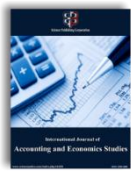
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Research paper



E-Banking And Customer Satisfaction: A Bibliometric Review Of Research Trends, Economic Relevance And Accounting Implications (2002-2024)

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Abstract

This bibliometric review examines the evolution of research on e-banking and customer satisfaction from 2002 to 2024, analyzing key trends, scholarly impact, and thematic developments. Utilizing data from the Scopus database and bibliometric tools such as VOSviewer and Biblioshiny, the study identifies influential authors, major research clusters, and collaboration networks across countries and institutions. The analysis reveals a consistent increase in academic output over the last two decades, with particular focus on themes like service quality, trust, usability, responsiveness, and digital security. Co-occurrence and keyword analyses highlight the central role of customer satisfaction in shaping e-banking success. The study uncovers strong interdisciplinary connections between banking, technology, economics, and in-creasingly, accounting, where research on financial reporting, cost efficiency, and regulatory compliance in e-banking remains limited. No-table gaps are also observed in areas such as digital inclusiveness, rural access to e- banking, and empirical evaluation of customer trust in automated services. This review provides a structured overview of the intellectual landscape of e-banking research and offers practical in-sights for scholars, banking professionals, accountants, and policymakers. It concludes with recommendations for future studies to strengthen the integration of financial accountability and customer satisfaction in e-banking environments, supporting innovation, transpar-ency, and inclusive economic development.

Keywords: *E-Banking; Customer Satisfaction; Bibliometric Analysis; Technology; Service Quality.*

1. Introduction

Considering the numerous advantages for both banks and consumers, e-banking has gained significance in the global financial landscape. It lowers expenses, saves time, and offers easy access to banking services [1]. The internet is a vital intermediary in the swift transition from traditional to electronic banking formats, brought about by the adoption of e-banking [1]. Customers can use it to do a variety of tasks at any time and from any location, including paying bills, moving money, and checking account balances [2], [3]. Government initiatives, such as the Saraf Committee and the Rangaranjan Committee, which suggested infrastructural expansion and technology advancements, have aided in the development of e-banking in India [3]. E-banking is predicted to have a big impact on traditional banking services as it develops further and may eventually take the role of in-person cash transactions [2], [3]. The COVID-19 epidemic has sped up the transition to e-banking and changed banking procedures and consumer behavior [4]. In banking services, client happiness is crucial [5]. Customer satisfaction increases customer loyalty, decreases the likelihood of complaints, and increases the likelihood of repeat purchases of banking services and products [6]. Because it is less expensive to keep current clients than to get new ones, banks that put a high priority on customer satisfaction can obtain a competitive edge in the market [6]. Banks should concentrate on enhancing service quality across a variety of channels, including digital platforms like mobile banking and traditional banking, to increase consumer satisfaction [7]. Since it shows continued use and efficacy of e-banking services, customer satisfaction is essential to e-banking management [8]. Quality of service, perception of the brand, perceived value, dependability, efficiency, ease of use, convenience, security, and responsiveness are important aspects that affect customer satisfaction [9], [10]. According to [10], dependability has the biggest influence on customer satisfaction out of all of these. When effectively implemented, e-banking gives banks a competitive edge by improving client satisfaction [10]. Organizations need to continuously measure, develop, and improve their procedures and processes to retain customer satisfaction [11]. As a crucial instrument for strategic business units, measuring customer satisfaction should be a continuous, appropriate, accurate, and consistent procedure [11]. In the banking industry, e-banking has become a vital service that has a big influence on consumer satisfaction. Customer satisfaction and e-banking service quality aspects are closely associated, according to numerous studies conducted in various nations, such as Vietnam, Pakistan, and Lebanon [12], [10]. Reliability, efficiency, responsiveness, ease of use, communication, security, and privacy are important elements that affect consumer satisfaction in e-banking [10]. Customer satisfaction in e-banking has also been found to be predicted by the SERVQUAL model's five dimensions: tangibles, empathy, assurance, responsiveness, and dependability [12]. These

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conclusions are corroborated by a thorough systematic evaluation of current research, which emphasizes the significance of service quality, usability, and performance in assessing client satisfaction with e-banking services [8]. By concentrating on these elements, banks can improve customer satisfaction through e-banking services and obtain a competitive edge. The methodical process of analyzing scientific literature to find trends, patterns, and influence in a topic is known as bibliometric analysis [13], [14]. By using statistical and quantitative methods on scholarly literature, it offers thorough insights into research areas [15]. Finding influential authors, mapping collaboration networks, and spotting new research trends are the three primary goals of bibliometric analysis [15]. By focusing on epistemological, social, and historical analyses, it supports metatheoretical and domain analysis investigations [16]. Data collection, cleansing, and the use of different bibliometric techniques are some of the procedures involved in bibliometric analysis [13]. Large datasets are analyzed and visualized using programs like Bibliometrix, CiteSpace, and VOSviewer [15]. While CNKI is appropriate for research on traditional Chinese medicine, Scopus is suggested for its broader selection of literature when choosing databases for analysis [17]. Numerous facets of the banking sector have been examined in recent bibliometric research. From 2009 to 2019, research on corporate social responsibility (CSR) in banking identified important themes such as Islamic banking, disclosure, and stakeholder involvement [18]. From 1986 to 2021, research trends and significant writers have focused on environmental, social, and governance (ESG) aspects in banking [19]. Analysis of banking mergers and acquisitions (M&A) from 1994 to 2022 has shown publishing patterns, key writers, and potential avenues for future study [20], [21]. There has also been research on the digital transformation of banking, with publications increasing by 18.29% annually between 2009 and 2023 and highlighting important subjects including e-commerce, innovation, and FinTech [22]. These evaluations show new trends in the banking sector and offer insightful information about how the field is developing. The research landscape of bank marketing and e-banking has been extensively examined using bibliometric analysis. Publication patterns, prominent writers, fruitful journals, and important research topics in this area have all been examined in studies [23], [24], [25]. Using databases like Scopus and data visualization tools like VOSviewer are common approaches [23], [24]. Over the past three decades, there has been a substantial increase in research on e-banking, with studies concentrating on developing technologies, consumer behavior, acceptance, and service quality [23], [25]. Relationship marketing, customer happiness, e-banking, and Islamic banking are among the major themes that have been discovered [25]. By emphasizing significant publications, patterns of collaboration, and potential avenues for future research in the sector, these bibliometric studies offer insightful information about the development of e-banking research [23]. For consistency, the term ‘e-banking’ is used throughout this paper to encompass electronic, digital, and e-banking services.

