

Contents lists available at [ScienceDirect](#)

Borsa Istanbul Review

journal homepage: [www.elsevier.com/journals/borsa-istanbul-review/2214-8450](http://www.elsevier.com/journals/borsa-istanbul-review/2214-8450)

# A retrospective evaluation of *Borsa Istanbul review* using a machine learning data analytical approach

Hassnian Ali <sup>a</sup>, Ahmet Faruk Aysan <sup>b</sup>, Hasmet Gokirmak <sup>c,\*</sup><sup>a</sup> Hamad Bin Khalifa University & International Center for Research in Islamic Economics (ICRIE), Minhaj University Lahore, Pakistan<sup>b</sup> Hamad Bin Khalifa University, College of Islamic Studies, Qatar Foundation, Qatar<sup>c</sup> Istanbul Sabahattin Zaim University, Department of International Trade and Finance, Türkiye

## ARTICLE INFO

### JEL classification:

C33  
C45  
G00

### Keywords:

Bibliometric analysis  
*Borsa Istanbul review*  
Finance research  
Machine learning  
Retrospective evaluation

## ABSTRACT

This study conducts a detailed examination of *Borsa Istanbul Review (BIR)* from 2013 to 2023, employing bibliometric analysis, regression analysis, and structural topic modeling (STM) to explore its scholarly impact, authorship patterns, and thematic evolution. Our bibliometric analysis reveals a significant increase in *BIR*'s publication volume and citation count, as well as a marked expansion in its author collaboration network, with notable contributions from Turkish and East Asian scholars. Through regression analysis, we identify several factors—such as article length, age, position in the issue (lead article status), regional author affiliation, title characteristics (length and novelty), and the presence of multiple authors, keywords, figures, and tables—as significant determinants of citation rates. Furthermore, STM reveals ten dominant themes in *BIR*, highlighting key focus areas, such as firm dynamics, market and country growth, financial health, and stock market returns. This comprehensive analysis sheds light on *BIR*'s evolving scholarly landscape and offers valuable insights for its editorial board, stakeholders, and the broader academic community interested in finance and economics. This enhanced understanding of *BIR*'s trends and themes is a crucial resource for navigating the wider finance research domain.

## 1. Introduction

Cofounded by and first published by Elsevier in 2013, *Borsa Istanbul Review (BIR)* is an open-access journal that does not charge article processing fees. It is an esteemed platform for empirical financial research, encompassing various topics, such as investment, behavioral finance, and capital markets. With its emphasis on significant policy implications, *BIR* encourages submissions from around the world, focusing on advanced, emerging, and developing economies.

Under the editorship of Professor Ali M. Kutan, *BIR* has rapidly gained recognition for its quality and relevance in the financial research community. *BIR* originated in Türkiye and builds on the legacy of *BIR* since 2000, and its impact in the field has consistently grown. The journal's latest two-year impact factor, as reported by Journal Citation Reports (Clarivate Analytics, 2023), is 5.2, reflecting an increase from the previous rating of 4.5. This measure indicates *BIR*'s standing as a highly cited journal in finance and related disciplines.

Moreover, *BIR*'s current CiteScore is 5.8, an improvement over its prior score of 5.3. It shows the journal's increasing ability to attract

high-quality research that garners attention in academic and professional circles. According to Scopus Journal Rankings (SJR), the journal's h-index is 33, which means that at least 33 of the articles published in it received at least 33 citations apiece, demonstrating that they are impactful.

*BIR* ranks Q1 in finance, economics, and econometrics, with a secondary ranking of Q2, and its standing in the SJR 2022 ranking further cements its place as a leading publication, with an SJR ranking score of 0.82. Although *BIR* is not yet listed in the *Chartered Association of Business Schools (CABS) Academic Journal Guide* or the Australian Business Deans Council (ABDC) ranking, its trajectory suggests that this recognition may be forthcoming, in acknowledgment of its potential and growing influence in financial research.

Researchers often explore journals' scholarly evolution and thematic shifts to understand trends and changes in specific fields (Adeabah et al., 2023; Blum & Raviv, 2023; Cosma et al., 2023; Gao et al., 2024; Rialp et al., 2019; Vanhala et al., 2020). Retrospective analyses, leveraging available data, offer fresh insights into the dynamics of academic research, as demonstrated by scholars such as García-Lillo et al. (2019)

\* Corresponding author.

