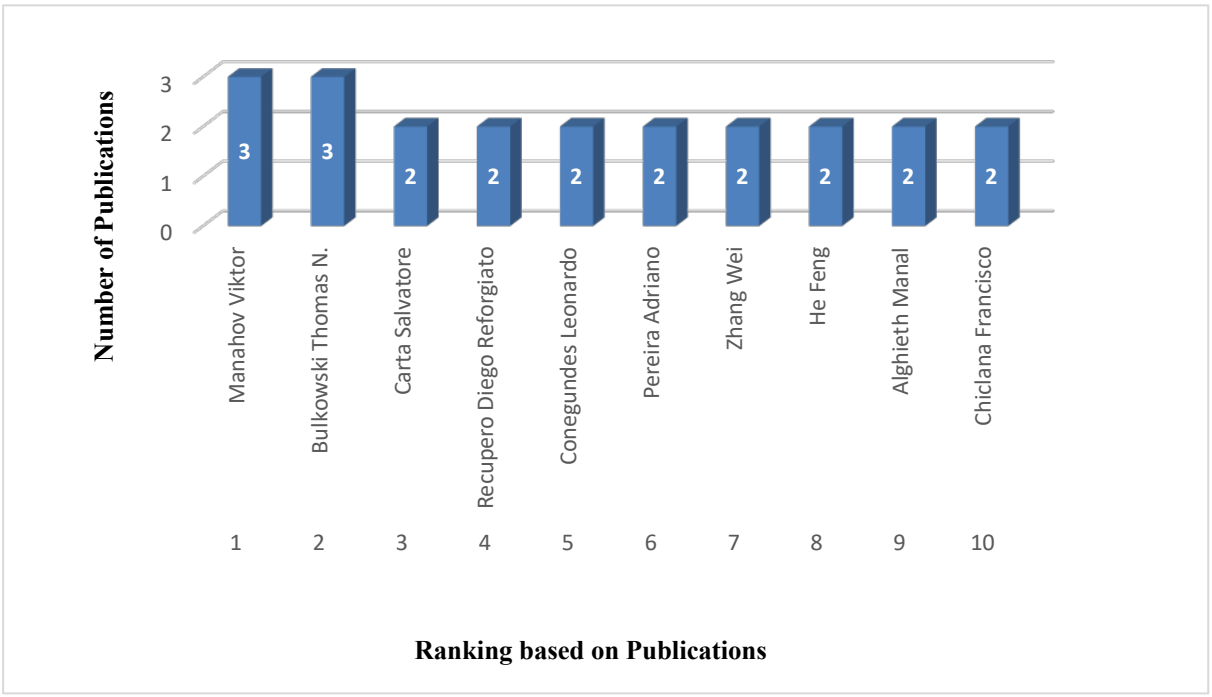

Fig. 9a. Top 10 Authors based on number of Publication.

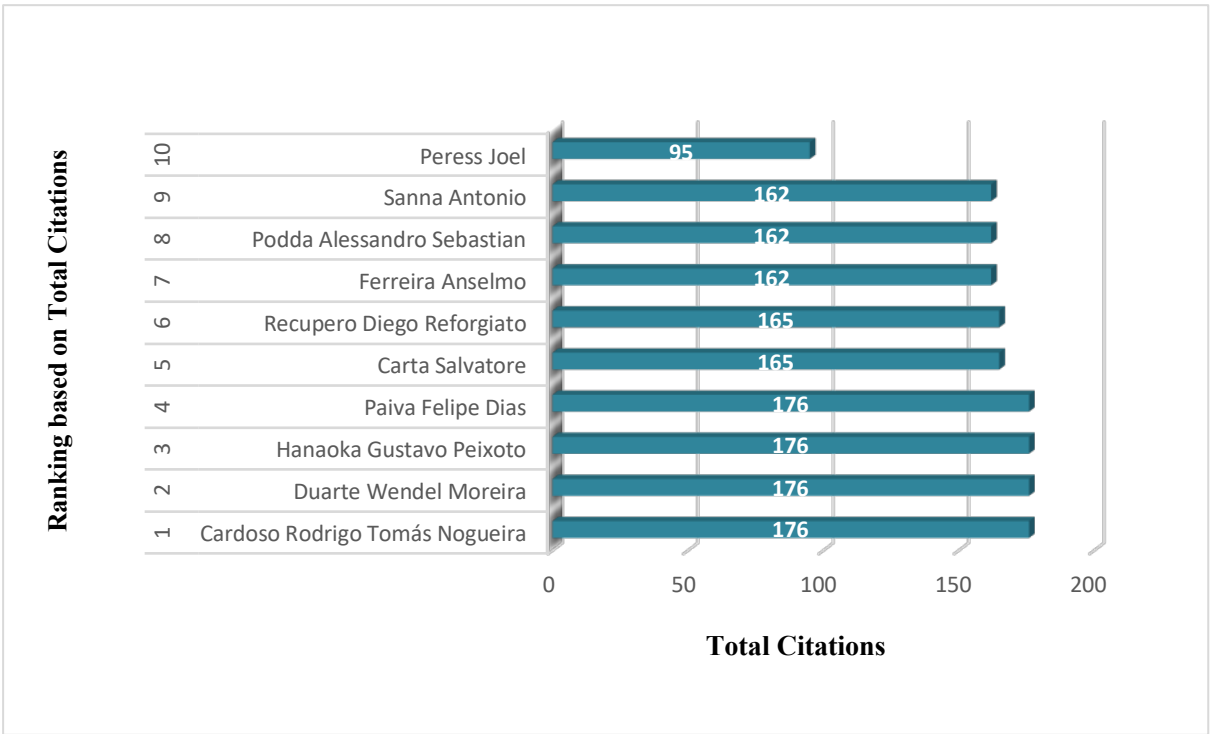

Fig. 9b. Top 10 Authors based on number of Citations

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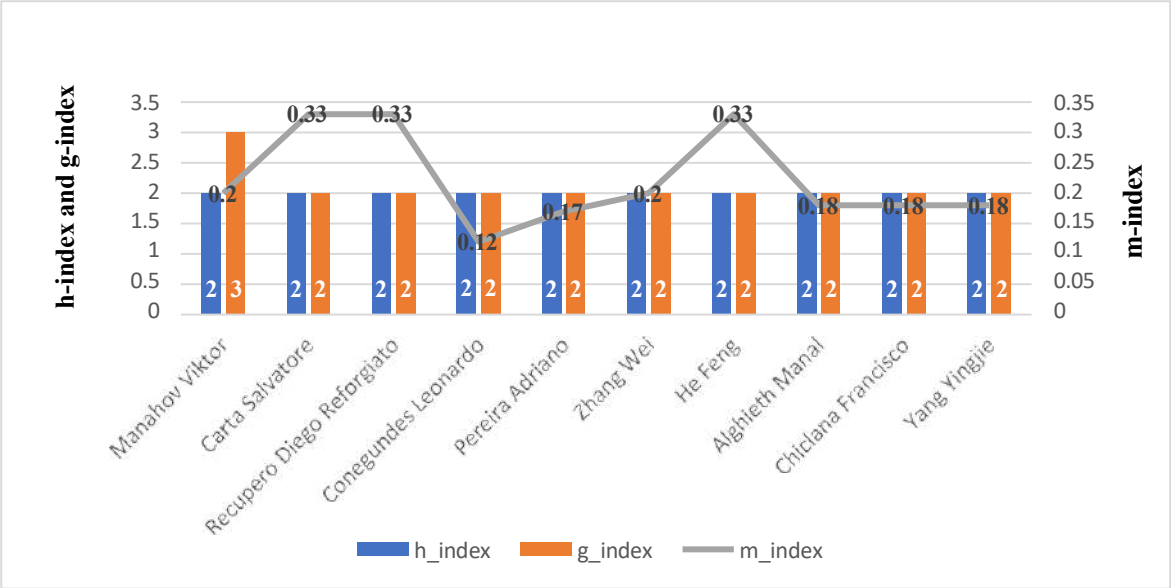