1.1. Accounting implications of e-banking

From an accounting standpoint, e-banking introduces new dimensions in financial reporting, cost control, and regulatory compliance. The adoption of digital platforms shifts fixed infrastructure costs to variable digital costs, influencing how banks allocate expenses across services. Moreover, electronic transactions create extensive digital audit trails, improving internal control and transparency, but also requiring robust data governance frameworks. E-banking also affects the timing and accuracy of revenue recognition, as well as how banks report service fees, digital investments, and risk management costs. These developments highlight the importance of integrating accounting and control system perspectives into the study of e-banking operations. Several studies in accounting literature emphasize that the rise of e-banking affects key financial dimensions, including internal cost structures, revenue recognition, and risk-based audit strategies. E-banking also requires updated frameworks for financial disclosure, particularly for digital asset investments, cybersecurity expenses, and compliance reporting under financial regulations like Basel III or IFRS 9. The integration of e-banking services into traditional accounting control systems creates opportunities and challenges for management accounting, especially in measuring service efficiency and customer profitability [26]-[27]. Recent scholarship in accounting highlights the financial and regulatory implications of digital transformation in the banking sector. E-banking affects internal cost structures, revenue classification, and risk control mechanisms, requiring updated accounting models and disclosure frameworks. For instance, discusses how management accounting must adapt to support strategic decision-making in digital finance, while exploring the impact of fintech adoption on audit effectiveness in e-banking contexts. These studies underscore the need to view customer satisfaction not only through behavioral lenses but also as a function of financial transparency, reporting efficiency, and accounting control systems.
[28]-[29]

2. Materials and methods

2.1. Objectives chart

Table 1: Objectives Chart

Analysis	Research objectives	Research methods
Bibliometric analysis	To explore the landscape of e-banking research	Thematic analysis
	To find out the publication arc of customer satisfaction in e-banking and countries research on it.	Countries scientific production
	To find out the conceptual structure of keywords in banking research	Co-occurrence analysis
	To identify emerging research gaps and themes in customer satisfaction and e-banking literature	Factorial analysis, treemap analysis.

2.2. Search string chart

Table 2: Search String Chart

IN-1	Search string	(TITLE-ABS-KEY ("e-banking") AND TITLE-ABS-KEY (" customer satisfaction")) AND (LIMIT-TO (SRCTYPE , "j") OR LIMIT-TO (SRCTYPE , "k") OR LIMIT-TO (SRCTYPE , "b")) AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "ch") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (LANGUAGE , "English"))
IN-2	Period	2002 to 2024
IN-3	Limiting area	Limited to, Business, Management and Accounting Economics, Econometrics and Finance

		Computer Science Social Sciences Decision Sciences Engineering Psychology Environmental Science Energy Arts and Humanities Pharmacology, Toxicology and Pharmaceutics Mathematics Biochemistry, Genetics and Molecular Biology Nursing Multidisciplinary Earth and Planetary Sciences Chemistry
IN-4	Document type	Limited to Article Limited to Review Limited to book chapter
IN-5	Publication stage	Limited to Final
IN-6	Source type	Limited to Journal, book, book series
IN-7	Language	Limited to English

2.3. Prisma chart

The PRISMA framework illustrates the methodical selection procedure used in the bibliometric review of e-banking and customer satisfaction studies. To provide a thorough longitudinal analysis, the study used the Scopus database, which covers 17 research categories and has a set time span of 2002 to 2025. The TITLE-ABS-KEY phrases "e-banking" and "customer satisfaction" were used in the search strategy to retrieve pertinent literature, and 197 records were first identified and screened. After a thorough eligibility evaluation, 56 records were eliminated for lack of scholarly rigor, irrelevance, or duplication, leaving 141 documents for bibliometric analysis. Journal articles, book chapters, and reviews were all included in the inclusion requirements, guaranteeing a wide range of excellent scholarly works. The collected dataset sheds light on important contributions, topic development, and research trends in the fields of e-banking and customer satisfaction. The PRISMA technique ensures a transparent and repeatable selection procedure, reduces prejudice, and improves the review's methodological rigor. This study provides a structured basis for assessing theme advancements, collaboration networks, and intellectual progress by methodically mapping the research landscape. The results facilitate future study paths and policy implications in financial technology and consumer behavior studies by providing a greater grasp of e-banking trends.

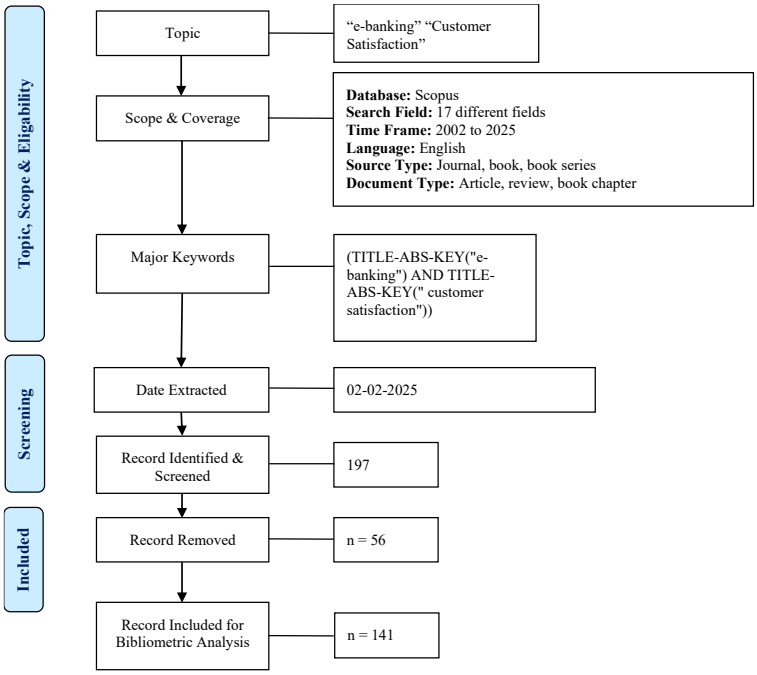


Fig. 1: Prisma Flow Diagram.

3. Results

3.1. Main information of the dataset



Fig. 2: Main Information of the Dataset.

The dataset's bibliometric analysis of research on e-banking and customer satisfaction from 2002 to 2024 offers important insights into the development of this academic field. The field shows a 6.21% yearly growth rate, with a total of 141 publications sourced from 109 different publication sources, suggesting a consistent rise in research interest. While the comparatively small number of single-authored publications (19) indicates a strong collaborative research culture, the 383 authors' contributions demonstrate the diverse nature of this field of study. The worldwide co-authorship rate of 17.02%, which highlights the global academic engagement in comprehending e-banking and consumer happiness, further supports this. A balanced distribution of research collaboration is indicated by the average number of co-authors per document, which stands at 2.86. The existence of 6,796 references highlights the vast body of knowledge underlying this topic, while 365 unique author keywords demonstrate thematic diversity. The average document age of 7.31 years illustrates how historical research continues to influence current investigations. Interestingly, the average number of citations per document is 18.18, demonstrating how influential published studies are in shaping future research. This thorough bibliometric review offers a solid basis for evaluating upcoming developments and locating research gaps in the fields of customer satisfaction and e-banking.

3.2. Average article citations per year

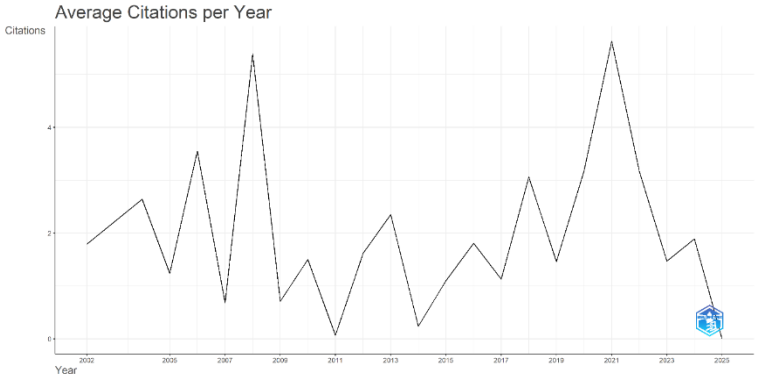


Fig. 3: Average Article Citations Per Year.