E-mail addresses: [haal50943@hbku.edu.qa](mailto:haal50943@hbku.edu.qa) (H. Ali), [aaysan@hbku.edu.qa](mailto:aaysan@hbku.edu.qa) (A.F. Aysan), [hasmet.gokirmak@izu.edu.tr](mailto:hasmet.gokirmak@izu.edu.tr) (H. Gokirmak).

<https://doi.org/10.1016/j.bir.2024.12.019>

Received 15 March 2024; Received in revised form 22 September 2024; Accepted 26 December 2024

Available online 28 December 2024

2214-8450/© 2024 Borsa İstanbul Anonim Şirketi. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

and Burton et al. (2020). Their articles frequently employ bibliometric methodologies to map the intellectual landscape of a journal, providing a comprehensive view of its contributions to knowledge.

Bibliometric analyses of academic journals offer a wealth of insights specific to each journal. These studies reveal patterns in publication frequency, citation dynamics, authorship trends, and thematic focuses. They can illustrate a journal's most influential articles, key authors, and significant research topics (Gao et al., 2024; Shiau et al., 2023). We can understand the field's collaborative landscape and intellectual structure by examining citation networks and coauthorship patterns. These analyses also offer insights into the journal's impact and role in the broader academic community, helping assess its prestige, reach, and scholarly contribution over time (Borges et al., 2022; Burton et al., 2020). The findings from bibliometric analyses contribute significantly to the literature by offering a meta-perspective on research trends and academic influence. They help identify emerging areas of interest, shifting paradigms, and historical developments in a field. These studies enhance our understanding of research impact and dissemination patterns, guiding researchers, policy makers, and academic institutions in decision making (Adeosun, 2023; Kim, 2022; Maghsoudi et al., 2023). Editors might prioritize topics shown to attract higher citations and have greater impact, thereby increasing the journal's visibility and reputation in the academic community. With respect to publication criteria, journals may adjust their acceptance criteria based on determinants such as article length (Valtakoski, 2020), the presence of multiple authors (Baker et al., 2021; Hota et al., 2020), and the inclusion of keywords (Valtakoski, 2020), figures, and tables, all of which have been identified as factors that contribute to higher citation rates. With respect to strategic focus, by focusing on articles that align with these criteria, journals can strategically position themselves to maximize their impact factor and overall academic influence. This strategic adjustment ensures that the journal remains competitive and relevant.

After a detailed bibliometric analysis, *Scientometrics* adjusted its editorial policies and focus areas. As it began to attract more high-quality submissions in the identified areas of strength, the impact factor and citation rates increased (Campanario & González, 2006). A bibliometric study showed the importance of collaborative authorship and international contributions to the *Journal of Informetrics*. The journal implemented strategies to encourage more international submissions and collaborations, leading to higher citation rates and a broader global reach. Bibliometric analyses of various journals have shown that open-access articles tend to receive more citations. These findings show that journals that adopt open-access policies report increased visibility and citation rates (Hilário et al., 2020). Following a bibliometric analysis, the *Journal of Banking and Finance* strategically focused on topics and research areas identified as highly cited, such as banking performance and efficiency. This targeted approach increased the quantity and quality of submissions, citation rates, and the impact factor. The journal's annual publication growth rate rose significantly, particularly beginning in 2016 (Alam et al., 2021). The *Journal of Muamalat and Islamic Finance Research (JMIFR)* implemented recommendations from bibliometric studies, such as promoting dual authorship and encouraging English-language publications to increase their international visibility. These changes significantly increased the number of articles published and their subsequent citations, enhancing the journal's reputation and academic influence (Tijani et al., 2021). Bibliometric analyses revealed key trends and influential factors in Islamic finance research, prompting journals to prioritize topics such as Islamic social finance and ethical issues. As a result, journals such as the *International Journal of Islamic and Middle Eastern Finance and Management* raised their citation impact and overall academic standing by aligning their publication strategies with these findings (Zahari et al., 2024).

Since its inception and first publication by Elsevier in 2013, *BIR* has carved out a niche in empirical financial research. This analysis traces *BIR*'s scholarly output and milestones, employing bibliometric tools to review documents published since 2013. This retrospective sheds light

on *BIR*'s impact and reach in the finance and economics research community by analyzing publication trends, performance, critical studies, and authorship networks. Furthermore, our regression analysis investigate the factors that contribute to the journal's influence and citation metrics.

