

Behavioural Factors Influencing Retail and Digital Banking: A Comprehensive Bibliometric Analysis

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Abstract

The fast evolution of retail and digital banking has heightened academic attention on why behavioural variables serve to determine consumer interest in the use of financial technologies. This paper is a thorough bibliometric and thematic review of 331 peer-reviewed journal articles to trace the intellectual framework, research patterns, and themes development in this field. The research analyses the publication tendencies, the most active authors, institutions, collaborative networks, as well as the most popular groups of keywords using Scopus-indexed materials and analytical tools (VOSviewer and Bibliometrix). The results demonstrate that there is significant expansion of research productivity, especially in the last two years, and this indicates more global interest in fintech, mobile banking, digital payments, and user behavioural patterns. The analysis of co-occurrence and co-authorship points to the main behavioural driving factors, including trust, perceived usefulness, ease of use, perceived risk, intention to use, and technological readiness, which are the primary themes on the nature of digital banking adoption. Thematic clusters also suggest an interdisciplinary meeting point of behavioural finance, technology acceptance theories (TAM, UTAUT, TPB), and new financial services such as AI-enabled services, CBDCs, and Islamic fintech. The work is relevant to the literature because it provides a systematic overview of the available studies and points out some most significant tendencies, gaps, and patterns of cooperation. The learnings offer useful lessons to researchers, financial institutions, and policymakers that want to improve the digital financial inclusiveness, user trust, and create behaviourally informed fintech solutions.

Keywords- Behavioural Finance; Digital Banking; Retail Banking; FinTech Adoption; Mobile Banking; Technology Acceptance Model (TAM); Unified Theory of Acceptance and Use of Technology (UTAUT); Consumer Behaviour; Perceived Risk; Trust; Financial Inclusion; Bibliometric Analysis; Thematic Evolution; Scopus Database; Digital Financial Services.

1. Introduction

Over the recent decades, the banking industry has experienced a dramatic change due to a digital transformation, evolving consumer expectations, and the evolving financial behaviour. It has become important to understand the behavioural elements in retail and online banking as consumers turn more to cognitive shortcuts, emotions, trust, risk perceptions, and digital literacy in deciding on money-related matters. A combination of behavioural finance and banking studies is a more complex explanation of the role of psychological biases in savings, borrowing, digital adoption, investment decisions, and overall financial well-being (Kahneman and Tversky, 1979; Thaler, 2016).

The behaviour of a retail banking is influenced by various factors including trust, quality of service, perceived security, convenience and intent to switch. Research indicates that the choices that customers make in both the traditional and digital banking sectors are frequently not necessarily guided by logical assessment, but also by heuristics and biases like loss aversion, anchoring, mental accounting, and overconfidence (Kahneman, 2011; Barberis, 2018). These behavioural factors greatly influence the preference of customers to the products in the form of savings accounts, credit cards, loans, and insurance and behavioural analysis is a vital component of the banking strategy (Shefrin, 2002).

The sudden digitisation of financial services such as mobile banking, internet banking, e-wallets and fintech platforms have enhanced the need to study behavioural factors even further. Perceived usefulness, ease of use,

trust in technology, perceived risk, and customer preparedness in innovation are critical in the adoption of digital banking (Davis, 1989; Venkatesh et al., 2003). According to research, behavioural determinants like technology anxiety, reliance on digital interfaces, habit formation, and social influence are in the core focus of consumer acceptance and further usage of digital financial services (Gomber et al., 2018; Alt and Puschmann, 2016).

With the increased research in the field of behavioural finance and banking, the overall synthesis of research trends, concepts that have played a key role, intellectual frameworks and changing thematic clusters has yet to be provided. In terms of science mapping, co-authorship analysis, co-occurring keyword, citation network, and thematic evolution, bibliometric analysis allows a scholar to understand the development, patterns, and emerging trends of a research field (Aria and Cuccurullo, 2017; Donthu et al., 2021). Using bibliometric techniques, it is feasible to find out the prevailing behavioural themes in retail and digital banking, such as customer trust, mobile banking acceptance, financial literacy, risk perception, service experience, and behavioural biases in financial decision-making.

The research will be used to bridge the gap by providing a thorough bibliometric and thematic evolution review of behavioural determinants affecting retail and online banking based on data found in Scopus. It will be aimed at mapping the intellectual terrain, identifying influential authors and journals, unravelling knowledge structures, and identifying emerging themes at the nexus between behavioural finance and banking. This will also lead to a more academic insight as well as provide meaningful information to the policymakers, banks, fintech companies and behavioural researchers who want to learn about the customer behaviour in a rapidly digitalising financial world.

2. Literature Review

The swift development of financial technology has altered consumer behaviour, finance decision making and the form of the contemporary banking systems and thus behavioural finance has become a vital prism in which digital financial adoption has to be perceived. The behavioural determinants including trust, perceived usefulness, perceived ease of use, self-efficacy, perceived risk, financial literacy, social influence, and demographic moderators appear to be the key drivers of digital banking, fintech, mobile banking, robo-advisory, and digital payment adoption found in the global literature. The growing technological complexity due to the development of AI-based, mobile-based, and algorithmic financial systems has made the psychological and behavioural reactions of consumers even more salient (Alkadi and Abed, 2023; Eichler and Schwab, 2024; Kulkarni et al., 2025). There is also a growing trend in the use of behavioural finance, where it is observed that researchers study the effects of cognitive biases and emotional influences on the choices of technology adoption in finance (Sunil and Sathish Kumar, 2025; Kulkarni et al., 2025).