The above graph shows variations in scholarly impact throughout time by displaying the trend of average citations each year. Significant peaks and troughs may be seen in the data, which show times of increased academic recognition followed by relative reductions. While the observed decreases may be due to changes in research focus, saturation of existing knowledge, or decreased interest in particular topics, the notable increases in citation counts in some years indicate the publication of highly influential studies that attracted substantial academic attention. The years when important research contributions were produced are highlighted by the peak citation period around 2007 and another notable spike in 2021, highlighting their significance in the academic conversation. Given that newer research frequently takes longer to accrue citations, the current drop in citations after 2023 might be the result of a lag in the citation cycle. This trend analysis gives scholars a better grasp of how citation dynamics change over time and offers insightful information about the changing academic scene. Finding these citation trends is essential for evaluating the significance of the research, directing further studies, and guaranteeing conformity to new academic discussions. The differences also highlight the necessity of continual involvement with current issues in order to preserve scholarly relevance in a constantly changing research environment.

3.3. Most globally cited documents in banking management research

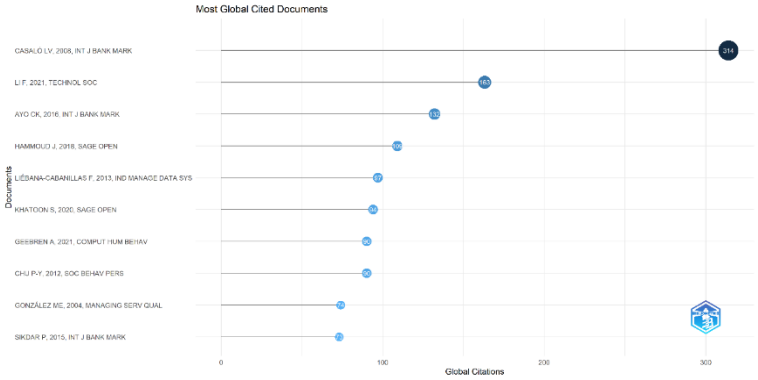


Fig. 4: Most Globally Cited Documents in Banking Management Research.

The bibliometric visualization offers insights into significant scholarly contributions by highlighting the most widely cited papers in the field of study. With 314 citations, Casaló LV's (2008) paper in the International Journal of Bank Marketing is the most mentioned, demonstrating its fundamental influence on banking and marketing research. Subsequently, substantial scholarly interest in e-banking and technological developments is demonstrated by Li F (2021) in Technology in Society, which has 163 citations, and Ayo CK (2016) in the International Journal of Bank Marketing, which has 132 citations. Growing interest in service management and digital consumer behavior is indicated by the presence of Liébana-Cabanillas F (2013) in Industrial Management & Data Systems (97 citations) and Hammoud J (2018) in SAGE Open (109 citations). The multidisciplinary nature of research relating to banking innovations, consumer happiness, and behavior is further supported by the existence of papers by Khatoon S (2020), GeeBren A (2021), and Chu P-Y (2012) with citations ranging from 90 to 94. Furthermore, with citations of 74 and 73, respectively, González ME (2004) and Sikdar P (2015) make significant contributions to banking and service quality research. The changing research landscape is highlighted by this bibliometric analysis, which identifies important scholarly contributions influencing banking, service quality, and digital consumer interactions.

3.4. Most cited countries in banking research

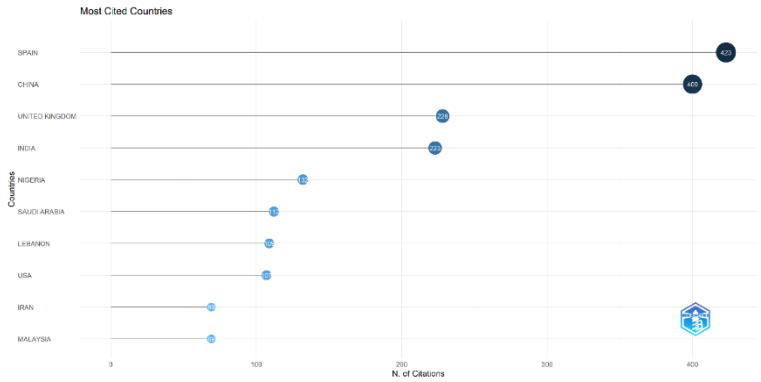


Fig. 5: Most Cited Countries in Banking Research.

With 423 citations, Spain is the top contributor, followed closely by China with 400, according to the bibliometric analysis of the most referenced nations, which offers a critical viewpoint on the influence of research worldwide. This emphasizes how important Chinese and Spanish research outputs are in the field under study. India (223 citations) and the United Kingdom (228 citations) both stand out as important knowledge producers, highlighting their contributions to the advancement of academic debate. With 132 citations, Nigeria demonstrates the increasing influence of research, especially in developing nations. Notable citation influence is also shown by the USA (107 citations), Saudi Arabia (112 citations), and Lebanon (109 citations), indicating that research contributions are becoming more diverse outside of conventional Western strongholds. The inclusion of Malaysia and Iran, each with 69 citations, highlights the growing scientific footprint of developing countries. With growing contributions from non-Western nations, especially Asia and Africa, this bibliometric visualization shows a dynamic shift in research production and impact. According to the statistics, the academic scene has become more international, with regional studies and cross-border cooperation fostering a more thorough comprehension of the advances and problems of modern research. Spain and China's supremacy, together with the UK, India, and emerging nations' substantial presence, highlights how the regional distribution of scholarly impact is changing.

3.5. Source impact analysis in banking management literature

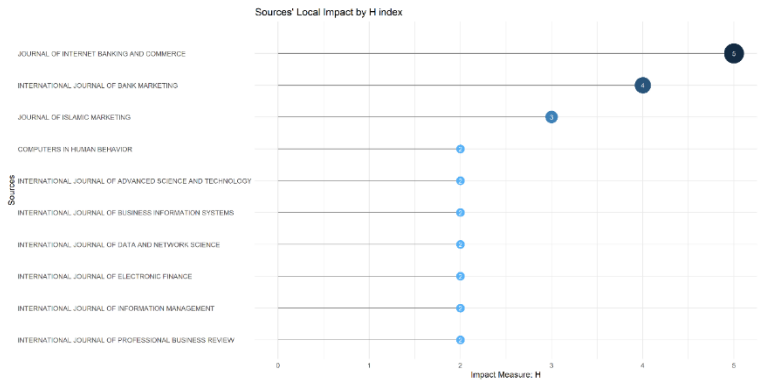


Fig. 6: Source Impact Analysis in Banking Management Literature.

A bibliometric evaluation of journal influence within a particular study topic is provided by the visualization, which shows the local impact of academic sources based on the H-index. With an H-index of 5, the Journal of e-Banking and Commerce has the highest local impact, indicating its popularity in publishing research that is frequently cited. The International Journal of Bank Marketing comes in second, with an H-index of 4, confirming its position as a major publication in marketing and finance research. The Journal of Islamic Marketing's significance in the nexus of Islamic financial studies and marketing is highlighted by its H-index of 3. The International Journal of Advanced Science and Technology, the International Journal of Business Information Systems, the International Journal of Data and Network Science, and Computers in Human Behavior, on the other hand, all have an H-index of 2, indicating that they contribute to specialized scholarly discourse. The stratification of journal impact is highlighted by this bibliometric depiction, where certain sources have a greater influence within the dataset under study. This kind of study is essential for directing researchers to high-impact journals, supporting strategic publication choices, and comprehending patterns of information transmission in the academic environment. The visualization supports scholarly communication and research evaluation by being in line with bibliometric approaches to evaluate journal relevance.