In line with emerging research methodologies, we employ structural topic modeling (STM) to discern the evolving themes and topics in *BIR*'s corpus. This machine learning approach proved effective in studies by Vanhala et al. (2020) and Sharma et al. (2021) in their respective fields. It offers a quantitatively robust method for topic analysis. Our study uses STM to reveal thematic progression and focal areas specific to *BIR*, in order to provide insights into the journal's evolving themes and topics.

Our retrospective analysis of *BIR* since its inception seeks to address five research questions (RQs) to elucidate the journal's trajectory and its success in achieving its mission.

- RQ1. What are *BIR*'s publication trends and citation records?
- RQ2. How is collaboration manifested among *BIR* authors?
- RQ3. What factors influence the impact of citations on *BIR* articles?
- RQ4. Which main topics has *BIR* covered over the years?
- RQ5. How have *BIR*'s research topics evolved?

The findings show that a significant increase in the number of articles published and citations by *BIR*, demonstrating its growing importance in financial research. The level of collaboration among writers has significantly increased, indicating a larger pattern of collective scholarship, even though the average number of authors per publication has remained constant. In examining the components that affect the impact of citations, we discover complex interaction between the quality of the articles and external influence. Special issues and lead articles garner more citations, indicating their perceived significance. Nevertheless, lengthier articles have a negative effect on the impact of citations, possibly because they are complex. Notably, an article's age is positively correlated with the number of citations it receives. However, this association weakens over time, indicating a saturation effect in the accumulation of citations. The analysis of *BIR* encompasses various subjects, including financial decision making and Islamic finance. Notably, corporate governance and stock market volatility emerge as significant themes. The presence of many perspectives highlights the position of *BIR* as a global center for financial research.

By answering these questions, our study contributes to a deeper understanding of *BIR*'s scholarly impact, thematic diversity, and collaborative networks. We highlight *BIR*'s growing stature in financial research and its role in advancing knowledge across various sub-disciplines, including investment, market microstructure, and Islamic finance. This analysis not only charts *BIR*'s historical development but also anticipates its future directions and potential for continued contributions to financial research.

The remainder of this paper is organized as follows. Section two outlines the methodological framework, detailing the processes of data identification, refinement, and extraction, and the bibliometric and regression analyses conducted. Section three presents both the results and the discussion, offering insights into key publication trends, citation dynamics, coauthorship networks, and thematic evolution within the *BIR* from 2013 to 2023. Finally, Section four provides a summary and conclusions, synthesizing the findings and their implications.

## 2. Methodology

### 2.1. Data identification, refining, and extraction

We identified and retrieved data for our study on *BIR* using Scopus, a comprehensive database widely recognized for its extensive coverage of peer-reviewed literature suitable for quantitative analysis (Kadyan et al., 2022). The decision to use Scopus as our primary metadata source was informed by its broad scope, encompassing over 20,000 peer-reviewed

active titles and its capacity to support detailed bibliometric analyses. This choice reflects a preference for depth and quality of coverage, acknowledging the platform's advantages in facilitating nuanced scholarly research over alternatives such as the Web of Science and Google Scholar.

Scopus is particularly valuable for its inclusion in journal articles, conference proceedings, and book series, offering a rich dataset for comprehensive bibliometric studies. Its extensive use in prior bibliometric research shows its suitability and effectiveness for such analyses (Baker et al., 2020; Tahir et al., 2023).

In January 2024, we searched on "Borsa Istanbul Review" in Scopus and found 500 documents. After refining our search criteria to include only articles and reviews and excluding other document types to ensure consistency and relevance to our research focus, we reduced the dataset to 464 documents. These selected publications, comprising a mix of articles and reviews, formed the basis of our analysis. This selection process captures the core scholarly output of *BIR*, thereby providing a solid foundation for our retrospective study of the journal's thematic evolution, impact, and contributions to financial research.

We employed bibliometric analysis in our research on *BIR* (Adeabah et al., 2023; Cosma et al., 2023) to systematically explore the journal's academic contributions. Bibliometrics, a method that applies statistical techniques to analyze books, articles, and other publications, was instrumental in revealing patterns and trends in *BIR*'s scholarly output. This approach enabled us to assess the performance of various contributors in the journal's research domain, examine the evolution of its scholarly knowledge base, and review its coverage on specific research topics.