Fig. 9c. Top 10 Authors based on h-index, g-index and m-index

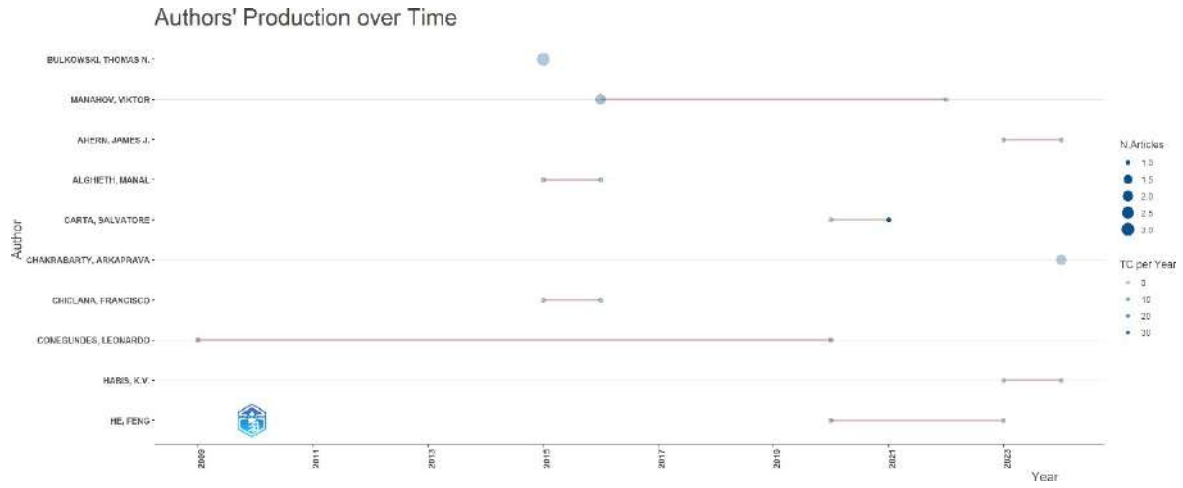

Fig. 9d. Top Authors production over time

Fig. 9. Ranking of Core Journals Using Tri-Criteria Evaluation: a) Publications, b) Citations, and c) h-Index, g-index & m-index and (d) the author's productivity over time.

Lastly, looking at the output of the top authors over time (Fig. 9d), it seems that Leonardo C. Martinez (Coneguindes, Leonardo) has been working on the subject for the longest period of time. He published his first article on the subject in 2009, and his most recent publication was published in 2020, spanning nearly 11 years. However, he hasn't published any publications recently. Habis and Chakrabarty are the new authors on this subject, which is another intriguing finding from Fig. 9d. It's clear that Manahov Viktor has been productive over the years since he was ranked top in terms of publications and h-index and g-index, respectively.

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4.3 RQ3: Conceptual and Intellectual structures

Zipf's Law, which is a bibliometric law, is applied in the study of the frequency of occurrence of keywords utilized in scholarly articles, determining the most frequent and influential keywords on a topic in a scholarly literature. The law dictates that the frequency of occurrence of an item or term is directly proportional to the inverse of its rank in a frequency table. The law can be applied in the study of any area of scholarly articles (Chao & Zipf, 1950). This section outlines the conceptual and intellectual frameworks of our large sample of articles (138) to address our final research question, RQ3: "what are the conceptual and intellectual frameworks in this literature?". The conceptual framework, based on the author's keywords which appeared together in the majority of articles, is investigated by co-word analysis, Co-citation analysis, as the observation that two articles are cited together by a third article, is classically employed to map the intellectual structure (Small, 1973).

4.3.1. Keyword analysis

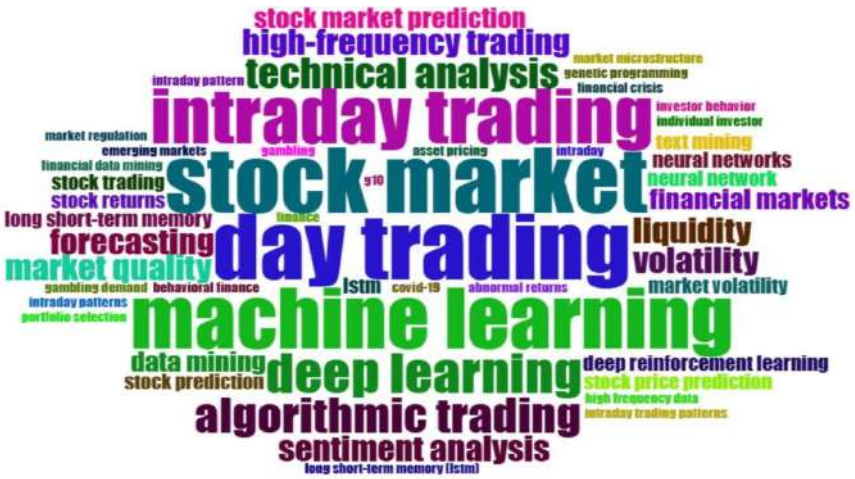

Fig. 10. Word clouds based on author's supplied keywords

Fig 10 presents a collection of keywords provided by authors that have been utilized most frequently in published articles related to intraday trading in the time frame of 2008-2024. The word cloud illustrated reflects the key research topics and emerging trends (Wang & Chai, 2018) in intraday trading and stock market prediction. Each keyword's magnitude reveals how frequently it is used. The most frequently used keywords in our sample are day trading, stock market, intraday trading, machine learning, deep learning, and algorithmic trading. This reflects an active academic interest in the combination of sophisticated computational methods with financial market analysis. The application of "forecasting," "technical analysis," "sentiment analysis," and "high-frequency trading" are key buzzwords that capture the methodological diversification employed to render trading more effective and the precision of the forecasts. The application of concepts such as "volatility," "liquidity," and "market quality" also captures a profound awareness of market dynamics relative to trading strategies.