Empirical studies based on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT/UTAUT2) have shown that the perceived usefulness (PU) and perceived ease of use (PEOU) have a considerable impact on behavioural intention in digital financial ecosystems (Tikku and Singh, 2023; Nguyen et al., 2023; Kurniawan et al., 2024). These associations are reiterated in a variety of settings that include Islamic digital banking (Yaseen et al., 2022; Riza and Wijayanti, 2024), mobile financial services (Anantha Lakshmi and Saldanha, 2025), cashless payment systems (Tsai et al., 2022), e-wallets (Matar and Aloqaily, 2025) and peer-to-peer lending amongst MSMEs (Mathur and Sharma, 2025). Served as a strong predictor of intention in the adoption of fintech among Jordanian citizens (Al-Okaily et al., 2025), digital banking in Indonesia (Kurniawan et al., 2024), as well as in the adoption of fintech by rural residents (Wu and Peng, 2024). On the same note, perceived ease of use has consistently been termed as one of the fundamental functional beliefs that directly influence the adoption decisions (Ervina and Sfenrianto, 2025; Singh and Sahu, 2025; Sulasih et al., 2025). PEU is shown to complement PU in numerous studies, which is a strong indication that system simplicity can be a clear behavioural mechanism that boosts perceived benefits (Aswathy et al., 2025; Putra et al., 2025).

Trust is one of the most powerful and most stable behavioural determinants of fintech adoption studies. Work on mobile banking (Apau et al., 2025; Abu-Taieh et al., 2022), digital lending (Bhuvaneshwari and Vinitha, 2025), CBDCs (Gupta et al., 2023; Liu et al., 2024), robo-advisory (Bashir et al., 2025; Nguyen et al., 2023), Islamic banking (Abdurrahman et al., 2025; Relationships involving perceived security and usefulness and behavioural

intention also depend on trust especially in high-risk financial settings (Ashrafi et al., 2022; Sholevar and Bachmann, 2025). In some studies, the perceived risk is a major impediment (Perdana et al., 2023; Shahzad et al., 2022; Kumar et al., 2025), but in others, the perceived risk is unimportant in the condition of a high level of trust (Nguyen et al., 2023; Apau et al., 2025). This result highlights that fintech and digital banking are trust-dependent systems and this is especially true in emerging markets where the perceived security and privacy issues and institutional trust strongly differ.

Fiscal literacy, digital literacy and financial awareness also have critical roles in influencing behavioural adoption, particularly in the developing countries with significant digital disparity. Research shows that the greater the financial literacy, the better the behavioural intent, self-efficacy, and responsible financial behaviour (Sunil and Sathish Kumar, 2025; Halder and Karthigeyan, 2025). Financial knowledge is also effective in enhancing better digital lending choices and greater financial satisfaction (Bhuvaneshwari and Vinita, 2025), whereas digital literacy has a positive impact on the use of fintech among students and younger users (Alzahrani and Bhunia, 2025). Research that targets rural and low-income populations highlights that financial awareness, as well as innovation awareness, are the most significant indicators of fintech use in underrepresented populations (Wu and Peng, 2024; Ghouse et al., 2025). Likewise, digital confidence, usability and financial education have a close relationship with women fintech adoption behaviour (Aswathy et al., 2025). These results are consistent with literature on financial inclusion in the world which suggests that behavioural capability is a pre-condition of meaningful inclusion.

The behavioural outcomes are often moderated by generational, gender-based and demographic factors. The generational differences indicate that younger users (Gen Z and Millennials) have a stronger intention to adopt the technology as they are more innovative, less anxious, and more familiar with technology (Kusairi et al., 2025; Putra et al., 2025; Alkadi and Abed, 2025). On the other hand, the elderly are more focused on security, trust, and simplicity when embracing mobile financial services (Anantha Lakshmi and Saldanha, 2025). Results on gender are ambivalent: on the one hand, some researchers believe that trust and perceived security differ with gender (Ghouse et al., 2025; Sholevar and Bachmann, 2025), on the other hand, some researchers believe that behavioural pattern is more often influenced by income, education, and digital exposure than gender (Sholevar and Bachmann, 2025). Taken together, demographic moderators suggest the heterogeneity of digital financial adoption behaviour.

The new behavioural considerations brought by AI-enabled financial services include robo-advisors, chatbots and voice assistants. The studies indicate that intention to adopt AI-enabled banking tools is shaped by perceived intelligence, anthropomorphism, trust, and relative advantage (Schrack, 2025; Alkadi and Abed, 2025; Bansal et al., 2025). Particularly, robo-advisors alter investor behaviour by reducing such biases as overconfidence and loss aversion (Kulkarni et al., 2025), though the question of the transparency and reliability of algorithms remains mistrusted (Eichler and Schwab, 2024). Mobile trading and robo-advisory adoption are also greatly predicted by social influence, personal innovativeness, and information richness among the retail investors (Amin et al., 2024; Nguyen et al., 2023). These lessons indicate that AI-based finance would entail users to outsource the decision-making process cognitively, and trust, transparency, and perceived control become essential.

One of the common themes of digital banking studies is financial inclusion. Research on rural and rural communities, women, agri-traders, and low-income groups shows that fintech solutions, including mobile wallets, e-wallets, mobile banking, and digital lending, improve financial service access and structural inequalities (Tikku and Singh, 2023; Ghouse et al., 2025; Wu and Peng, 2024; Riza and Wijayanti, 2024). Nevertheless, the inclusion is behaviourally limited due to the lack of trust, digital anxiety, financial literacy, and lack of infrastructure (Duci et al., 2025; Umakanth et al., 2025). This way adoption does not necessarily mean the effective or responsible use, making it necessary again to consider behavioural research in the field of inclusive finance.

Overall, the literature demonstrates strong consensus that behavioural factors are central to understanding fintech, mobile banking, digital payments, CBDCs, robo-advisory, and AI-driven service adoption. However, despite the abundance of empirical research, the field lacks a consolidated bibliometric synthesis examining how these behavioural themes have evolved, which clusters dominate the research landscape, which behavioural variables are emerging, and where theoretical convergence is occurring across TAM, UTAUT, TPB, SLT, TRA, and behavioural finance perspectives. Therefore, a bibliometric analysis is essential to systematically map intellectual

structures, identify influential works, track thematic shifts, and propose a unified behavioural framework for digital banking and fintech adoption.