3.6. Most relevant authors contributing to banking management research

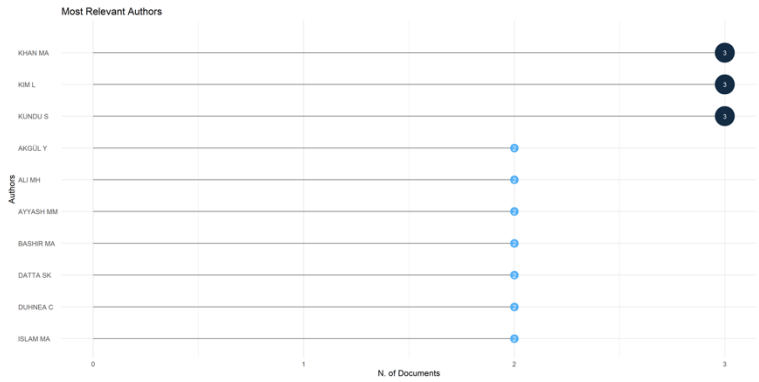


Fig. 7: Most Relevant Authors Contributing to Banking Management Research.

Based on how many documents they have contributed to a certain field of study, the visualization shows the most pertinent writers. The graph, which depicts a hierarchical distribution of research output, successfully displays the scholarly influence of individual authors. Notably, with three publications apiece, Khan MA, Kim L, and Kundu S stand out as the most active contributors, demonstrating their significant contribution to the field's conversation. Akgül Y, Ali MH, Ayyash MM, Bashir MA, Datta SK, Duhnea C, and Islam MA are among the secondary group of authors who have contributed two documents apiece, demonstrating their active involvement in scholarly dissemination. This distribution is consistent with bibliometric principles, which state that a small group of writers typically produce a greater number of publications, indicating their topic expertise and level of academic activity. These author-based productivity indicators are essential for mapping scholarly networks, identifying prominent contributors, and comprehending research trends. Furthermore, by identifying important thought leaders advancing intellectual advancement, these insights help direct institutional research agendas and academic collaborations. The pattern highlights the importance of author-level bibliometric analysis in assessing scholarly contributions and promoting a more thorough understanding of the diffusion of research in specialized fields.

3.7. Most relevant affiliations in banking management studies

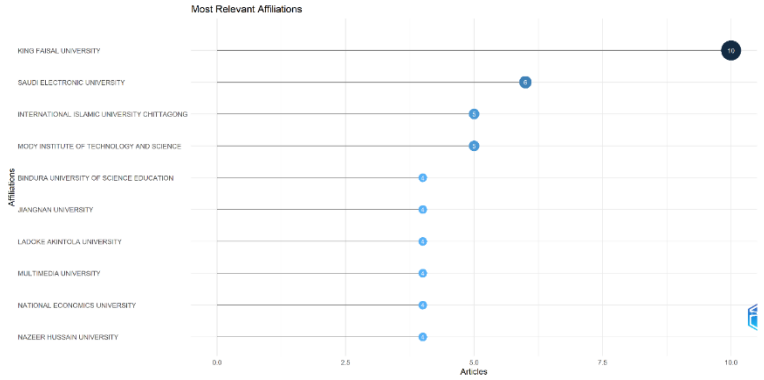


Fig. 8: Most Relevant Affiliations in Banking Management Studies.

Based on the quantity of research publications published, the visualization displays the most pertinent academic affiliations that contribute to the corpus of scholarly writing. With 10 publications, King Faisal University stands out as the most productive, highlighting its pivotal role in promoting scholarly conversation. Saudi Electronic University comes in second with six papers, indicating a high level of research activity. As evidence of their active involvement in knowledge production, other institutions like Bindura University of Science Education, Mody Institute of Technology and Science, and the International Islamic University Chittagong each provide five or four articles. The inclusion of organizations from a variety of geographic areas, such as Asia, Africa, and the Middle East, emphasizes how academic research is becoming more international and how universities are becoming more important outside of their traditional Western bastions. The comparatively even distribution among institutions also suggests that scientific contributions are becoming more accessible, with new research centers becoming more prominent in academic production. The results indicate that to increase the impact of academic initiatives, it is necessary to leverage multidisciplinary research and cultivate institutional collaborations. This graphic offers a thorough overview of the organizations influencing current research environments, highlighting the expanding role of universities in emerging nations in advancing science worldwide.

3.8. Country scientific production in banking research

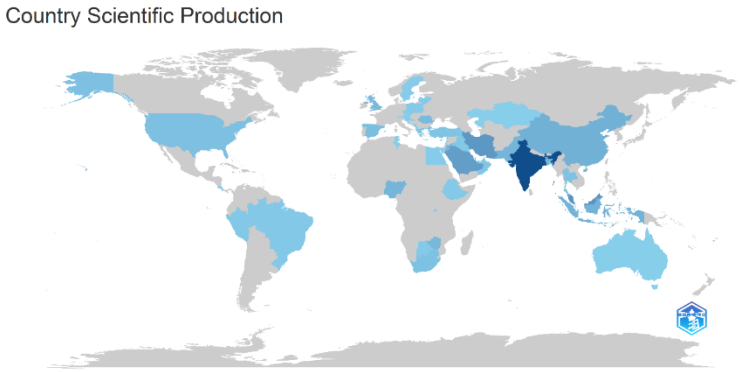


Fig. 9: Country Scientific Production in Banking Research.

The country-by-country scientific production visualization shows how research output is distributed globally, emphasizing areas that have made substantial contributions to academic publications. The number of research papers is shown by the intensity of the blue coloring; better scientific productivity is represented by darker hues. India stands out as a significant donor, which is indicative of its growing research ecosystem and rising scholarly interest in a range of fields. Significant research production is also demonstrated by other important countries, such as China, the US, the UK, and several European and Asian nations, supporting their long-standing positions in the international academic community. Although the lighter tones denote comparatively lesser publishing numbers compared to leading research-producing nations, the inclusion of contributions from regions in Africa, South America, and the Middle East suggests a broader engagement in scientific pursuits. The geographical distribution of scientific output highlights how the dynamics of knowledge development are changing globally, with emerging economies gradually increasing their capacity for research. This trend promotes a more diverse and inclusive academic environment by signifying the increasing democratization of scientific contributions outside the historically dominant Western countries. The information also emphasizes how important global cooperation and information sharing are in forming modern research paradigms in many fields.

3.9. Country collaboration network in banking management

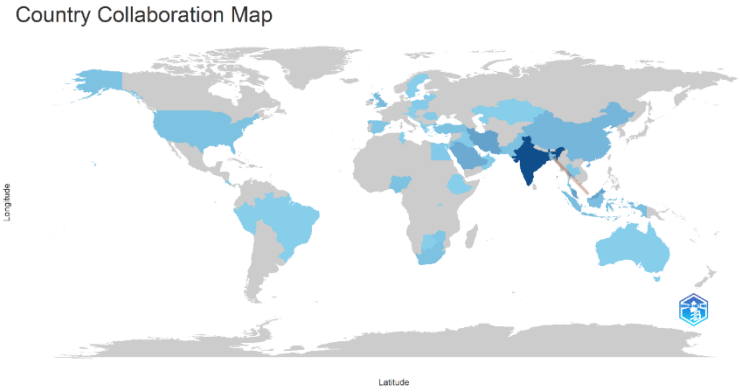


Fig. 10: Country Collaboration Network in Banking Management.