Our analysis included an examination of publication trends (Beg et al., 2024; Borges et al., 2022; Grogan et al., 2021), citation records (Gao et al., 2024; Shiau et al., 2023), and coauthorship patterns (Adeosun, 2023; Kim, 2022; Maghsoudi et al., 2023) to gain insights into the collaborative dynamics and impact of the research published in *BIR*. Additionally, we used regression analysis to pinpoint factors that influence the impact of articles (Borges et al., 2022; Burton et al., 2020), providing a quantitative basis for understanding how different variables affect scholarly recognition and citation rates.

We applied text-mining techniques (Blum & Raviv, 2023; Vanhala et al., 2020) and STM (Bai et al., 2021; Das et al., 2023; Sharma et al., 2021) to further examine the intellectual structure of *BIR*'s content. These methods enabled us to discover the articles' hidden semantic patterns and themes, offering deeper understanding of the journal's focus areas and thematic evolution over time.

### 2.1.1. Bibliometric analysis

In conducting a bibliometric analysis of *BIR*, our research deployed a comprehensive set of performance metrics to elucidate the journal's scholarly output and impact trends. These metrics encompassed total citations per publication, the aggregate of cited publications, annual citation metrics, and the esteemed h-index (Baker et al., 2020; Qadri et al., 2022). Such indicators collectively afford a multidimensional perspective on the scholarly contributions of *BIR* to the financial research landscape.

The total number of publications (TP) quantifies *BIR*'s academic output, denoting the extent of scholarly works disseminated. Total citations (TC) quantify the impact and influence of these scholarly contributions on subsequent academic endeavors, serving as a testament to the journal's significance in the academic community. The metric of total cited publications (TCP) reveals the proportion of *BIR*'s articles acknowledged through citations, thereby providing an index of the journal's academic relevance. The ratio of total citations per publication (TC/TP) is an average impact metric for articles published in *BIR*. Additionally, the h-index ascertains the number of significant contributions in the journal, reflecting its quality and importance in advancing research.

We achieved further analytical depth by examining the authorship

patterns in *BIR*, distinguishing between articles with one author and those with more than one. This analysis not only delineates the collaboration dynamics in the journal but also affords insights into the academic quality associated with different authorship models (Maghsoudi et al., 2023).

Moreover, our study extended its analytical purview to categorize *BIR* publications based on document type (articles and reviews) and research methodology (conceptual/reviews and empirical). This bifurcation facilitated a nuanced understanding of the journal's content spectrum and methodological orientation in financial scholarship.

Our investigation ventured into not only quantitative metrics but also collaboration trends and the identification of *BIR*'s most illustrious authors. Our study of coauthorship networks and leveraging tools, such as VOSviewer and Gephi, illuminated the structural and dynamic aspects of scholarly collaboration. This examination highlighted the instrumental role of international collaboration networks in bridging knowledge creation gaps between developing and developed nations, thereby enhancing the overall quality of scholarly output through the amalgamation of diverse perspectives and expertise.

In summary, this bibliometric analysis of *BIR* employs a rigorous methodological framework, leveraging both quantitative indicators and qualitative assessments, to provide a comprehensive overview of the journal's academic trajectory, impact, and collaborative networks in financial research.

### 2.1.2. Regression analysis

We employed a negative binomial regression as a statistical methodology to explore the relationship between various factors and the number of citations received by articles. This approach is particularly suitable for our analysis for two primary reasons. First, the dependent variable in our study, total citations, is inherently a count variable (Baker et al., 2021), which aligns well with the capabilities of negative binomial regression to handle such data. Second, the distribution of total citations among articles in *BIR* has significant dispersion, characterized by a variance that substantially exceeds the mean. This dispersion indicates overdispersion in the citation data, a condition that negative binomial regression is specifically designed to accommodate, providing a more accurate and robust analysis of the factors that influence citation counts than alternative regression models that may not adequately address the unique distribution characteristics of count data.

### 2.1.3. Structure topic modeling

We used STM to dissect and illuminate the conceptual framework underpinning research published in *BIR*. STM is a leading provider of text-mining technology that can effectively reveal and analyze the underlying structure of topics in a collection of text. STM offers a better analytical perspective than classical topic modeling methods, such as latent Dirichlet allocation (LDA) (Bai et al., 2021; Das et al., 2023). It effectively identifies popular themes and trends across scholarly disciplines.