The objective of this research paper is to systematically examine the intellectual structure, conceptual evolution, and collaboration patterns within the domain of behavioural factors influencing retail and digital banking. To achieve this, the study addresses the following research questions:

Descriptive Analysis:

RQ1: *How has research on behavioural factors influencing retail and digital banking evolved over time, considering publication trends, document types, subject areas, funding sponsors, influential authors, leading institutions, contributing countries, and major publishing journals?*

Co-Authorship Analysis:

RQ2: *What patterns of research collaboration exist in this field, and which authors, organisations, and countries exhibit dominant contributions and strong collaborative linkages within the co-authorship networks?*

Co-Occurrence Analysis:

RQ3: *What are the major conceptual patterns, frequently recurring topics, and keyword linkages within the literature based on co-occurrence analysis of all keywords, author keywords, and index keywords, and how do these clusters represent key behavioural dimensions driving retail and digital banking research?*

3. Research Methodology

3.1 Phase 1: Data Retrieval and Search Strategy

The study began with the systematic identification of relevant research articles by adopting a comprehensive search process. To prevent conceptual bias and enhance thematic breadth, the study employed an extensive set of keywords associated with behavioural finance, digital and mobile banking, fintech innovation, and customer behavioural intentions. Accordingly, the final search string incorporated the following keywords and Boolean operators:

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( TITLE-ABS-KEY ( "behavioural finance" OR "behavioral finance" OR "behavioural factors" OR "behavioral factors" OR "behavioural intention" OR "financial behaviour" OR "financial behavior" OR "customer behaviour" OR "customer behavior" ) AND TITLE-ABS-KEY ( "retail banking" OR "digital banking" OR "online banking" OR "mobile banking" OR "internet banking" OR "e-banking" OR "electronic banking" OR "fintech" OR "financial technology" ) AND TITLE-ABS-KEY ( "consumer decision" OR "decision making" OR "behavioural biases" OR "heuristics" OR "risk perception" OR "trust" OR "perceived usefulness" OR "perceived ease of use" ) ) AND ( LIMIT-TO ( SRCTYPE , "j" ) ) AND ( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( SUBJAREA , "BUSI" ) OR LIMIT-TO ( SUBJAREA , "ECON" ) OR LIMIT-TO ( SUBJAREA , "SOCI" ) OR LIMIT-TO ( SUBJAREA , "DECI" ) OR LIMIT-TO ( SUBJAREA , "COMP" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) )
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The initial search produced **496 documents**, which were refined to **313 papers** after applying the specified filters, resulting in a focused dataset capturing core studies on behavioural factors in retail and digital banking.

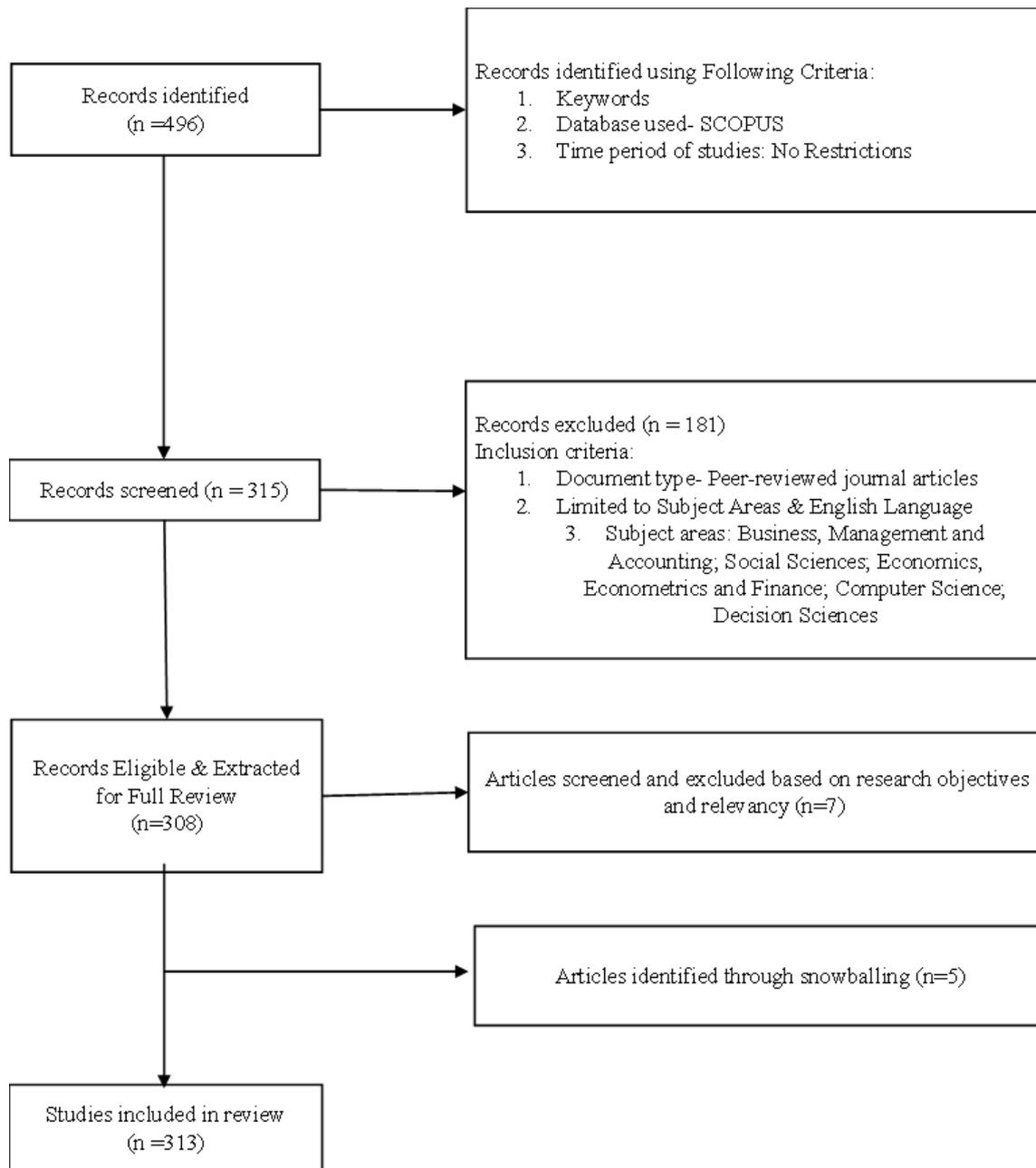


Figure 1: PRISMA protocol

Source: Adapted from Moher et al. (2009)

3.2 Phase 2: Filtering and Selection Criteria

To enhance relevance and maintain academic rigour, further inclusion and exclusion criteria were applied. Only studies published in peer-reviewed journals were considered, while book chapters, conference proceedings, working papers, and non-academic sources were excluded. The document type was restricted to final published articles, ensuring analysis based on complete and validated research contributions.