With different hues of blue signifying differing degrees of scholarly engagement across nations, the image's Country Collaboration Map offers a visual picture of worldwide research collaborations. The deepest shade, which is most noticeable in India, denotes a high level of scholarly cooperation and reflects its pivotal position in research networks. Moderate to low research interactions are shown by lighter tints over several locations, including North America, Europe, the Middle East, and portions of Africa and Asia. The map is an essential bibliometric tool for evaluating the interconnectedness of research around the world, locating important knowledge production centers, and exposing differences in academic participation. The existence of cooperative ties, especially between India and other countries, emphasizes how crucial transnational research collaborations are to solving global issues. This graphic is in line with current scientometric research trends, which highlight how international cooperation can boost research impact, encourage innovation, and raise scholarly awareness. The reliability and institutional support of the data presented are further emphasized by the research insignia in the lower right corner. These collaboration maps, which are produced by bibliometric software such as Biblioshiny or VOSviewer, are very helpful in evaluating research, allocating funds, and formulating policies. They also help academics and policymakers establish strategic worldwide alliances for the progress of knowledge.

3.10. Co-occurrence analysis using biblioshiny

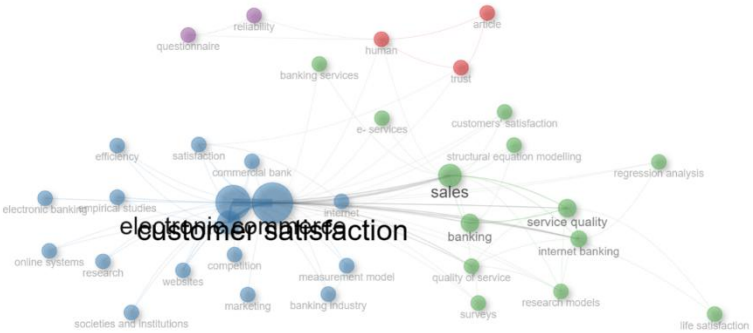


Fig. 11: Co-Occurrence Analysis Using Biblioshiny.

Using emphasizing important themes and their relationships, the network visualization produced using bibliometric analysis software shows the conceptual framework of studies on customer satisfaction in the banking industry. With numerous connections to crucial concepts like "service quality," "sales," "trust," and "banking services," the prominent placement of "customer satisfaction" and "electronic banking" in the center of the network indicates their pivotal importance in academic discourse. The blue cluster, which stands for empirical and technological characteristics like "efficiency," "websites," "competition," and "online systems," indicates the expanding relevance of e-banking platforms in improving the customer experience. This clustering of phrases reveals various thematic topics. The green cluster, which includes "banking," "service quality," and "structural equation modeling," emphasizes the methodological techniques used to evaluate factors that influence satisfaction. The red cluster, which includes the terms "trust," "human," and "article," shows how consumer attitudes and scholarly work have shaped this field. The existence of "research models" and "life satisfaction" points to wider societal ramifications, highlighting the importance of financial services for general well-being. A useful tool for detecting research gaps, leading future empirical investigations in banking and customer experience, and informing policy creation, this bibliometric mapping offers a thorough overview of knowledge structures and developing research trajectories. Keyword co-occurrence map based on author keywords from 2002 to 2024, generated using VOSviewer (minimum occurrence = 5). The clusters indicate the most prominent research themes, including e-banking, customer satisfaction, digital transformation, and technology acceptance, revealing thematic intersections within the literature.

3.11. Word tree map analysis for banking research trends

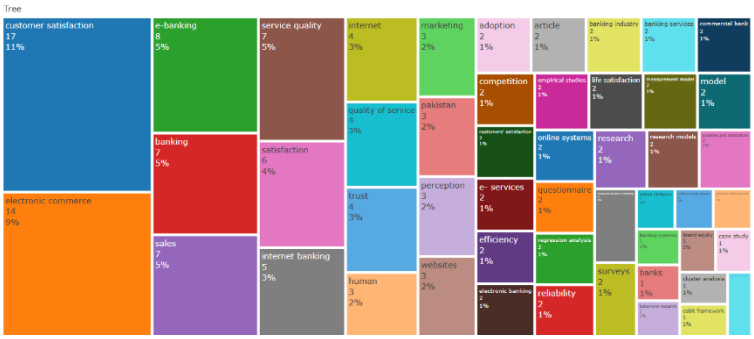


Fig. 12: Word Tree Map Analysis for Banking Research Trends.

The image's treemap depiction shows how study subjects are distributed thematically across the domain, emphasizing their relative importance and frequency. With 11% of all occurrences, "customer satisfaction" stands out as the most popular research topic. "Electronic commerce" (9%) and "e-banking" (5%), on the other hand, follow closely behind, suggesting that e-banking and consumer-centric studies are receiving a lot of scholarly interest. Additional noteworthy subjects that contribute 5% each are "banking," "sales," and "service quality," all of which are crucial to financial and marketing research. Subjects like "trust," "quality of service," and "internet banking" (all at 3%), for example, point to a continuing scholarly discussion about customer perceptions and the dependability of digital transactions. Emerging themes, including "competition," "adoption," "empirical studies," and "efficiency" (all at 1%), as well, also point to changing research interests in operational effectiveness and market dynamics. The use of geographically specific terminology such as "Pakistan" suggests that the work has a regional focus. The visualization provides insights into knowledge structures and gaps in the field by identifying dominating and peripheral research themes using bibliometric analysis. These evaluations are essential for directing subsequent research, allowing academics to coordinate their efforts with prevailing trends while addressing underexplored areas for scholarly advancement. Thematic evolution of frequently used keywords from 2002 to 2024, illustrating the growth of conceptual focus from early terms like electronic banking and ATM services toward more recent themes such as e-banking, mobile apps, and customer experience. The progression reflects the shift in technological integration and user expectations in the e-banking landscape.

3.12. Most relevant keywords in banking management literature

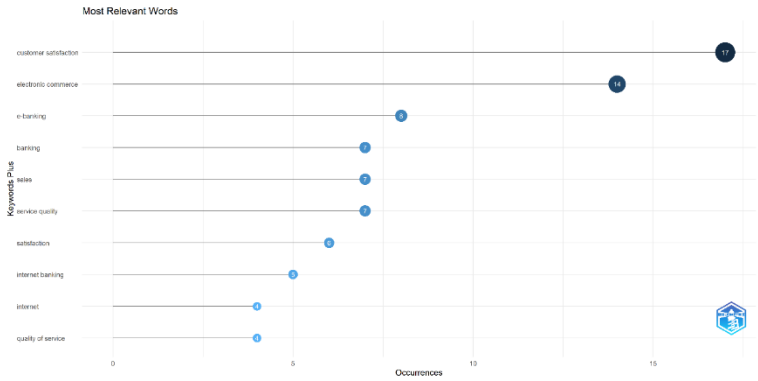


Fig. 13: Most Relevant Keywords in Banking Management Literature.

The most pertinent keywords in current research are highlighted in the bibliometric visualization, with "electronic commerce" (14 occurrences) and "customer satisfaction" (17 occurrences) emerging as the main themes. These results highlight how customer behavior and digital transactions in the e-commerce space are receiving more attention from academics. Strong scholarly interest in digital financial services and their effects on banking efficiency is shown by the terms "e-banking" (8 occurrences) and "banking" (7 occurrences). Furthermore, the significant frequency of "sales" (7 occurrences) and "service quality" (7 occurrences) illustrates how important marketing and superior customer service are to the success of any organization. The significance of the consumer experience in the digital economy is further reinforced by the term "satisfaction" (6 occasions). A rising number of studies on technical improvements and their effects on customer trust and service delivery is suggested by other noteworthy keywords, including "internet banking" (5 occurrences), "internet" (4 occurrences), and "quality of service" (4 occurrences). In the fields of e-banking, service management, and electronic commerce, this bibliometric depiction offers insightful information about current research trends, enabling academics to spot gaps and possible directions for further study. In today's academic debate, these topics collectively highlight the importance of technology-driven customer satisfaction and company performance.