Using STM in our work is advantageous because it enables us to incorporate document-level metadata into the topic modeling process. This integration enhances the analysis by providing context-specific insights that cannot be easily obtained using LDA alone. STM enables the representation of subjects while considering their interconnectedness and the impact of external factors on the thematic structure of the dataset (Baker et al., 2021; Blum & Raviv, 2023; Vanhala et al., 2020). As a result, using STM in our research permitted a more detailed and thorough examination of the main ideas and trends in *BIR*. Our analysis led to greater comprehension of the journal's intellectual environment and how it has changed. Our study aligns with the latest research practices by making this methodological choice, enabling us to examine the conceptual structure that defines the intellectual output of *BIR* in detail, visually and analytically (see Fig. 1).

## 2.2. Preprocessing of text and metadata

For our study on the evolution of research topics in *BIR* from 2013 to 2023, we carefully compiled a text corpus that included the title, abstract, keywords, and publication year of every article published. We eliminated copyright information, publisher names, non-English words, and special characters, such as currency symbols and punctuation, to preprocess the text for analysis.

An extensive corpus analysis revealed the frequent occurrence of important pairs of words, such as “financial distress” and “capital structure.” To accurately capture these subtle indications of academic curiosity, we used a bigram tokenizer in R, which enabled us to generate all meaningful instances of consecutive pairs of words. The bigrams were turned into unigrams to adhere to the original keywords specified by the authors. For example, terms such as “stocks return” were transformed into “stock returns” and “Islamic finance” into “Islamic finance.”

We conducted an empirical investigation by testing different numbers of topics, from 5 to 30, to determine the most suitable number for our research, which is also in line with previous research (Baker et al., 2021; Sharma et al., 2021). The selection yielded ten subjects, based on maximizing the average hold-out likelihood from the model, indicating the most representative thematic structure.

Our final analysis was guided by the balance between semantic coherence and exclusivity, which aligns with the strategy used in previous investigations. Semantic coherence and exclusivity are crucial metrics for assessing the quality of topic models. Semantic coherence guarantees the interpretability of subjects, whereas exclusivity measures the distinctiveness of topic terms. Our empirical analysis used R and STATA, ensuring a thorough and methodologically sound investigation of the main study themes and their development in *BIR* over the study period.

## 3. Results and discussions

### 3.1. Results of bibliometric analysis

#### 3.1.1. Descriptive summary

Table 1 gives a descriptive summary of the data collected from *BIR* from 2013 to 2023. Over this period, *BIR* made significant contributions to finance research, as shown by its publication of 464 documents. These publications, encompassing both articles and reviews, collectively received 7522 citations, illustrating the impactful nature of the research in the journal. On average, each document was cited 16.21 times, highlighting the scholarly relevance and influence of the work published in *BIR*. The documents cite 23,436 sources, showing the extensive research foundation of these publications.

The authorship data reveal that 978 authors contributed to *BIR*

**Table 1**

Descriptive summary.

| Panel 1: Descriptive                      |           |
|---|-----------|
| Sample period                             | 2013–2023 |
| Sources (journals, books, etc.)           | 1         |
| Total number of publications (TP)         | 464       |
| Annual growth rate (%)                    | 25.07     |
| Total citations (TC)                      | 7522      |
| Average citations per document            | 16.21     |
| References                                | 23,436    |
| Panel 2: Coauthorship information         |           |
| Authors                                   | 978       |
| Authors of documents with a single author | 80        |
| Author collaboration                      |           |
| Single-author documents                   | 91        |
| Coauthors per document                    | 2.58      |
| International coauthorship (%)            | 27.16     |
| Panel 3: Document type                    |           |
| Article                                   | 440       |
| Review                                    | 24        |

during this period, indicating a vibrant and diverse academic community engaged with the journal. Among these publications, 91 had a single author, which indicates that a portion of the journal’s output reflects significant individual contributions. However, the collaboration index reveals that, on average, publications resulted from collaborative efforts by 2.58 authors, highlighting the collaborative nature of research on finance. Furthermore, 27.16 percent of these collaborations were international, demonstrating *BIR*’s effectiveness in bridging research efforts across borders and fostering a global dialogue in the financial research community. Most of *BIR*’s scholarly output consisted of 440 articles presenting original research. At the same time, 24 reviews offered critical evaluations and syntheses of existing literature, showing the journal’s commitment to advancing new knowledge as well as contextualizing it within the broader scholarly discourse. This blend of document types demonstrates the journal’s comprehensive approach in its contributions to finance research.