Additionally, the subject categories were refined to include publications within the domains of:

- **Economics, Econometrics, and Finance,**
- **Business, Management, and Accounting,**

- Social Sciences,
- Decision Sciences,
- Computer Science,

Only English-language publications were retained to maintain consistency and interpretability.

After applying all selection filters and removing duplicates and irrelevant entries upon manual review, the final dataset comprised 313 high-quality research articles, which formed the basis for bibliometric and network visualisation analysis.

3.3 Bibliometric Study:

Research publications regarding specific topics receive quantitative examination throughout predetermined timeframes by using the bibliometric analysis method (Almind & Ingwersen, 1997; Persson et al., 2009). As a powerful analytical technique, it has become prominent during the last twenty years for science and research policy studies and multiple diverse subject areas. Bibliometric methods serve three main objectives as part of widespread research practice: domain expansion and research group assessment, and study impact measurement (Pilkington & Meredith, 2009). Bibliometric analysis functions as one of the rare interdisciplinary research methods that gives an understanding of multiple scientific fields through their research spaces (Glänzel, 2003). This research method evaluates scientific study and technological development changes using citation analysis and content analysis tools to track progress from researchers to societal organisations (De Bellis, 2009; Okubo, 1997). This research used VOSviewer software for bibliometric analysis due to its ability to visualise and analyse research networks as described in (van Eck & Waltman, 2010). The application permits users to generate understandable graphical patterns that aid in understanding intricate bibliometric interconnections (Laengle et al., 2018).

After retrieving the final dataset, the records were exported from Scopus in CSV format (Full Records and Cited References) and imported into VOSviewer for bibliometric mapping. Co-authorship, co-occurrence, and network visualizations were generated using association normalization, with minimum occurrence thresholds applied for each analysis. This enabled the identification of clusters, thematic linkages, and collaboration patterns within the selected literature.

4. Results and Findings

Documents by Year

YEAR	Documents		
2026	5	2014	5
2025	60	2013	3
2024	49	2012	2
2023	50	2011	2
2022	30	2010	5
2021	18	2009	5
2020	29	2008	1
2019	13	2007	4
2018	11	2006	3
2017	13	2005	1
2016	8	2003	2
2015	12		

Table 1: Annual Research Output on Behavioural Finance and Digital/Banking Technologies (2003–2026)

Source: SCOPUS Database

The general annual publication trend between the years 2003 and 2026 reveals a steady and unequivocal increase in the research of behavioural finance and digital banking technologies. The period of early years (2003-2010) is characterized by minimal publications, which means the lack of academic interest. Since 2011, the rate of research work has been slowly rising, and a surge took place after 2017, which is consistent with the accelerated rate of fintech growth and digitalisation. It is projected to be the most productive in 2020-2025, with the peak output being in 2025 (60 documents), and it would be mostly evidenced by the growth of mobile banking, AI-based financial tools, digital payments, and financial inclusion programs. The low figure in 2026 is because of the unfinished publication cycles. An overall tendency shows that this sphere has turned into an overly rapid and very topical area of studies.

SOURCE TITLE	DOCUMENTS
International Journal of Bank Marketing	17
Journal of Financial Services Marketing	9
Sage Open	8
Journal of Risk and Financial Management	7
Journal of Open Innovation Technology Market and Complexity	6

Table 2: Distribution of Publications Across Leading Journals in FinTech and Behavioural Finance Research

Source: SCOPUS Database

The above pattern of distribution of publications can be interpreted as showing that the body of research available on the topic of fintech adoption, financial inclusion, and behavioural finance is highly concentrated in a handful of journals. International Journal of Bank Marketing takes the first place with 17 documents as the journal is highly oriented to consumer behaviour, digital banking, and uptake of technologies in financial services. It is followed by the Journal of Financial Services Marketing with 9 publications, which also took into consideration the relevance of the journal to customer engagement and technological innovation studies. Sage Open provides 8 documents, and it is evidence of its multidisciplinary focus and welcoming nature to new themes in fintech. Journals like the Journal of Risk and Financial Management (7 documents) and the Journal of Open Innovation: Technology, Market, and Complexity (6 documents) are also valuable platforms particularly where the authors explore the risks of technology, innovation and financial decision-making. On the whole, the evidence indicates that the studies on the area of fintech are rooted in the journals focused on the marketing of banks, financial services, innovation, and risk management, which shows the interdisciplinarity of the area.

DOCUMENT TYPE	DOCUMENTS
Article	317
Review	9
Conference Paper	4
Short Survey	1

Table 3: Distribution of Publications by Document Type in FinTech-Related Research

Source: SCOPUS Database

The prevalence of document types reflects the fact that the original empirical research is the primary reason spurring the research in the fintech field with 317 articles, which constitute the overwhelming majority of publications. It demonstrates that the discipline is very dynamic in terms of generating primary research on the topics of fintech adoption, financial inclusion, behavioural determinants, and new technologies. A total of 9 review articles were found indicating that there was not much synthesised or integrative work done and it is also a chance to do extensive review reviews in future studies. The fact that there are 4 conference papers and 1 short survey shows that there are minimal contributions to non-journal or even preliminary research format. On balance, the

prevalence of peer-reviewed articles speaks to the level of maturity and depth of the empirical research in the sphere.