3.13. Thematic map of banking management research

The thematic map presented in the image offers a bibliometric visualization of the conceptual structure within a specific research domain, segmented into four quadrants based on development degree (density) and relevance degree (centrality). The upper-right quadrant represents motor themes, indicating well-developed and significant research areas, with "customer satisfaction," "electronic commerce," and "e-banking" emerging as highly relevant topics. The upper-left quadrant signifies niche themes, featuring specialized but less central themes like "banking services," "commercial bank," and "customers' satisfaction," which contribute to domain-specific advancements. The lower-right quadrant encompasses basic themes, foundational to the research field, including "competition," "electronic banking," and "empirical studies," signifying their essential role in academic discourse. The lower-left quadrant highlights emerging or declining themes, represented by "perception" and "life satisfaction," suggesting either nascent research areas or diminishing scholarly interest. The presence of "trust" and "adoption" near the intersection signifies their moderate development and importance, potentially indicating transitional research themes. Such thematic mapping, often derived from co-word analysis using bibliometric tools like Biblioshiny or VOSviewer, serves as a strategic tool for scholars to identify prevailing trends, gaps, and future research trajectories, thereby facilitating a deeper understanding of the intellectual landscape and guiding subsequent scholarly contributions.

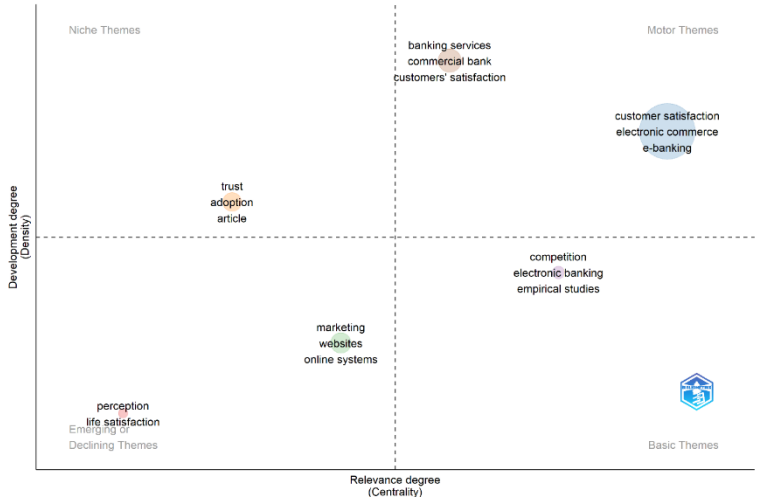


Fig. 14: Thematic Map of Banking Management Research.

3.14. Citation analysis using VO Sviewer

Key writers and their relative influence within the field of study are highlighted in the bibliometric visualization created with VOSviewer, which displays a density map of scholarly contributions. Higher-intensity clusters represent often referenced works or central contributions, whereas the heatmap distribution shows the significance of individual experts. Interestingly, the most powerful clusters center on writers like Liébana-Cabanillas (2013), Hammoud (2018), and Ayo (2016), indicating their fundamental importance in forming the scholarly conversation. Recent contributions are shown by up-and-coming academics like Al-Nidawi (2024), Kashyap (2024), and Gazi (2025),

highlighting how the research scene is constantly changing. While scattered nodes, like those connected to Angusamy (2022) and Samadi (2016), indicate ancillary but significant contributions, the co-occurrence of writers like Khan (2022) and Mohapatra (2024) shows cooperative efforts or thematic convergence. A more sophisticated comprehension of citation trends and knowledge diffusion is made possible by the visualization's good depiction of the field's collaborative networks and scholarly impact. A systematic evaluation of the field's intellectual development throughout time is made possible by these analyses, which are essential for locating important works, possible research gaps, and emerging themes. The field's future orientations, disciplinary crossovers, and research trajectories may all be empirically evaluated using this bibliometric mapping.

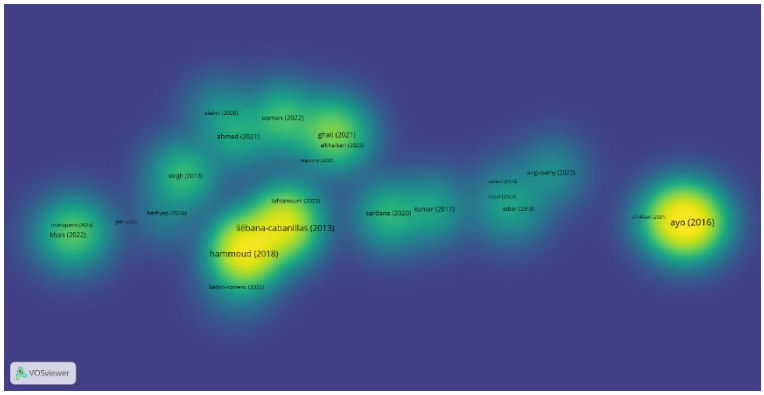


Fig. 15: Citation Analysis Using VOSviewer.

3.15. Bradford's law of literature dispersion in banking research

The visualization illustrates the concentration of high-impact articles in a particular study subject by applying Bradford's Law to identify core sources within the reviewed body of literature. The "core sources," which produce the most articles, are marked by the darker area, signifying their importance in the field's information dissemination. As the most widely used sources, the Journal of e-Banking and Commerce, the International Journal of Business, and the Journal of Islamic Marketing are positioned to confirm their importance in academic discourse. According to Bradford's theory that the literature in a field is unequally dispersed throughout journals, the sharp drop in the curve following the core zone represents the distribution of articles across peripheral sources. By focusing on journals with the greatest research relevance, the bibliometric mapping of core sources helps researchers find high-yielding journals, improves literature review techniques, and fortifies scholarly contributions. The hierarchical nature of information distribution is highlighted by this analysis, which shows that many journals contribute intermittently to research output, while a small number of journals dominate it. Finding key sources is essential for organizing systematic reviews and meta-analyses and guaranteeing thorough interaction with the body of literature in the field under study.

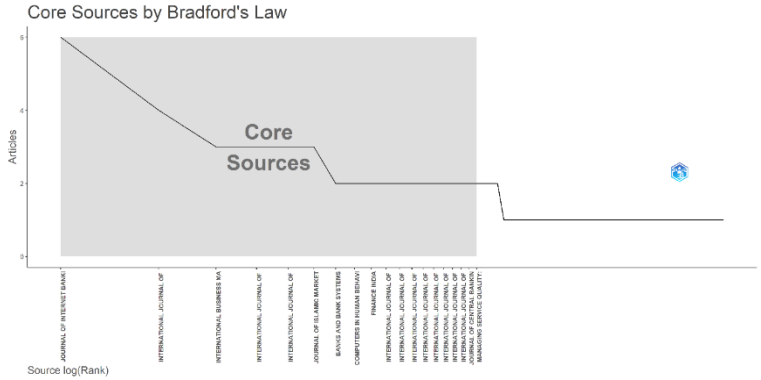


Fig. 16: Bradford's Law of Literature Dispersion in Banking Research.