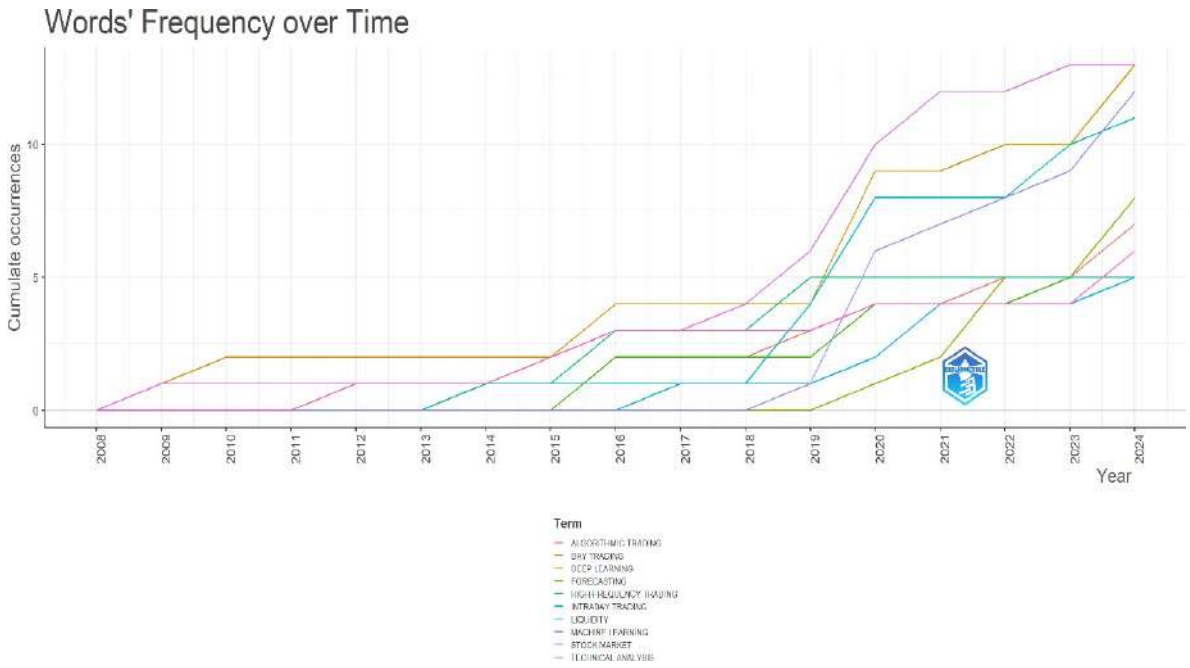

Fig. 11. Trend of Author's supplied keywords

In an effort to identify trends in the keywords' usage across the sample period, it is also critical to investigate how the keywords have evolved over time. The cumulative frequency patterns of authors' usage of keywords between 2008 and 2024 are included as Fig. 11. The keyword day trading is clearly on the rise, as next machine learning, intraday trading, and the stock market are the other buzzwords with increasing tendencies. It's also fascinating to see that all four upward-increasing keywords exhibit elevation, albeit at varying amounts, especially over the 2020–2024 period. Interestingly, these words show an incredible rise, especially after 2016, when artificial intelligence became more deeply ingrained in financial markets. The residual terms, including concepts like forecasting and high-frequency trading, have had a decreasing trend over time, especially around 2020. However, vocabulary like liquidity and stock market have seen more usage in the initial phase; however, their frequency of usage has stabilized to a large degree, especially post-2022. Although traditional finance concepts have remained stable with moderate fluctuations, the prominent trends observed post-2016 are likely to be the result of the enhancement of advanced computational techniques and data-driven methods.

4.3.2. Co-word analysis

Next, we examine the clusters of keywords that tend to co-occur. Thematic clusters are groups of phrases or groups of words used in discussions on a particular theme. This is also known as the "co-words network," a concept coined by Callon, Law, and Rip (1986) (Callon et al., 1986). From this analysis, we have a better understanding of the underlying themes of research on algorithmic trading, intraday trading and stock price forecasting.

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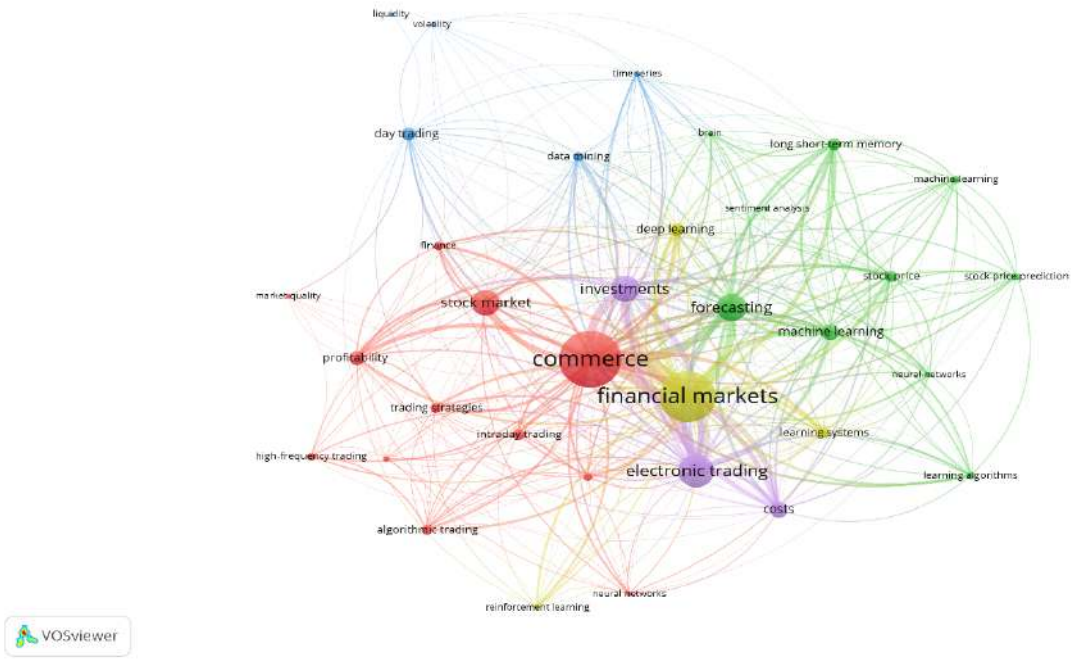

Fig. 12. Co-word analysis

Figure 12 illustrates the co-occurrence network of keywords provided by authors, constructed using VOS viewer, based on 138 Scopus-indexed articles focused on intraday trading from 2008 to 2024. The visualization illustrates the conceptual framework of the field by organizing frequently co-occurring keywords into five thematic clusters, each representing distinct yet interconnected research areas.

Cluster 1 (Red): "Intraday Trading Strategies and Dynamics of Market Microstructure"

These subject addresses intraday trading mechanisms, profitability, and price formation within short time frames. Key concepts such as intraday trading, stock market dynamics, algorithmic trading, trading strategies, technical analysis, and market quality indicate research focused on improving trading performance and price behavior at a micro level. Recent studies have integrated neural networks and high-frequency trading analysis to develop adaptive trading strategies and improve execution efficiency.

Cluster 2 (Green): "AI-Driven Forecasting and Sentiment Analysis in Trading Models"

This cluster illustrates an increasing application of machine learning, deep learning, and sentiment-based models in price forecasting and decision support systems. Terms such as machine learning, forecasting, stock price prediction, neural networks, sentiment analysis, and LSTM characterize this subject, reflecting research grounded in hybrid econometric and machine learning methodologies. This study highlights the significance of real-time trading intelligence, adaptive learning algorithms, and predictive modeling in enhancing intraday trading accuracy.