#### 3.1.2. Publication trends

Our first research question (RQ1) looks at *BIR*’s publication trends and citation records. The results in Table 2 illustrate a notable evolution in the volume of publications and the cumulative citations over time. The number of publications started at 11 in 2013 and reached a peak of 120 in 2022 before decreasing slightly to 103 in 2023. Similarly, the citation patterns have fluctuated, with the number of citations per year starting at 261 in 2013 and, with variations, peaking at 1331 in 2022, and then diminishing to 277 in 2023. The highest number of citations for *BIR* in a single year was in 2022, indicating a period of high academic interest and engagement with the journal’s publications. A considerable majority of the publications received at least one citation, highlighting the scholarly impact and reach of the journal’s articles. The total citations per publication (TC/CTP) and total citations per cited publication (TC/TCP) exhibited notable peaks in the early years, reflecting the high impact of certain publications. Over time, the h-index, which measures both the productivity and citation impact of publications, trended upward, starting at 4 in 2013 and increasing to 19 by 2022, before a slight dip to 8 in 2023.

Table 3 gives a detailed account of the 20 authors who contributed significantly to *BIR* from its inception in 2013–2023. Muhammad Kabir Hassan stands out, with nine publications, which attracted 199 citations and demonstrated an impressive average of 22.11 citations per publication, as well as an h-index of 5. Next in line, Buerhan Saiti contributed six publications, each of which garnered an average of 43.17 citations, reflecting a high level of impact, and achieving an h-index of 5.

The table also shows that various other authors also contributed significantly to the journal’s scholarly output. For instance, Mansur

**Table 2**

Annual publications and citation trends of *BIR* documents between 2013 and 2023.

|      | TP  | CTP | TCP | TC   | TC/CTP | TC/TCP | h  |
|------|-----|-----|-----|------|--------|--------|----|
| 2013 | 11  | 11  | 10  | 261  | 23.73  | 26.10  | 4  |
| 2014 | 20  | 31  | 19  | 548  | 17.68  | 28.84  | 13 |
| 2015 | 23  | 54  | 23  | 469  | 8.69   | 20.39  | 11 |
| 2016 | 19  | 73  | 19  | 657  | 9.00   | 34.58  | 13 |
| 2017 | 20  | 93  | 20  | 711  | 7.65   | 35.55  | 13 |
| 2018 | 26  | 119 | 26  | 1135 | 9.54   | 43.65  | 12 |
| 2019 | 40  | 159 | 40  | 879  | 5.53   | 21.98  | 18 |
| 2020 | 40  | 199 | 39  | 722  | 3.63   | 18.51  | 15 |
| 2021 | 42  | 241 | 42  | 532  | 2.21   | 12.67  | 14 |
| 2022 | 120 | 361 | 109 | 1331 | 3.69   | 12.21  | 19 |
| 2023 | 103 | 464 | 57  | 277  | 0.60   | 4.86   | 8  |

Notes: This table reports the annual publications and citation structure of *BIR* documents between 2013 and 2023. TP = total publications, CTP = cumulative total publications, TCP = total cited publications, TC = total citations, TC/CTP = total citations per publication, TC/TCP = total citations per cited publication, and h = h-index. The total cited publications, citations, and h-index are for a given year.