COUNTRY/TERRITORY	DOCUMENTS
India	83
Indonesia	40
Malaysia	40
United Kingdom	23
Saudi Arabia	20
Jordan	18
China	15
Bangladesh	14
Pakistan	14
United States	14

Table 4: Country-wise Research Output on FinTech Adoption, Digital Banking, and Financial Technology Studies Across Leading Contributing Nations

Source: SCOPUS Database

The geographical distribution of publications indicates that India is the most active in the fintech field, with 83 publications because of its high academic and policy interest due to a new set of fast digital financial adoption and national financial inclusion projects. Indonesia and Malaysia (40 documents each) also jump in the top list, which speaks of the increasing fintech networks in Southeast Asia. United Kingdom (23), Saudi Arabia (20), and Jordan (18) are the countries, which exhibit active scholarly activity related to the progress of digital banking, regulatory changes, and consumer adoption behaviour. In the meantime, China, Bangladesh, Pakistan, and the United States (with 14-15 documents each) make significant contributions but with relatively smaller volumes. In general, the data indicates that the research on fintech is focused on the developing economies of Asia as they play the key role in forwarding the global financial innovation and inclusion discussions.

AUTHOR NAME	DOCUMENTS
Sahu, G.P.	4
Alalwan, A.A.	3
Ashrafi, D.M.	3
Dwivedi, Y.K.	3
Gupta, S.	3
Hussin, N.	3
Namahoot, K.S.	3
Abdurrahman, A.	2
Abed, S.S.	2
Abuhashesh, M.	2

Table 5: Leading Authors Contributing to Research on FinTech Adoption, Behavioural Finance, and Digital Banking Technologies

Source: SCOPUS Database

The distribution of the author-wise shows that the fintech, digital banking, and behavioural finance are research publications with a number of active contributors. Sahu, G.P. is the most active with four publications, which

means that he is interested in the research of technology adoption and financial behaviour. Three documents were provided by several authors, namely, Alalwan A.A., Ashrafi D.M., Dwivedi Y.K., Gupta S., Hussin N., and Namahoot K.S. who have maintained a long-standing scholarly activity in such fields as mobile banking, fintech acceptance models, risk perceptions, and digital financial services. As well, such authors as Abdurrahman A., Abed S.S., and Abuhashesh M. have written 2 important works each, highlighting their contribution to the expanding literature on Islamic banking, the fintech adoption, and the digital transformation of financial services. The general trend is that the area has both old and new scholars contributing to the field with research focusing mainly on the area of technology acceptance, trust, and behavioural intention in digital finance.

AFFILIATION	DOCUMENTS
Universiti Teknologi MARA	6
Amity University	6
Bina Nusantara University	6
Motilal Nehru National Institute of Technology Allahabad	5
King Saud University	5
Universiti Teknologi Malaysia Kuala Lumpur	5
Symbiosis International Deemed University	5
University of Liberal Arts Bangladesh	5
Azman Hashim International Business School	5
Multimedia University	4

Table 6: Leading Institutional Affiliations Contributing to Research on FinTech Adoption, Behavioural Finance, and Digital Banking Technologies

Source: SCOPUS Database

The affiliation-wise distribution puts into the limelight that the study of fintech adoption, digital banking, and behavioural finance is spearheaded by a number of highly active academic institutions in Asia. Universiti Teknologi MARA, Amity University, and Bina Nusantara University have six publications each, which is why their research is highly oriented towards the aspects of digital financial services, consumer behaviour, and technology adoption models. The participation of 5 documents each in the fintech-related research is evidenced by such institutes as the Motilal Nehru National Institute of Technology Allahabad, King Saud University, Universiti Teknologi Malaysia Kuala Lumpur, Symbiosis International Deemed University, University of Liberal Arts Bangladesh, and Azman Hashim International Business School, which attests to their comprehensive involvement in the study of the issue. The multimedia University has also participated in the field of digital finance scholarship; it publishes four journals, which can be considered as the evidence of its activity. On the whole, the distribution reveals that Asian universities are leaders in the field of fintech and behavioural finance research in response to the active process of digital transformation and financial inclusion in the region.

SUBJECT AREA	DOCUMENTS
Business, Management and Accounting	201
Economics, Econometrics and Finance	117
Computer Science	104
Social Sciences	89
Decision Sciences	42

Engineering	29
Arts and Humanities	19
Mathematics	14
Environmental Science	12
Energy	11
Psychology	11
Agricultural and Biological Sciences	2
Medicine	2
Physics and Astronomy	2
Biochemistry, Genetics and Molecular Biology	1
Chemical Engineering	1
Earth and Planetary Sciences	1
Materials Science	1
Neuroscience	1

Table 7: Subject-Area Distribution of Research Related to Behavioural Finance, FinTech Adoption, and Digital Banking Technologies

Source: SCOPUS Database

The subject-area distribution shows that the studies of behavioural finance, fintech adoption, and digital banking are mostly located in Business, Management and Accounting (201 documents) and Economics, Econometrics and Finance (117 documents) as the main theoretical and empirical basis of the study. Computer Science (104 documents) and Social Sciences (89 documents) also contribute to a significant amount of literature, which, again, demonstrates the multidisciplinary character of fintech research, where technological innovation and digital trust, as well as human behaviour and patterns of adoption, are merged.

Subsequent additions of Decision Sciences (42 documents) and Engineering (29 documents) indicate the connection of the field with analytical modelling, system design and technological optimisation. Smaller and still important contributions by Psychology (11 documents), focus on the behavioural and cognitive aspects of financial decision-making. The availability of scattered publications in many disciplines, including Energy, Environmental Science, Mathematics, Medicine and Physics suggests the occasional interdisciplinary overlap where digital financial tools come into contact with sustainability, data analytics or risk modelling. On the whole, the distribution establishes that the research on fintech and behavioural finance is highly interdisciplinary, with the preponderance of business, finance, as well as technological foundations.

FUNDING SPONSOR	DOCUMENTS
Fundação para a Ciência e a Tecnologia	3
National Natural Science Foundation of China	3
Khon Kaen University	2
Ministry of Education	2
Ministry of Higher Education, Malaysia	2
National Research Foundation	2

National Research Foundation of Korea	2
Agentúra na Podporu Výskumu a Vývoja	1
Bộ Giáo dục và Đào tạo	1
China Scholarship Council	1

Table 8: Distribution of Funding Sponsors Supporting Research on Behavioural Finance, FinTech Adoption, and Digital Banking Technologies

Source: SCOPUS Database

The allocation of funds shows that a wide variety of international funding agencies contributes to the research on behavioural finance, fintech adoption, and digital banking, but it is relatively small in quantity. The sponsors are Fundação para a Ciência e a Tecnologia (Portugal) and the National Natural Science Foundation of China, both of which provide sponsorship to three publications, which does not underestimate their interest in promoting the development of digital finance and technology-based research. Two documents have been supported by several other institutions, such as Khon Kaen University, Ministry of Education, Ministry of Higher Education Malaysia, National Research Foundation (South Africa), and the National Research Foundation of Korea indicate regional interest in the development of digital financial ecosystems and both financial inclusion and technology adoption.