Cluster 3 (Blue): "Modeling Volatility, Analyzing Liquidity Dynamics, and Conducting High-Frequency Analytics"

This category addresses market risk management and liquidity forecasting within the context of high-frequency trading. Key terms include volatility, liquidity, time series, day trading, and

data mining, all of which represent quantitative methods employed in predicting short-term price fluctuations. Research in this area integrates sophisticated econometric models, GARCH-type frameworks, and high-frequency analytical techniques to address risk management and capitalize on

micro-level price discrepancies in intraday markets.

Cluster 4 (Yellow): "Technological Advancements in Financial Markets and Reinforcement Learning"

This cluster emphasizes the significance of technological innovation and self-enhancing trading systems in influencing intraday trading practices. Terms such as financial markets, deep learning, reinforcement learning, and learning systems indicate research focused on developing adaptive decision-support systems. The combination of autonomous reinforcement learning frameworks with artificial intelligence-supported models facilitates dynamic portfolio optimization and proficient trade execution in fast-changing market environments.

Cluster 5 (Purple): "Electronic Trading Infrastructure, Transaction Costs, and Investment Efficiency"

This cluster examines the operational characteristics of electronic trading systems regarding transaction costs, investments, and execution efficiency. Electronic trading, costs, and investments are associated with themes of optimizing cost structures, minimizing slippage, and enhancing profitability in electronic trading environments. This research investigates institutional trading behavior and the influence of technology-driven infrastructures on investment performance.

Table 3 Co-occurrence of Keywords. Source: Scopus Database

Keyword	Occurrences	Total Link Strength
Commerce	55	384
Financial markets	50	365
Electronic trading	32	255
Investments	26	216
Forecasting	27	209
Costs	16	142
Machine learning	16	121
Deep learning	13	112
Long short-term memory	12	110
Stock market	25	102

Table 3 summarizes the most prevalent keywords and their associated link strengths, emphasizing the prominence of phrases such as 'commerce,' 'financial markets,' and 'electronic trading' in defining the conceptual framework of intraday trading research.

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4.3.3. Co-citation analysis

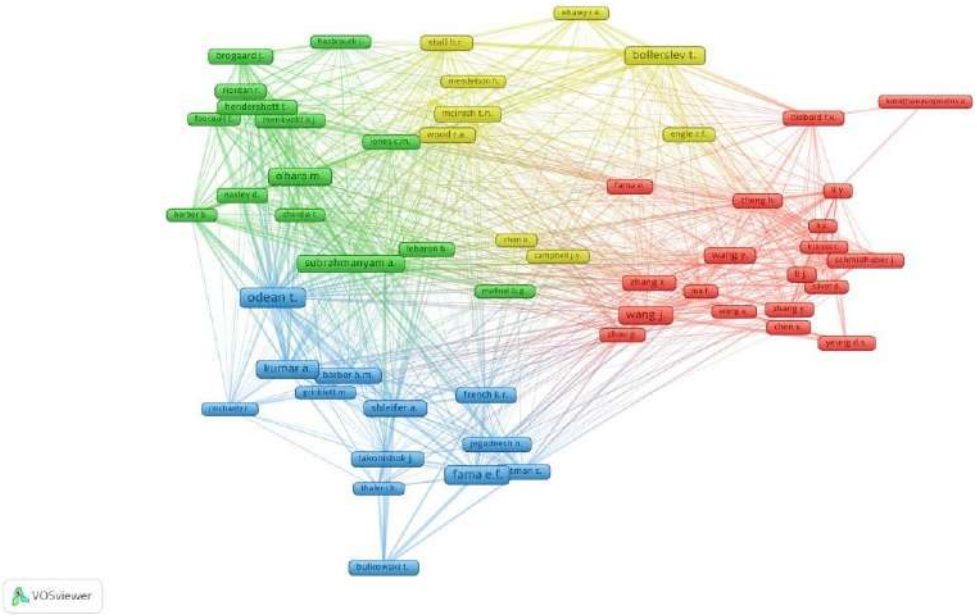

Fig. 13. Co-citation network

Figure 13 shows the co-citation network of prominent authors in the field of intraday trading in share market research, constructed through VOS viewer. The network is segmented into four dominant clusters, coloured differently, and these represent intellectual affiliations based on the frequency of authors appearing together in academic publications. The most prominent group is the green cluster, which includes seminal authors such as O'Hara, Hendershott, Chordia, Brogaard, and Barber. The cluster is dominated by market microstructure theory, high-frequency trading activities, and the empirical study of liquidity and price formation. The red cluster constitutes the second most cohesive group, with authors such as Fama, Zhang, Wang, Li, and Diebold. The authors' group mainly addresses models of asset pricing, volatility prediction, as well as econometric methods such as the application of time series data and sophisticated forecasting methods in intraday and high-frequency studies. The blue cluster, with authors like Odean, Kumar, Shleifer, Thaler, and French, is rooted in behavioral finance, emphasizing the psychological nature of investors, overconfidence, and the nature of retail trading in internet markets. The last yellow cluster, with authors such as Bollerslev, Engle, Stoll, Hasbrouck, and Whaley, is dedicated to seminal contributions in volatility modeling and risk measurement, particularly through the vehicle of ARCH/GARCH- type models and extensions. These clusters not only illustrate the richness of theoretical and empirical fields present in the field but also represent the strong interlinkages of distinct fields such as econometrics, behavioral finance, and market microstructure. The visualization affirms the intellectual structure of intraday trading studies to be intricate, as seen from high cross- citation among prominent researchers, thus pointing to an integrated research paradigm.

Table 4 Co-citation network of prominent authors. Source: Scopus Database

Author	Citation	Total Link Strength
odean t.	37	637
subrahmanyam a.	25	456
o'hara m.	23	389
hendershott t.	18	387
stoll h.r.	15	367
kumar a.	27	360
barber b.	11	345
roll r.	19	341
bollerslev t.	27	311
andersen t.g.	21	303

Table 4 illustrates the prominent authors according to citation frequencies and co-citation link strength, highlighting the intellectual significance of Odean, Subrahmanyam, and O'Hara in establishing the foundational knowledge of intraday trading research.

4.3.4. Thematic map

The Study outcomes of bibliometric analysis are enriched through the demonstration of outcomes for finding meaning within the network clusters (Long & Guo, 2025). Biblioshiny- R programming is generally used for Thematic Mapping analysis.

qUnder biblioshiny-R programming, themes are categorized into four groups according to their density and centrality. Niche themes, motor themes, emerging or declining topics, and basic themes are the four theme segments. Emerging or declining themes can be topics that are relatively less connected and not core to the study; niche themes are explored relatively less; motor themes serve as the study's foundation pillar and are essential for further exploration and understanding of the research area; and basic themes are the most important but not yet fully developed themes that show the gaps that can be further explored (Babu & G, 2024).