3.16. Lotka's law of author productivity in banking studies

The visualization illustrates author productivity through the lens of Lotka's Law, a fundamental principle in bibliometric analysis that describes the inverse relationship between the number of authors and their scholarly output. The distribution indicates that most authors contribute only a single publication, while a progressively smaller proportion of researchers produce multiple documents. The steep decline observed in the graph aligns with Lotka's formulation, which posits that the number of authors publishing n papers is inversely proportional to n^2, reinforcing the notion that a few highly prolific authors dominate scholarly contributions. The solid and dashed lines represent the observed and theoretical distributions, respectively, providing insight into the conformity of the dataset to Lotka's expected trend. The visualization underscores the concentration of academic productivity among a limited number of researchers, highlighting the importance of prolific authors in shaping the intellectual landscape of a given research domain. Such findings have significant implications for research evaluation, collaboration networks, and the diffusion of scientific knowledge, particularly in emerging disciplines. The conformity to Lotka's Law also suggests that targeted academic incentives and institutional policies should consider the distribution of scholarly contributions to foster a more inclusive and diversified research ecosystem.

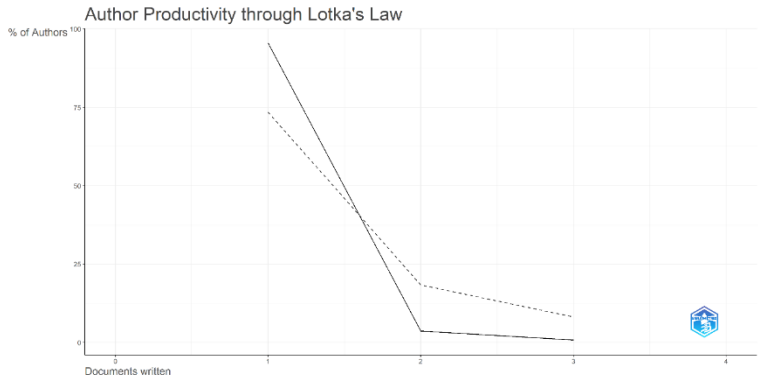


Fig. 17: Lotka's Law of Author Productivity in Banking Studies.

3.17. Most relevant sources in banking management research

The visualization delineates the most relevant sources contributing to the body of literature in the studied domain, highlighting the concentration of scholarly output across various journals. The Journal of Internet Banking and Commerce emerges as the predominant source, featuring the highest number of published documents (n=6), underscoring its centrality in disseminating research insights. Following this, the International Journal of Bank Marketing holds significant relevance with four documents, while the International Business Management, International Journal of Advanced Science and Technology, and the International Journal of Scientific and Technology Research each contribute three documents. The inclusion of journals such as the Journal of Islamic Marketing, Banks and Bank Systems, and Computers in Human Behavior, albeit with fewer publications, reflects the interdisciplinary nature of research in this domain. The distribution of documents across these sources aligns with bibliometric principles, illustrating how core journals dominate scholarly discourse while a broader range of secondary sources contribute to niche aspects of the field. This analysis aids researchers in identifying high-impact sources for literature review and publication strategies, facilitating more targeted engagement with authoritative journals. The findings contribute to a deeper understanding of the knowledge structure and dissemination patterns within the research area.

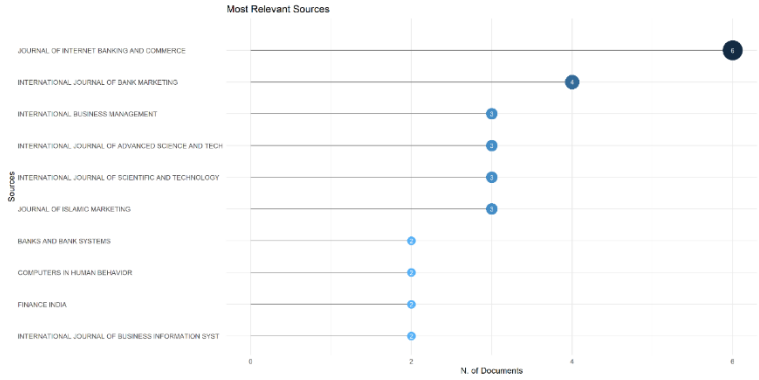


Fig. 18: Most Relevant Sources in Banking Management Research.

3.18. Three-field plot analysis: authors, keywords, and sources

The three-field plot visualizes the intricate relationships between cited references (CR), authors (AU), and derived themes (DE) within the domain of service quality and electronic banking research. The interconnectedness between foundational theories and contemporary research trends is evident, with seminal works such as Davis et al.'s (1989) Technology Acceptance Model (TAM) and Parasuraman et al.'s (1988) SERVQUAL model serving as crucial theoretical underpinnings. These references are extensively cited by multiple authors, reinforcing their enduring impact on service quality assessment in e-banking environments. The middle section (AU) highlights prolific scholars contributing to the field, establishing the intellectual trajectory from classical service quality constructs to contemporary applications in e-banking services. The rightmost section (DE) encapsulates dominant themes such as customer satisfaction, service quality, reliability, and electronic banking, reflecting the evolving research focus towards consumer perceptions and technology-driven financial services. The strong linkages between authors and key themes suggest a research landscape that is deeply rooted in established theories while progressively adapting to digital advancements. This bibliometric visualization provides a comprehensive understanding of knowledge dissemination patterns, aiding researchers in identifying influential studies, emerging trends, and potential areas for future exploration in service quality and electronic banking research.

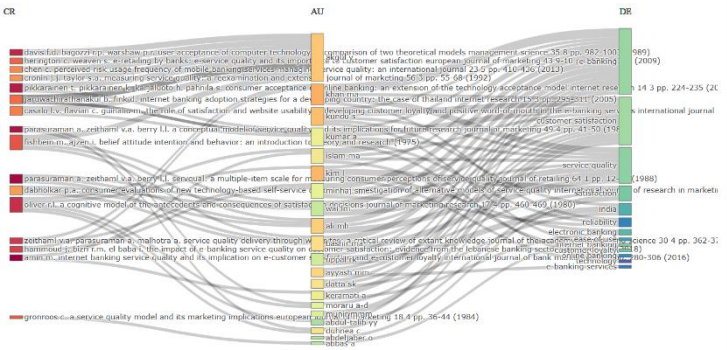


Fig. 19: Three-Field Plot Analysis: Authors, Keywords, and Sources.

3.19. Annual scientific production in banking management research

The annual scientific production graph shows the dynamic trends in scholarly contributions and offers a thorough picture of the research output over time. A growing academic interest in the topic is indicated by the data, which show a period of minimal publication activity followed by a gradual growth. Significant increases in scientific output around 2012 and a notable peak between 2020 and 2023 point to times of heightened research effort, which may have been prompted by new trends, changes in policy, or more financing. The notable oscillations highlight how the academic landscape is dynamic and how outside variables like world events, institutional priorities, and technology developments impact publication trends. Publication backlogs, cyclical research funding patterns, or changes in academic focus toward new multidisciplinary topics could all be responsible for the reduction seen in recent years. Comprehending these patterns is essential for evaluating the study field's development trajectory, spotting gaps in the body of literature, and developing plans for upcoming scholarly contributions. Researchers and policymakers can use the insights gained from this analysis as a basis to maintain the pace of scientific production, which will promote ongoing developments and the sharing of knowledge among academics.