The rest of the funding sponsors, including Agentura na Podporu Vyskumu v Vyvoja, Bloc Giacao Duc v Dao Tao and the China Scholarship Council, funded one publication each, and these are selective but significant support of particular themes of the specialised research. On the whole, the trend in funding indicates that even though financial technology and the behavioural finance research are supported by international funding, the majority of the research in this field is done without external investments, which points to the necessity of more institutional and governments funding these studies.

Co-authorship Analysis (Authors, Organizations, Countries)

Types of analysis: Co-authorship

Unit of analysis: Author

The co-authorship study shows that there is still a rather fragmented scholarly collaboration in the field of behavioural finance, retail banking, and digital banking. Even though some 940 authors are at the minimum qualification of at least two publications and no citation threshold, most of these researchers operate in isolated groups or in individuals. This low connectivity implies that collaboration networks related to this sphere are too rudimentary.

It is important to note that based on the mapping, there is one big connected cluster of 16 authors, including Andronie Mihai, Blazek Roman, Chiru Claudiu, Dijmarescu Adrian Dumitru, and others. The number of co-authorship links in this group reaches 120, which indicates a high level of internal collaboration in the group and a lack of contact with the rest of the research community.

In general, the findings point to the fact that even though the topic is increasingly studied by scholars, the area does not have harmonized and comprehensive collaborative models. The enhancement of cross-institutional, interdisciplinary, and international collaborations can contribute to the creation of more integrated knowledge creation and quicker theoretical and methodological improvement in the field of the study of behavioural finance and digital banking.

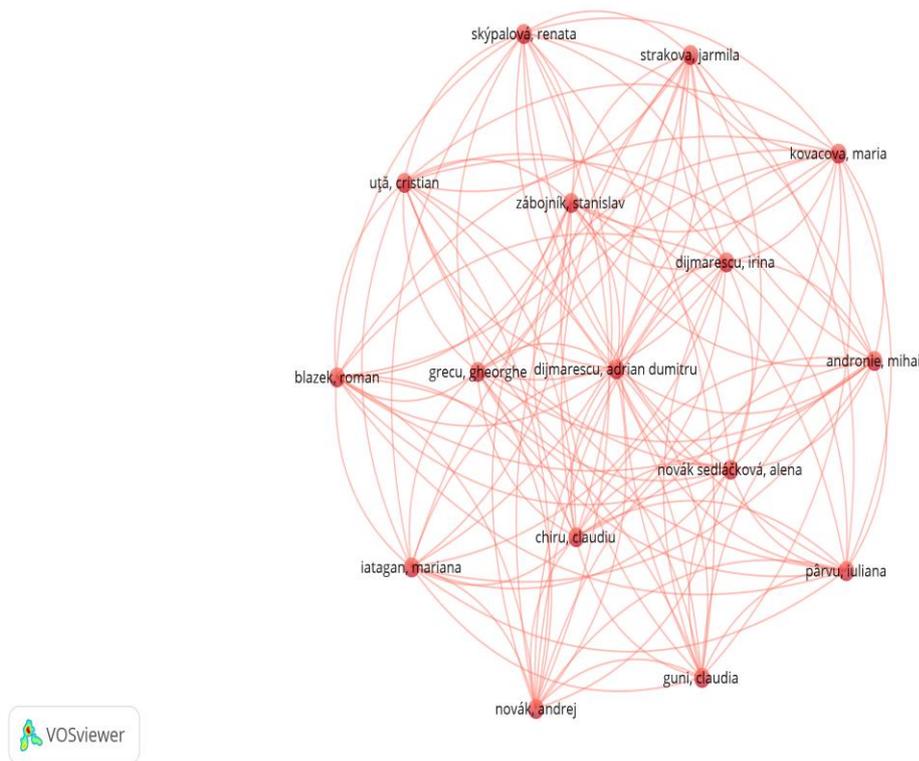


Figure 2: Bibliometric co-authorship network map based on authors.

Source: Generated from VOSviewer.

The visualization of the network of co-authors reveals that there is a very limited and closely knit faction of 16 authors making up the largest collaborative group among the rest of the dataset of 940 authors. The lines are very thick as well as the nodes which means that there is a high level of internal cooperation and the key figures of such collaboration can be names of authors such as Andronie Mihai, Dijmarescu Adrian Dumitru, Chiru Claudiu and Kovacova Maria. Nonetheless, the network also indicates that there are not many links outside of this group which indicates a relatively piecemeal research environment. All in all, although active teamwork is conducted within the cluster, collaboration in the broader sphere of behavioural finance and digital banking is low.

Types of analysis: Co-authorship

Unit of analysis: Organisation

The analysis of the co-authorship at the organizational level demonstrates a considerably spread research environment, where 639 organizations fulfill the criteria of the amount of publications at minimum and no citation threshold. Although such wide involvement is the case, inter-institutional collaboration is not intense. Most organizations do not have interconnections and the given network visualization demonstrates that the biggest connected part is composed of 26 institutions combined into six clusters and connected by 53 links of collaboration.

It implies that, although various universities and research groups play a role in the area of behavioural finance, fintech, and digital banking, only a limited number of them collaborate with one another. This fact of having numerous small clusters as opposed to having one big integrated network indicates fragmented patterns of institutional collaboration. All in all, these results show that more powerful interinstitutional collaboration is necessary in order to develop more integrated and effective studies in this fast changing field.



Figure 3: Bibliometric co-authorship network map based on organizations.