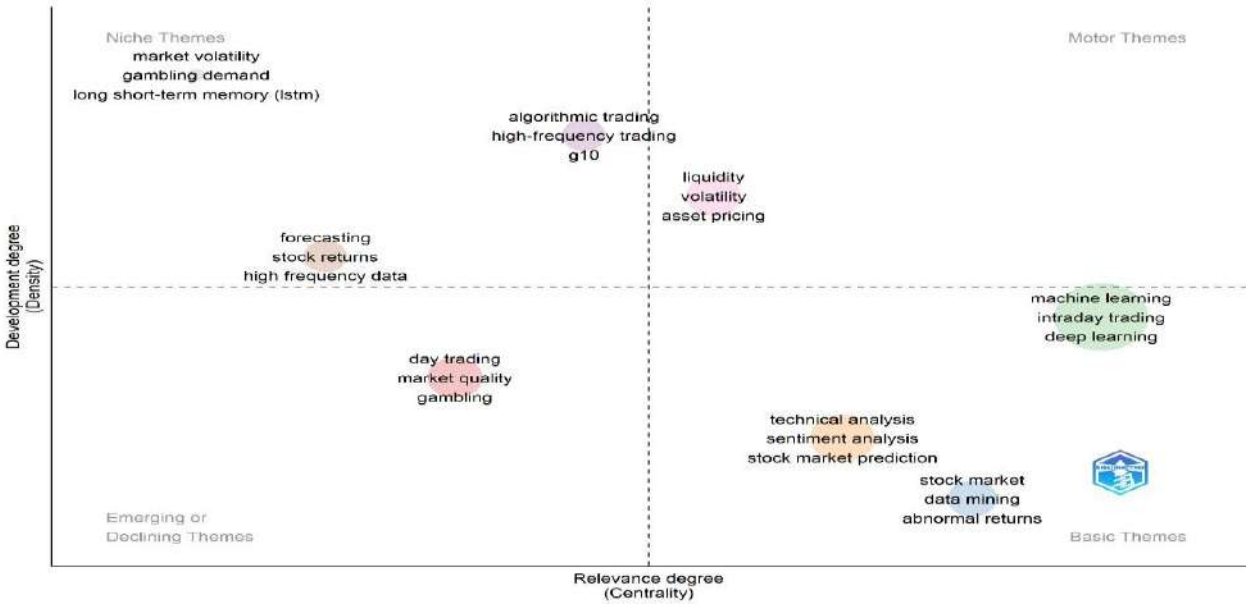

Fig. 14. Thematic map

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Figure 14 identifies the thematic mapping segments of the research study using Biblioshiny. Mapping will assist us in identifying and describing some theoretical zones of the research space. According to the algorithm, it has produced eight clusters that are represented by the thematic map. The eight clusters were gained by restricting the study to the top 100 keywords so that significant themes could be prioritized, with a minimum of ten cluster frequency with a threshold of 3 keywords for distinct clusters.

Motor themes (Upper Right Quadrant)

Motor themes are strategically vital research areas, high in centrality and density and hence significant elements in scientific advancement. The identified themes are intraday trading, machine learning, and deep learning, which are all high in internal development and have strong association with other research clusters. These paradigms of computational intelligence have been identified as methodological pillars that are vital for advancement, highlighting their vital role in advancing algorithmic trading capabilities and creating foundational bases for future research advancement.

Basic Themes (Lower Right Quadrant)

Basic themes come with high centrality and lower density and are in the form of core research fields that are fundamental building blocks with high potential for development. Salient themes are technical analysis, sentiment analysis, stock market forecasting, data mining, and abnormal returns. These core approaches are the foundation for more advanced research tracks and are main objectives in the field of algorithmic trading research but point to broad research gaps demanding more theoretical depth and higher integration into existing computational frameworks.

Niche Themes (Upper Left Quadrant)

Niche themes are marked by high internal development and low centrality, implying specialist research areas with high concentrations of work and advanced theoretical traditions. The themes we have found are market volatility, gambling demand, long short-term memory (LSTM) networks, forecasting, stock returns, and high-frequency data, all of which exhibit advanced theoretical development in specialist areas but few connections to broader algorithmic trading environments. These advanced research clusters have gained high internal coherence but the potential to be integrated further with advanced research trajectories.

Emerging or declining Themes (Lower Left Quadrant)

These themes are low in centrality and density and are either newly emerging areas of research or waning research interest. Day trading, market quality, and gambling are among the key themes that are indicative of constrained theoretical development and connectivity in spite of their pragmatic significance. Their location is indicative of core areas of research for theoretical development and incorporation into the larger algorithmic trading arena, indicative of new methodological approaches or old ones being replaced by advanced ones.

4.3.5. Bibliographic Coupling

Bibliographic coupling is a method to comparing two or more scientific papers by discover their common references (Chang et al., 2015). Using this approach, the cited references in both texts can be determined through comparison of their respective citations (Phan Tan, 2022). Bibliometric coupling also comes in handy in constructing co-citation networks and identifying author collaborations and research trends (Shunmathy & Selvam, 2025).

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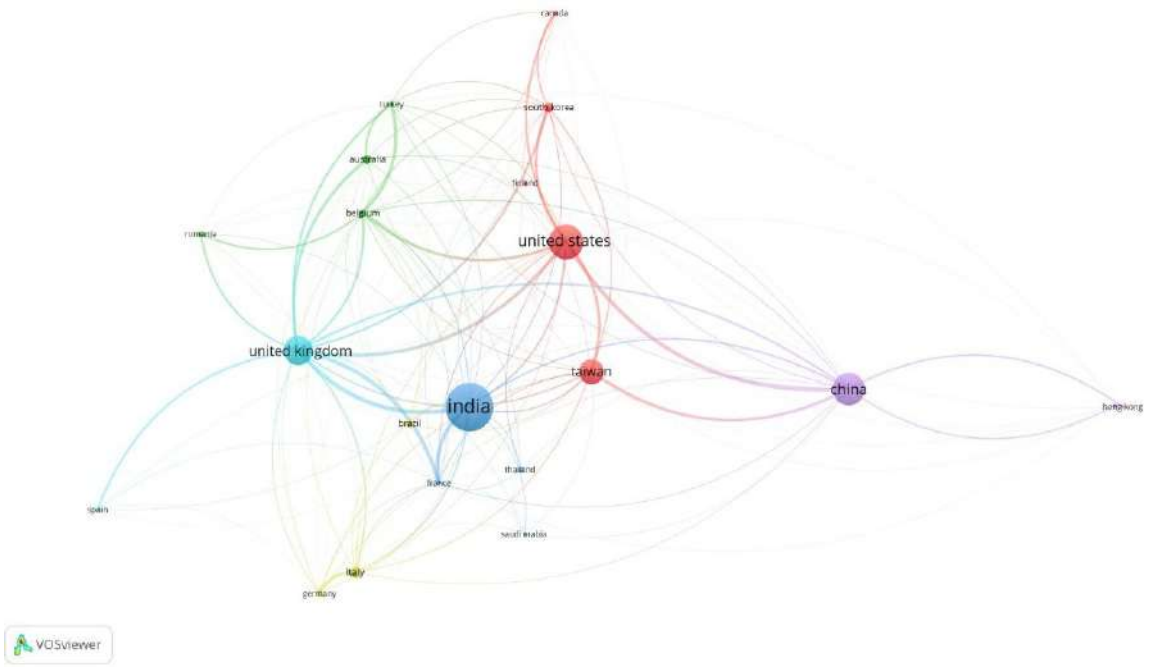

Fig. 15. Bibliographic Coupling

Figure 15 illustrates the country collaboration network on intraday trading research, highlighting the global co-authorship patterns from 2008 to 2024. The visualization reveals that India, the United States, the United Kingdom, China, and Taiwan are the most active contributors, notably, India appears as the most central node in the network, suggesting that it has played a pivotal role in global research collaboration related to intraday trading. This prominence may reflect India's growing academic interest in algorithmic and intraday trading, likely driven by the rapid expansion of digital financial markets and retail investor participation in the country. The United States and the United Kingdom demonstrate extensive global linkages, acting as major hubs connecting both Western and Asian research communities. China forms a strong regional cluster with Hong Kong and Taiwan, reflecting concentrated East Asian academic cooperation. European countries such as Germany, Italy, France, and Belgium are well-connected through the United Kingdom, which serves as a central European node. The presence of countries like Brazil, Saudi Arabia, South Korea, and Australia signifies a diverse but uneven global distribution of research contributions. Overall, the map underscores the collaborative and international nature of intraday trading research, while also pointing to potential opportunities for broader global engagement and the inclusion of underrepresented regions in future studies.