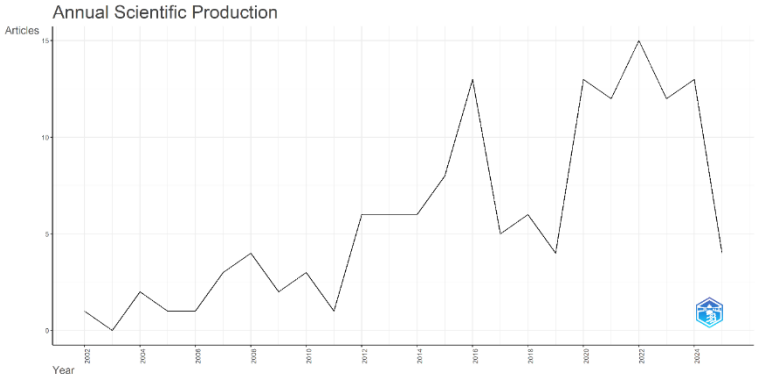


Fig. 20: Annual Scientific Production in Banking Management Research.

4. Findings and discussion

The bibliometric analysis revealed several significant trends and insights into the field of e-banking and customer satisfaction. Over the period from 2002 to 2024, there has been a consistent increase in research interest, with an annual growth rate of 6.21% and a total of 141 publications analyzed. This upward trend reflects the growing importance of e-banking platforms in the global financial system and the increasing scholarly focus on enhancing customer experience through technological innovation. Key research themes identified through co-occurrence and keyword analysis include service quality, trust, usability, security, and customer loyalty. Tools such as VOSviewer and Biblioshiny showed that “customer satisfaction” and “e-banking” are central nodes in the research network, linked with concepts like “service quality,” “trust,” and “ease of use.” These findings indicate that researchers are increasingly examining how technical and experiential elements of e-banking services impact user satisfaction. Geographically, countries such as Spain, China, India, and the United Kingdom lead in research output and citations. Spain had the highest global citations, indicating strong scholarly influence, followed closely by China. India’s prominence in scientific production and its extensive collaboration network suggest a vibrant research ecosystem focused on digital financial services. The citation and authorship analysis highlight influential contributors such as Casaló, Ayo, and Hammoud, whose work on banking service quality and digital consumer behavior continues to shape the academic discourse. Notably, institutions such as King Faisal University and Saudi Electronic University emerged as leading affiliations in terms of publication output. Thematic analysis using treemaps and word clouds reinforced the prominence of topics like “customer satisfaction,” “service quality,” and “electronic commerce.” These were also observed in the thematic map, where such themes occupied the ‘motor themes’ quadrant, signifying their centrality and development within the field. Despite the robust development in literature, certain gaps remain underexplored. While prior research has explored customer satisfaction and user experience, relatively few studies have examined how e-banking innovations are reflected in accounting measures such as cost-to-income ratios, transaction-level profitability, or non-interest income reporting. This gap suggests the need to link e-banking outcomes more directly with financial reporting structures and operational accounting benchmarks used by banking institutions. Research on digital inclusiveness, rural penetration of e-banking, user trust in automated banking systems, and compliance with regulatory frameworks in ebanking environments is relatively limited. Moreover, although the importance of cost-efficiency and financial performance is implicit in several studies, explicit links between e-banking and accounting metrics (such as profitability, transparency, and reporting practices) are still underdeveloped. This discussion underscores the multidisciplinary nature of the field, where finance, technology, and consumer behavior intersect. However, future studies must incorporate more accounting-focused analyses, such as how e-banking impacts operational costs, internal controls, or financial disclosures. For accounting professionals and internal

auditors, the expansion of e-banking requires updated control systems, real-time reconciliation tools, and adaptive financial reporting processes. Banks should ensure that their digital channels are not only efficient but also aligned with transparent financial statements, cost accountability, and performance tracking metrics. Future research can investigate how accounting practices evolve to accommodate these demands in e-banking operations. The bibliometric results reveal several underexplored themes in the e-banking literature. Also, the Table 3 shows the key findings. Notably, topics such as digital financial inclusiveness, auditability of e-services, and the role of accounting control systems in e-banking are relatively less studied. Additionally, there is limited research linking customer satisfaction outcomes to financial performance indicators such as cost-to-income ratios or non-interest income. Cross-country comparative studies addressing regulatory variations and their economic implications are also scarce. These gaps highlight opportunities for future research that integrates technology adoption models with accounting and economic frameworks to better understand the impact of e-banking on financial transparency, operational efficiency, and stakeholder accountability.

Table 3: Major Findings

Category	Highlights
Top Authors	Casaló LV, Hammoud J, Khan MA, Kim L, Ayo CK
Major Themes	Customer satisfaction, service quality, trust, usability, and digital security
High-impact Countries	Spain, China, India, UK, Nigeria
Leading Institutions	King Faisal University, Saudi Electronic University, International Islamic University Chittagong
Core Journals	Journal of Internet Banking and Commerce, International Journal of Bank Marketing, Journal of Islamic Marketing
Identified Gaps	Limited accounting perspective (e.g., cost-efficiency, auditability) – Underexplored link between satisfaction and financial performance – Sparse studies on digital inclusiveness and regulatory compliance in e-banking
Recommended Future Directions	Integrate financial reporting and customer experience metrics – Explore accounting control systems in digital banking – Conduct cross-country comparative studies on e-banking regulation

5. Conclusion

This bibliometric analysis presents a comprehensive overview of the research landscape in e-banking and customer satisfaction from 2002 to 2024. It identifies a steady rise in academic interest, especially post-2010, with an increasing number of publications addressing themes such as service quality, trust, usability, and security. The integration of tools like VOSviewer and Biblioshiny enabled the identification of key authors, institutions, journals, and thematic clusters that have shaped this domain. The results underscore the dominance of terms such as "customer satisfaction," "service quality," and "e-banking," highlighting their centrality in e-banking research. Countries like Spain, China, India, and the UK have emerged as leaders in scholarly output and influence, reflecting the global relevance of the topic. Influential authors such as Casaló and Hammoud have significantly contributed to the understanding of digital service dynamics, while institutions from Asia and the Middle East have become increasingly active in shaping the research agenda. Despite the field's maturity, several research gaps persist. The analysis revealed underexplored areas such as digital inclusiveness, rural accessibility of banking services, regulatory compliance in digital environments, and the linkage between e-banking service delivery and organizational financial performance. These gaps present opportunities for future studies to focus on the accounting and economic implications of e-banking adoption, including cost-efficiency, internal financial controls, risk management, and the transparency of online financial reporting. For policymakers and banking practitioners, the findings provide actionable insights into prioritizing customer-centric digital strategies. Enhancing user satisfaction through seamless service delivery, ensuring data security, and expanding access to marginalized populations should remain strategic priorities. Future research should aim to bridge interdisciplinary domains by integrating accounting and financial performance analyses with digital service innovation. Future studies could explore how e-banking systems impact financial governance, audit risk assessment, and compliance mechanisms in emerging markets. There is also a need for research into how digital transformation influences financial inclusion and cost structures in the banking sector, particularly in low- and middle-income countries. These directions would contribute to a more comprehensive understanding of the financial and regulatory dynamics of e-banking. Longitudinal empirical studies, industry-specific benchmarking, and country-level comparisons could further enhance the understanding of how e-banking impacts customer satisfaction, regulatory outcomes, and economic resilience. In conclusion, e-banking and customer satisfaction continue to evolve as critical domains within financial services and digital transformation. A more nuanced, accounting-oriented, and inclusive research agenda is essential to support both scholarly development and practical innovation in this rapidly shifting landscape.

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