Source: Generated from VOSviewer

The network of organization co-authorship illustrates that there is weak collaboration in studies about behavioural finance and digital banking. Despite the fact that 639 organizations fit in the requirements, few organizations make up the biggest linked network which is comprised of 26 institutions in six clusters. The University of Jordan, Applied Science Private University, Liwa University, and Rennes School of Business are the leading institutions that emerge as center nodes, which signifies that there is active cooperation in their clusters. Nevertheless, the weak networks among clusters imply that the majority of the institutions are independent. In general, the visualization presents humble inter-organizational collaboration and emphasizes the necessity of more cross-institutional and international collaboration in the field of research.

Types of analysis: Co-authorship

Unit of analysis: Countries

In co-authorship analysis at the country level, the picture is more interconnected than in the authors and organizations. The distinction between all 71 countries is that all satisfy the inclusion criteria, but not all of them are interconnected. The most extensive pool of collaboration consists of 53 nations and indicates a fairly good global research network. The visualization consists of 62 items placed in 10 clusters and has 211 collaboration links and a cumulative link strength of 270 which implies moderate international collaboration.

Nevertheless, the existence of non-linked nations implies disproportionate involvement whereby certain nations produce research on their own on the behavioural finance and digital banking literature. All in all, the discussion points to a more stable, yet still emerging global research network, with stronger collaboration at the global scale, as compared to the author or organizational level but still with much space to develop, particularly in the developing and emerging economies.

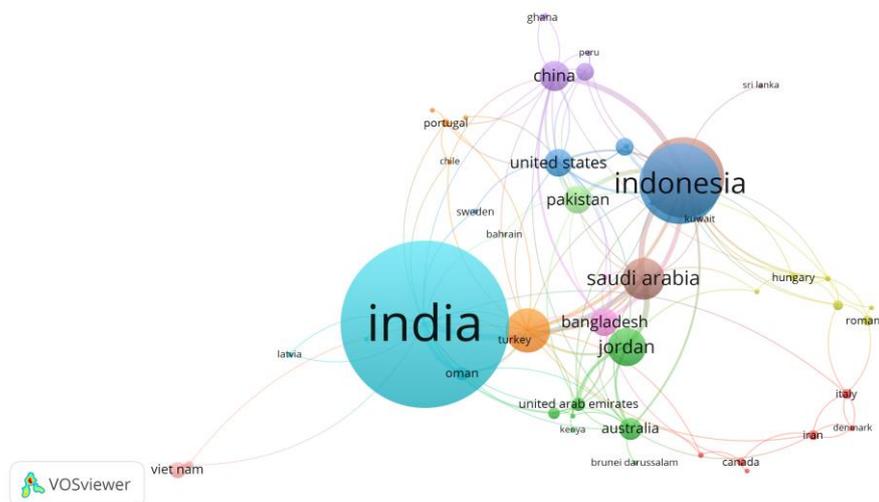


Figure 4: Co-authorship Network Visualization by Country

Source: VOSviewer Output based on Scopus Data

The country level co-authorship network presents a relatively well interconnected global research environment with some of the key contributors like India, Indonesia, China, Saudi Arabia, Jordan, Bangladesh, and the United States as the center stage holders. The bigger sizes of India and Indonesia are connected with their production and output of publications and close working relations with various countries. There are 10 clusters formed by the network that denote patterns of collaboration in a region, backed by 211 co-authorship links and a total link strength of 270. Most of the countries are interconnected but some are isolated and have few partners. In general, the visualization indicates current international cooperation, yet it also gives room to enhance cooperation in the areas that are not connected very closely.

Co-occurrence Analysis (All keywords, Author Keywords, Index Keywords)

Types of analysis: Co-occurrence

Unit of analysis: All keywords

The co-occurrence analysis keyword shows a closely knit thematic framework of the literature. Among 1,159 keywords, 82 out of them passed the minimum threshold of occurrence and formed seven thematic clusters of fintech adoption, digital banking behaviour, technology acceptance, trust, and financial inclusion. The network has 1,085 connections and a total amount of 1,949 links, which demonstrates that key concepts in behavioural finance and digital banking are closely connected. On the whole, the visualization represents a highly formed area of research with a high degree of overlapping themes and the same level of scholarly concern.

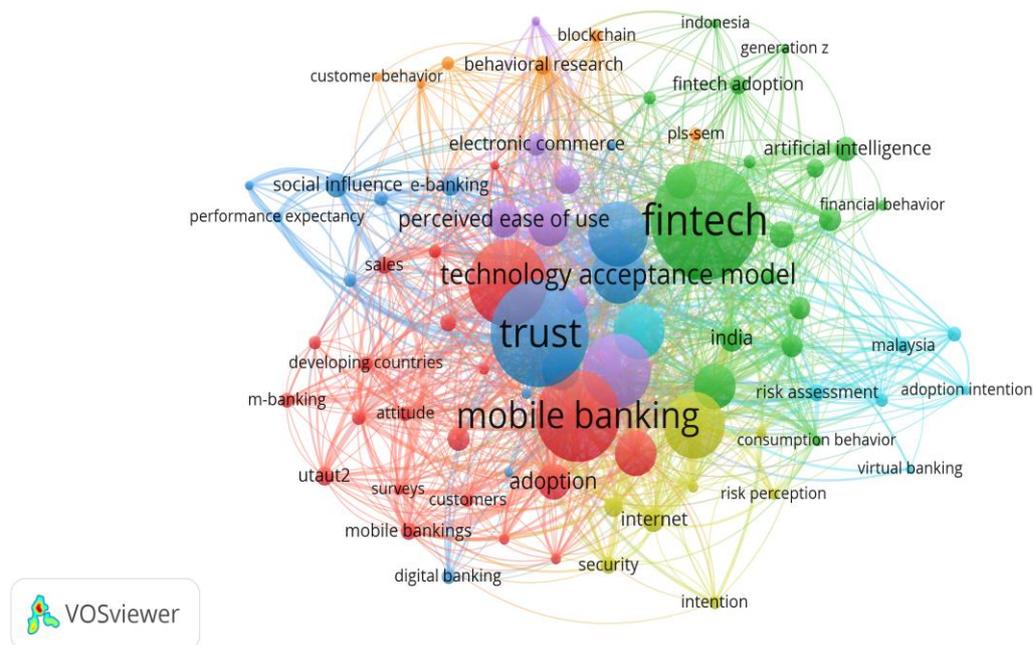


Figure 5: Co-occurrence Network Visualization of All Keywords

Source: VOSviewer Output based on Scopus Data

The keyword co-occurrence map presents a research area with a strong connection, and key terms, such as mobile banking, fintech, trust, technology acceptance model, adoption, and perceived ease of use, seem to be dominating ideas. The network is clustered in seven groups which are representative of some of the important areas like fintech adoption, digital banking behaviour, technology acceptance, trust and risk perception. Other thick connections between keywords mean that behavioural and technological issues of digital banking are researched simultaneously. Generally, the visualization shows a unified and well-assimilated body of research in which behavioural and technology-based concepts always intertwine.