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4.4 RQ 4: Trend Areas, Knowledge Gaps, and Future Directions

4.4.1. Trending topics

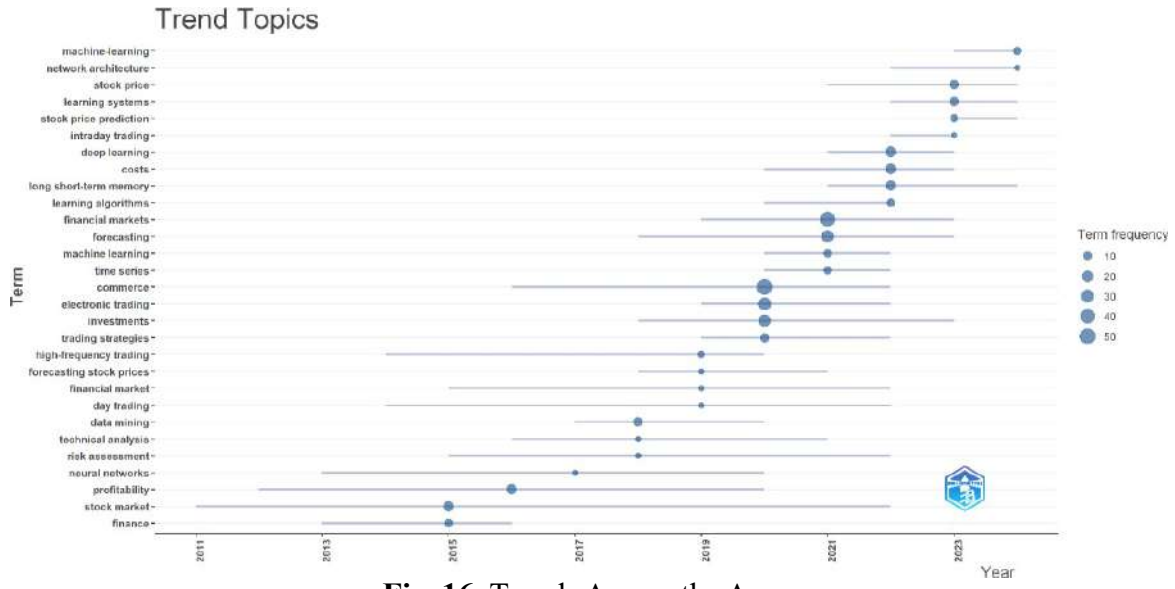

Fig. 16. Trends Across the Ages

This section gives an overview of the subjects that have been popular over the years. A typical upward sloping of hot subjects is revealed by an analysis of Figure 16, which was imported from Biblioshiny. The primary emphasis of the study was author-identified keywords in order to understand the content. The minimum frequency of term repetition was set at 4, and the number of words per year was set at 4. The selection of papers for the study spans the years 2008–2024. Here, the base year trend was in the stock market and finance, especially in 2015. After that, the trends shifted annually toward other research areas. Focusing more on the last three years, Figure 16 illustrates that in 2022, deep learning, learning algorithms, and long short-term memory were highly significant. In 2023, intraday trading, stock price prediction, and stock price were important. In recent years, especially in 2024, machine learning and network architecture were prominent trending topics for research on intraday trading in the share market.

4.4.2. Countries Collaboration

The Country Collaboration Map, shown in Figure 17, is used to visually represent the geographic distribution and level of intensity of international research collaborations in the area of intraday trading in the share market. The darker shades indicate nations with higher publication rates and higher levels of collaboration, while the lines joining nations show the networks of co-authorship between nations. International research collaboration in this subject is led by the United States, China, India, Australia, and the United Kingdom, as the map illustrates. The United States is placed as a central hub, with strong academic collaborations in the Asian and European continents. China and India also reflect strong bilateral research relationships, reflecting the growing academic focus and institutional participation from emerging economies in research studies of the financial market. The presence of active collaborations with Australia and some of the European countries, like France and the United Kingdom, also reflects a globally dispersed yet localized research network.

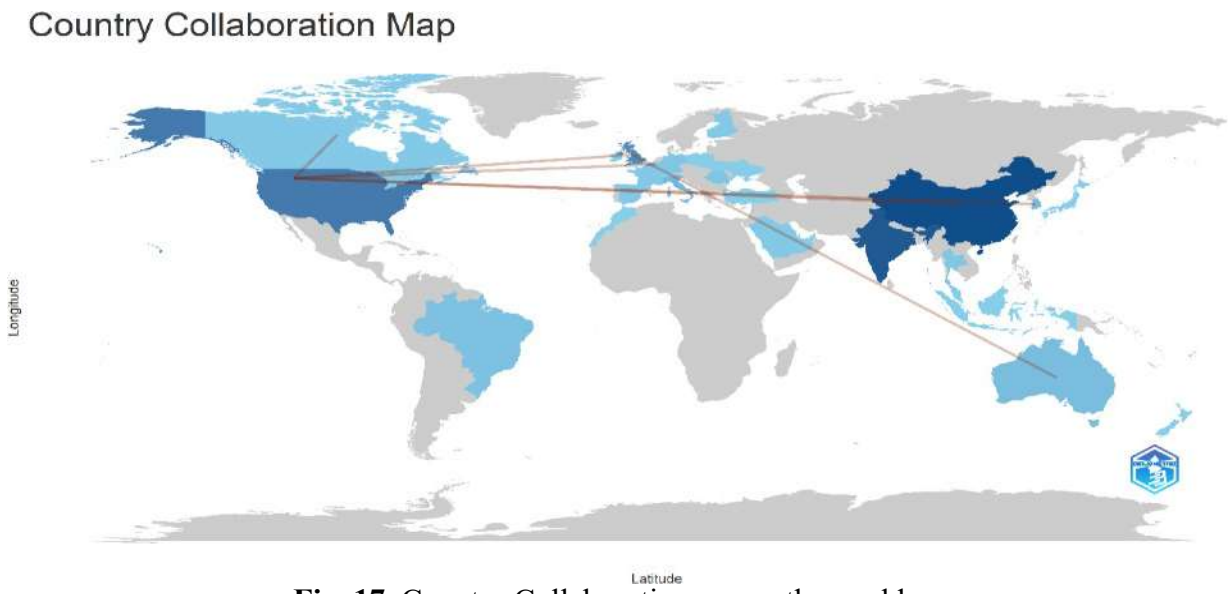

Fig. 17. Country Collaboration across the world

This is a reflection of the growing interdependence of the research community driven by shared interests in algorithmic trading, machine learning applications, and financial technology innovations. The limited or lack of participation of countries like Africa and South America, however, reflects the likelihood of imbalances in scholarly contributions and demonstrates areas of scope for greater inclusiveness in global financial research.