**Table 5**  
Countries most often affiliated with *BIR* authors between 2013 and 2023.

| Country        | Total publications | Total cited publications | Total citations | TC/TP | TC/TCP | h-index |
|----------------|--------------------|--------------------------|-----------------|-------|--------|---------|
| Türkiye        | 125                | 103                      | 1225            | 9.8   | 11.89  | 17      |
| China          | 67                 | 54                       | 631             | 9.42  | 11.69  | 16      |
| Malaysia       | 55                 | 51                       | 1417            | 25.76 | 27.78  | 22      |
| USA            | 51                 | 43                       | 651             | 12.76 | 15.14  | 15      |
| Pakistan       | 50                 | 44                       | 1075            | 21.5  | 24.43  | 17      |
| Saudi Arabia   | 29                 | 25                       | 658             | 22.69 | 26.32  | 14      |
| Tunisia        | 26                 | 25                       | 862             | 33.15 | 34.48  | 16      |
| India          | 24                 | 24                       | 428             | 17.83 | 17.83  | 12      |
| United Kingdom | 23                 | 21                       | 875             | 38.04 | 41.67  | 9       |
| Nigeria        | 12                 | 12                       | 357             | 29.75 | 29.75  | 9       |
| Korea          | 12                 | 12                       | 69              | 5.75  | 5.75   | 5       |
| Indonesia      | 9                  | 9                        | 168             | 18.67 | 18.67  | 7       |
| Serbia         | 8                  | 8                        | 99              | 12.38 | 12.38  | 6       |
| Lebanon        | 8                  | 7                        | 109             | 13.63 | 15.57  | 5       |
| France         | 8                  | 7                        | 299             | 37.38 | 42.71  | 5       |
| Spain          | 7                  | 6                        | 63              | 9     | 10.50  | 4       |
| Canada         | 7                  | 7                        | 61              | 8.71  | 8.71   | 4       |
| Jordan         | 6                  | 5                        | 23              | 3.83  | 4.60   | 3       |
| Bangladesh     | 6                  | 6                        | 42              | 7     | 7.00   | 3       |
| Morocco        | 3                  | 3                        | 15              | 5     | 5.00   | 2       |

node corresponds to an author's level of connectedness within the network, and the links between nodes denote coauthorship ties. The figure reveals that although numerous authors are conspicuous for their frequency of publication in *BIR*, this frequency does not always translate to a central role in the coauthorship network. Consequently, an author's publication count in *BIR* is not a definitive marker of their centrality or importance in the collaboration network.

Fig. 2 shows that Hassan is a significantly influential author and frequent contributor, in alignment with the node size. But, other authors, such as Kandil and Saiti, may have fewer *BIR* publications but play a prominent role in the network. This pattern also holds for contributors such as Masih and Shijin, who are crucial in collaborative dynamics, though they are not among the top 20 most-cited authors.

As with the author network in Fig. 2, the institutional network in Fig. 3 suggests that the most connected institutions are not determined solely by the number of *BIR* publications by authors affiliated with them. Rather, the figure highlights that an institution's prominence in the network is also a function of its collaborative engagements with other institutions.

Fig. 4 delineates the global network of countries affiliated with authors who contribute to *BIR*. The figure highlights the significant international collaboration, in which Türkiye has a dominant position in the network, indicating its central role in contributing and collaborating on research published in *BIR*. The node size is considerably larger for Türkiye than for other countries, showing its high volume of contributions.

The network also shows that countries other than Türkiye have also made substantial contributions. Malaysia is another influential node, indicative of its active participation in *BIR*'s scholarly discourse. The US, Pakistan, and China are represented with medium-size nodes, suggesting their important but less dominant roles than Türkiye and Malaysia. The connections between these countries, as evidenced by the links in the network, create robust cross-country collaboration. The US is strongly connected to Türkiye, reflecting the collaborative ties between authors from the two countries.

### 3.2. Results of regression analysis

#### 3.2.1. Impact of *BIR* articles

RQ3 investigates the factors that influence the overall frequency of citations for publications in *BIR*. The main reason for citations in scholarly work is to enhance the perceived quality of the work. However, in academia, many other reasons for referencing exist, such as strategically citing papers to gain favor with journal editorial boards,

citing articles from the same journal to imply topic similarity, and including self-citations to enhance the visibility of one's own study. Our study employs a negative binomial regression model (Baker et al., 2021; Sharma et al., 2021), selected due to the difference between the average and the variability of the dependent variable, in particular in the total number of citations. Table 7 lists the dependent and independent variables, which offer a clear understanding of the concepts assessed and their corresponding descriptive measurements.

#### 3.2.2. Conceptual model

Our analysis provides a theoretical framework for identifying the characteristics that contribute to an article's influence, as indicated by its citation frequency in *BIR*. Theoretical frameworks about citation dynamics incorporate several perspectives, such as universalist, social constructivist, and presentation-oriented theories.

According to the universalist perspective, citation rates are influenced by the underlying substance of an article, including its scholarly excellence and its subject matter. The characteristics on which this perspective generally focus are the inherent excellence of an article and the specialization of its topic, indicated by article length and methodological rigor. Empirical research shows a connection between the size and complexity of an article and the number of times that it is cited. Additionally, publications that appear earlier in journal issues tend to earn more citations, which may be due to editorial quality assessments.