Types of analysis: Co-occurrence

Unit of analysis: Author keywords

The author keyword analysis depicts an interrelated and narrow research space. Out of the 884 keywords, the minimum occurrence threshold was established to be 88 and has created nine thematic clusters based on the fintech adoption, mobile banking, trust, technology acceptance, and user behaviour. The network has 726 links and a link strength of 1,178, which demonstrates that there are strong connections relating to the main ideas, behavioural and technological factors are often researched in combination. Generally, the area is well-structured thematically and has robust co-occurrent patterns of keywords.

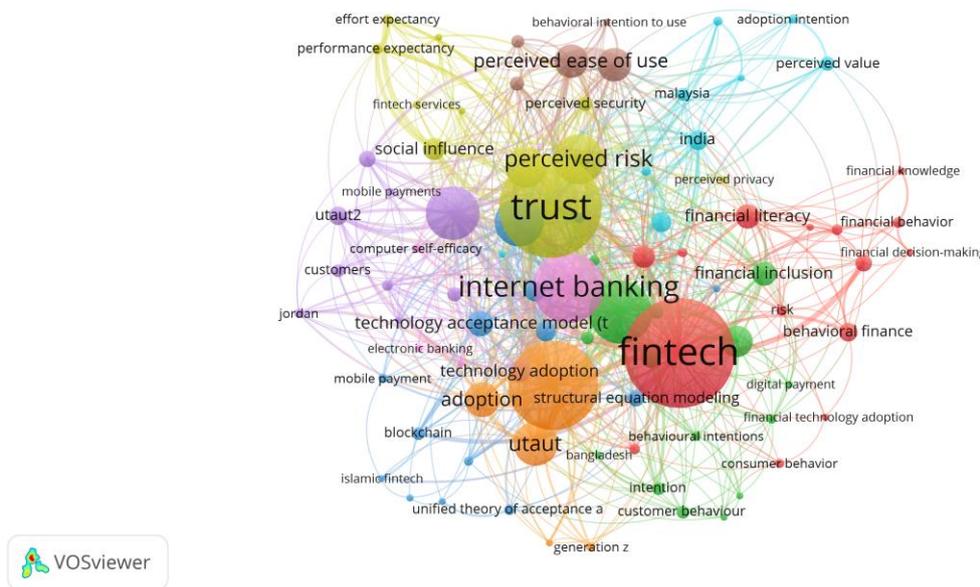


Figure 6: Co-occurrence Network Visualization of Author Keywords

Source: VOSviewer Output based on Scopus Data

The author keyword network indicates that studies on behavioural finance and digital banking are based on several themes. The keywords that appear to be dominating include; fintech, internet banking, trust, perceived risk, perceived ease of use and adoption showing the key areas of focus. The network consists of nine clusters as a result of the themes such as technology acceptance (TAM/UTAUT), user behaviour, financial inclusion, digital payments and security. The thick interrelationships indicate that behavioural variables and technological ones are often researched simultaneously, which speaks of a mature and comprehensive research environment.

Types of analysis: Co-occurrence

Unit of analysis: Index keywords

The co-occurrence analysis of index keywords brings to the fore the conceptual basis of research in behavioural finance and digital banking. Based on 413 index keywords, 110 of them met the minimum frequency requirement, and seven thematic clusters were created. These clusters are key areas of knowledge that have been identified including fintech technologies, mobile and internet banking, behavioural intention, risk and trust, digital payments, and technology adoption models.

The network has 1,048 links and a total link strength of 1,388, demonstrating that there are powerful connections between indexed words, implying that these ideas very often occur together in the literature. The fact that there are numerous links implies that the research on the topic always incorporates behavioural constructs together with technological and financial subjects. Generally, there is a good structure and connectivity of the index keyword network as it is a well organised and interconnected research area, which shows the multidisciplinary character of digital banking and behavioural finance.

will help to get a more sophisticated interpretation of behavioural finance regarding The ever-changing digital banking technologies.

Conclusion

This paper is a summative bibliometric and thematic review of the dynamic research field in terms of behavioural determinants of retail and online banking. The study identifies 331 peer-reviewed journal articles in key areas like behavioural finance, digital banking technologies, fintech adoption, mobile banking, and consumer psychology to map the intellectual organization, new issues and patterns of collaboration that characterize this highly dynamic area. Our results show that one of the central elements of explaining consumer adoption and use of digital financial services are behavioural constructs, specifically trust, perceived usefulness, ease of use, perceived risk, and social influence.

The paper also mentions high academic interest in the world with a large contribution of the countries like India, Indonesia, Malaysia, China, Saudi Arabia, and the United Kingdom. Key word co-occurrence patterns demonstrate that digital banking studies are shifting towards being more interdisciplinary, integrating behavioural theories (TAM, UTAUT, TPB, TRI) with technology-oriented concepts such as AI, mobile payments, robo-advisory services, blockchain and fintech innovation. The network of co-authorship between researchers, institutions and nations is an indicator of increased collaboration, although it is still disjointed in some parts, which would open up potential opportunities of greater global collaboration.

In general, the study contributes to the current body of knowledge by providing a systematic, information-based explanation of the relationship between behavioural determinants and digital adoption of financial services. It can give future scholars, policymakers and financial institutions a starting point in understanding the user behaviour, creating more user centred digital banking and predict future trends. As the concept of digital finance keeps reshaping consumer relations with the banking systems, a knowledge of the behaviour aspects will keep being crucial to theory and practice development in the field.

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