4.4.3. Knowledge gaps

In spite of the burgeoning literature on intraday trading, a number of core knowledge gaps remain. First, the geographical dispersion of research is highly imbalanced, with limited contribution from continents like Africa and parts of South America, and global knowledge is skewed towards an unbalanced viewpoint. Second, limited systematic studies are conducted on behavioral factors influencing trader decision-making, particularly in turbulent intraday market periods. Third, the long-term effects of recent settlement rule innovations, e.g., T+0 and T+1 settlements, on market efficiency and stability are not adequately researched. Fourth, even though existing studies are mainly technology-oriented, the enormous integration gap in ethical considerations, ESG factors, and societal facets of high-frequency intraday trading is lacking. Lastly, the growing entry of retail investors in market processes is not well covered in the existing body of research, and thus there is an integration gap in the case of understanding their strategies, risk-taking behavior, and their influences on market trends.

4.4.4. Future research direction

The results of the bibliometric analysis offer some encouraging avenues for further study of intraday trading in relation to the stock market. First, there is enough space to apply sophisticated artificial intelligence techniques, particularly those based on deep learning, neural network topology, and hybrid econometric frameworks to market microstructure and price forecasting. As testified by the emergence of "machine learning" and "network architecture" as unifying concepts over the last few years, future research must focus on refining these models to better capture the nuances of high-frequency trading environments.

Second, there is a necessity for more research into the intraday trading behavior of market participants,

especially with a perspective towards increasing retail investor participation and their distinctive decision-making patterns in the context of volatile market conditions. Thirdly, while the present study reports high global collaboration, future research must attempt to enhance greater representation of marginalized geographical locations like Africa and Latin America, thereby increasing the cultural and empirical breadth of the existing literature. Fourthly, with the broad policy overhauls (e.g., T+0 and T+1 settlements), researchers must evaluate the long-run regulatory implications with an emphasis on liquidity, volatility, and fairness in markets. Finally, bibliometric techniques have the potential to improve on by combining complementary indicators, global text analyses, and longitudinal keyword dynamic analyses, thereby increasing the accuracy and predictive potential of future reviews in this fast-evolving field of research.

5. Discussion

The bibliometric study conducted in the present research provides a comprehensive review of the intellectual, conceptual, and collaborative organization of intraday trading research during 2008-2024. The study reports a significant surge in the interest of scholars in the topic, especially since 2016, in accordance with the extensive adoption of algorithmic trading protocols, electronic financial services, and regulatory reforms such as T+0 and T+1 settlement procedures. The rise in publications and citations reflects the increase in scholarly and applied concern for the complexity of intraday trading, especially with the recent advances in technology. The co-word analysis and theme highlight a shift in research focus towards computational approaches, including deep learning, machine learning, and neural networks. These have become pivotal concepts in intraday price fluctuation modeling and forecasting and reflect a shift towards data-driven, AI-facilitated financial practices. The intellectual basis encompassing market microstructure theory, behavioral finance, and econometric modelling reflects the discipline's interdisciplinarity. In productivity terms, authors such as Viktor Manahov and Rodrigo Tomás Nogueira Cardoso have been prominent producers, while Expert Systems with Applications have been prominent publication and citation hubs. However, despite the existence of inter-institutional and international collaboration, this collaboration is unevenly distributed, with prominent contributions being dominated primarily by the United States, India, China, and the United Kingdom.

6. Conclusion

This study presents a rich bibliometric overview of 138 peer-reviewed intraday trading papers published between 2008 and 2024, depicting an evolving and dynamic research environment increasingly shaped by technological disruption and data-intensive methodologies. The driving themes that emerged intraday trading, machine learning, and deep learning depict fundamental, highly sophisticated research themes that drive scholarly advancement, while emerging or under-developed themes such as day trading, market quality, and gambling suggest areas of theoretical extension and further development. With growth in the field, however, several areas of knowledge gap persist: under-coverage in geography from under-researched regions, under-exploitation of behavioral and ethical facets of retail investor behavior, and over-simplification in longitudinal explorations of regulation's effect. Future research should therefore, attempt to integrate behavioral finance knowledge, explore ESG and ethical concerns in algorithmic strategy, and deepen international co-operation to achieve a more inclusive and diversified research agenda. By plugging these gaps and capitalizing on thematic opportunity identified, scholars can further expand a more sophisticated and globally informed understanding of intraday trading within the evolving financial landscape.

Declarations

Funding
The authors did not receive any financial support, grant, or funding from any public, commercial, or not-for-profit sectors for conducting this research.

Data availability
Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.

Ethics Statements not Applicable
This article does not contain any studies with human participants performed by any of the authors.

References

1. Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, *133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070
2. Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429–472. https://doi.org/10.1177/1094428114562629
3. Aria, M., & Cuccurullo, C. (2017). Bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007
4. van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3
5. Ellegaard, O., & Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics*, 105, 1809–1831. https://doi.org/10.1007/s11192-015-1645-z
6. Lee, E. J., Eom, K. S., & Park, K. S. (2013). Microstructure-based manipulation: Strategic behavior and performance of spoofing traders. *Journal of Financial Markets*, 16(2), 227–252. https://doi.org/10.1016/j.finmar.2012.05.004
7. Barber, B. M., Lee, Y. T., Liu, Y. J., & Odean, T. (2009). Just how much do individual investors lose by trading? *The Review of Financial Studies*, 22(2), 609–632. https://doi.org/10.1093/rfs/hhn046
8. Subrahmanyam, A. (2010). The cross-section of expected stock returns: What have we learnt from the past twenty-five years of research? *European Financial Management*, 16(1), 27–42. https://doi.org/10.1111/j.1468-036X.2009.00520.x
9. Chen, T., & Chen, F. (2016). An intelligent pattern recognition model for supporting investment decisions in stock market. *Information Sciences*, *346–347*, 261–274. https://doi.org/10.1016/j.ins.2016.01.079
10. Brogaard, J., Hendershott, T., & Riordan, R. (2014). High-frequency trading and price discovery. *The Review of Financial Studies*, 27(8), 2267–2306. https://doi.org/10.1093/rfs/hhu032
11. Fama, E. F., & French, K. R. (2008). Dissecting anomalies. *The Journal of Finance*, 63(4), 1653–1678. https://doi.org/10.1111/j.1540-6261.2008.01371.x
12. Paiva, F. D., Cardoso, R. T. N., Hanaoka, G. P., & Duarte, W. M. (2019). Decision-making for financial trading: A fusion approach of machine learning and portfolio selection. *Expert Systems with Applications*, 115, 635–648. https://doi.org/10.1016/j.eswa.2018.08.003
13. Zhang, J., Aggarwal, C. C., & Qi, G. J. (2020). Stock price prediction via discovering multi-frequency trading patterns. *Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining*, 2724–2734. https://doi.org/10.1145/3394486.3403349

14. Hussain, S. M., Ahmad, N., & Ahmed, S. (2023). Applications of high-frequency data in finance: A bibliometric literature review. *International Review of Financial Analysis*, *89*, 102790. https://doi.org/10.1016/j.irfa.2023.102790
15. Ahmad, N., Aghdam, R. F., Butt, I., & Naveed, A. (2020). Citation-based systematic literature review of energy-growth nexus: An overview of the field and content analysis of the top 50 influential papers. *Energy Economics*, *86*, 104642. https://doi.org/10.1016/j.eneco.2019.104642
16. Ahmad, N., Menegaki, A. N., & Al-Muharrami, S. (2020). Systematic literature review of tourism growth nexus: An overview of the literature and a content analysis of 100 most influential papers. *Journal of Economic Surveys*, *34*(5), 1068–1110. https://doi.org/10.1111/joes.12386
17. Smajić, H., Palalić, R., & Ahmad, N. (2022). Future perspective of socioemotional wealth (SEW) in family businesses. *Journal of Family Business Management*, *13*(4), 923–954. https://doi.org/10.1108/jfbm-05-2022-0070
18. Chowdhury, S. B., DasGupta, R., Choudhury, B. K., & Sen, N. (2023). Evolving alliance between corporate environmental performance and financial performance: A bibliometric analysis and systematic literature review. *Business and Society Review*, *128*(1), 95–131. https://doi.org/10.1111/basr.12301
19. Singh, V. K., Singh, P., Karmakar, M., Leta, J., & Mayr, P. (2021). The journal coverage of Web of Science, Scopus and Dimensions: A comparative analysis. *Scientometrics*, *126*(6), 5113–5142. https://doi.org/10.1007/s11192-021-03948-5
20. Oyewola, D. O., & Dada, E. G. (2022). Exploring machine learning: a scientometrics approach using bibliometrix and VOSviewer. *SN Applied Sciences*, *4*(5). https://doi.org/10.1007/s42452-022-05027-7
21. Patel, S. K., & Jhalani, P. (2023). Formulation of variables of environmental taxation: a bibliometric analysis of Scopus database (2001–2022). *Environment Development and Sustainability*, *26*(3), 7687–7714. https://doi.org/10.1007/s10668-023-03027-0
22. Carta, S., Ferreira, A., Podda, A. S., Recupero, D. R., & Sanna, A. (2020). Multi-DQN: An ensemble of Deep Q-learning agents for stock market forecasting. Expert Systems with Applications, 164, 113820. https://doi.org/10.1016/j.eswa.2020.113820
23. Martinez, L. C., da Hora, D. N., Palotti, J. R. D. M., Meira, W., & Pappa, G. L. (2009, June). From an artificial neural network to a stock market day-trading system: A case study on the BM&F BOVESPA. In *2009 international joint conference on neural networks* (pp. 2006-2013). IEEE. https://doi.org/10.1109/IJCNN.2009.5179050
24. Alaminos, D., Salas, M. B., & Partal-Ureña, A. (2024). Hybrid ARMA-GARCH-Neural Networks for intraday strategy exploration in high-frequency trading. *Pattern Recognition*, *148*, 110139. https://doi.org/10.1016/j.patcog.2023.110139
25. Peress, J., & Schmidt, D. (2019). Glued to the TV: distracted noise traders and stock market liquidity. *The Journal of Finance*, *75*(2), 1083–1133. https://doi.org/10.1111/jofi.12863
26. Rantapuska, E. (2008). Ex-dividend day trading: Who, how, and why? Evidence from the Finnish market. *Journal of Financial Economics*, *88*(2), 355-374. https://doi.org/10.1016/j.jfineco.2007.12.001
27. Sattarov, O., Muminov, A., Lee, C. W., Kang, H. K., Oh, R., Ahn, J., Oh, H. J., & Jeon, H. S. (2020). Recommending Cryptocurrency Trading Points with Deep Reinforcement Learning Approach. *Applied Sciences*, *10*(4), 1506. https://doi.org/10.3390/app10041506

28. Chang, R. P., Rhee, S. G., Stone, G. R., & Tang, N. (2008). How does the call market method affect price efficiency? Evidence from the Singapore Stock Market. *Journal of Banking & Finance*, *32*(10), 2205–2219. https://doi.org/10.1016/j.jbankfin.2007.12.036
29. Thenmozhi, M., & Chand, G. S. (2015). Forecasting stock returns based on information transmission across global markets using support vector machines. *Neural Computing and Applications*, *27*(4), 805–824. https://doi.org/10.1007/s00521-015-1897-9
30. Bradford, S. C. (1934). Sources of information on specific subjects. Engineering, 137, 85–86. https://doi.org/10.1177/016555158501000406
31. Brookes, B. C. (1969). Bradford's law and the bibliography of science. *Nature*, *224*(5223).https://doi.org/10.1038/224953a0
32. Drott, M. C. (1981). Bradford's law: Theory, empiricism and the gaps between. Library Trends, 30, 41–52.
33. Youngblood, M., & Lahti, D. (2018). A bibliometric analysis of the interdisciplinary field of cultural evolution. *Palgrave Communications*, *4*(1). https://doi.org/10.1057/s41599-018-0175-8
34. Lotka, A. J. (1926). The frequency distribution of scientific productivity. *Journal of the Washington academy of sciences*, *16*(12), 317-323. https://www.jstor.org/stable/24529203
35. Chao, Y. R., & Zipf, G. K. (1950). Human Behavior and the Principle of Least Effort: An Introduction to Human Ecology. *Language*, *26*(3), 394. https://doi.org/10.2307/409735
36. Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for information Science*, *24*(4), 265-269. https://doi.org/10.1002/asi.4630240406
37. Wang, M., & Chai, L. (2018). Three new bibliometric indicators/approaches derived from keyword analysis. *Scientometrics*, *116*(2), 721–750. https://doi.org/10.1007/s11192-018-2768-9
38. Callon, M., Rip, A., & Law, J. (Eds.). (1986). *Mapping the dynamics of science and technology: Sociology of science in the real world*. Springer.
39. Long, W., & Guo, M. (2025). Social media and capital markets: an interdisciplinary bibliometric analysis. *Financial Innovation*, *11*(1), 77. https://doi.org/10.1186/s40854-024-00731-2
40. Babu, J., & G, V. (2024). Tri-Decadal Review on Personal Finance and Financial Well-Being. *International Research Journal of Multidisciplinary Scope*, *05*(03), 1021–1042. https://doi.org/10.47857/irjms.2024.v05i03.0985
41. Chang, Y. W., Huang, M. H., & Lin, C. W. (2015). Evolution of research subjects in library and information science based on keyword, bibliographical coupling, and co-citation analyses. *Scientometrics*, *105*, 2071-2087. https://doi.org/10.1007/s11192-015-1762-8
42. Phan Tan, L. (2022). Bibliometrics of social entrepreneurship research: Cocitation and bibliographic coupling analyses. *Cogent Business & Management*, *9*(1), 2124594. https://doi.org/10.1080/23311975.2022.2124594
43. Shunmathy, V., & Selvam, V. (2025). A bibliometric review exploring the nexus between environmental sustainability and electric four-wheeler. *Discover Sustainability*, *6*(1), 219. https://doi.org/10.1007/s43621-025-01020-3