Furthermore, scholarly literature suggests that special editions of academic journals, which focus on certain topics, enhance the discussion on particular research topics and, as a result, increase the likelihood that articles in these issues will be cited.

The social constructivist perspective highlights the impact on citation rates of an author's academic reputation. This indicates that citations might be associated with author-related variables, including the number of collaborators, institutional reputation, geographic location of the institution, and extensive references in the work. Multiple studies have shown a direct correlation between the number of authors and the number of citations of an article. This suggests that collaborating with others and having institutional affiliations can increase the frequency of an article's citation.

Finally, the presentation perspective emphasizes the importance of an article's formal characteristics, such as the composition of the title and the use of keywords, in obtaining citations. The findings on this matter are diverse: some studies suggest a reverse correlation between the length of a title and the number of its citations, but others highlight the importance of title originality and the quantity of keywords as factors positively associated with citation frequency.

**Table 6**Articles published in *BIR* between 2013 and 2023 cited most often.

| Author and date                 | Title  | Total citations | TC per year | Normalized TC |
|---------------------------------|--|-----------------|-------------|---------------|
| Ozili (2018)                    | Impact of digital finance on financial inclusion and stability   | 582             | 83.14       | 13.33         |
| Meo and Karim (2022)            | The role of green finance in reducing CO <sub>2</sub> emissions: An empirical analysis   | 205             | 68.33       | 18.48         |
| Wang (2016)                     | What are the biggest obstacles to the growth of SMEs in developing countries? Empirical evidence from an enterprise survey                 | 179             | 19.89       | 5.18          |
| Ozkan et al. (2017)             | Intellectual capital and financial performance: A study of the Turkish banking sector  | 170             | 21.25       | 4.78          |
| Le et al. (2019)                | Financial inclusion and its impact on financial efficiency and sustainability: Empirical evidence from Asia                                | 151             | 25.17       | 6.87          |
| Saiti et al. (2014)             | The diversification benefits from Islamic investment during the financial turmoil: The case for the US-based equity investors              | 117             | 10.64       | 4.27          |
| Srairi (2013)                   | Ownership structure and risk-taking behavior in conventional and Islamic banks: Evidence for MENA countries                                | 104             | 8.67        | 4.38          |
| Khan, Khan, et al. (2022)       | Does green finance really deliver what is expected? An empirical perspective   | 102             | 34          | 9.2           |
| Ghenimi et al. (2017)           | The effects of liquidity risk and credit risk on bank stability: Evidence from the MENA region   | 94              | 11.75       | 2.64          |
| Alam et al. (2013)              | Are Islamic bonds different from conventional bonds? International evidence from capital market tests                                      | 88              | 7.33        | 3.71          |
| Boukhatem and Ben Moussa (2018) | The effect of Islamic banks on GDP growth: Some evidence from selected MENA countries  | 84              | 12          | 1.92          |
| Ndiaye et al. (2018)            | Demystifying small and medium enterprises (SMEs) performance in emerging and developing economies  | 82              | 11.71       | 1.88          |
| Rashid and Jabeen (2016)        | Analyzing performance determinants: Conventional versus Islamic banks in Pakistan  | 78              | 8.67        | 2.26          |
| Ahmed et al. (2022)             | Do institutional quality and financial development affect sustainable economic growth? Evidence from South Asian countries                 | 77              | 25.67       | 6.94          |
| Yousaf and Ali (2020)           | The COVID-19 outbreak and high-frequency information transmission between major cryptocurrencies: Evidence from the VAR-DCC-GARCH approach | 69              | 13.8        | 3.82          |

**Table 6 (continued)**

| Author and date            | Title  | Total citations | TC per year | Normalized TC |
|----------------------------|--|-----------------|-------------|---------------|
| Aluko and Ajayi (2018)     | Determinants of banking sector development: Evidence from sub-Saharan African countries  | 68              | 9.71        | 1.56          |
| Gazdar and Cherif (2015)   | Institutions and the finance-growth nexus: Empirical evidence from MENA countries  | 68              | 6.8         | 3.33          |
| Ozili and Outa (2017)      | Bank loan loss provisions research: A review   | 66              | 8.25        | 1.86          |
| Abbes and Trichilli (2015) | Islamic stock markets and potential diversification benefits   | 64              | 6.4         | 3.14          |
| Abdullah et al. (2016)     | The impact of crude oil price on Islamic stock indices of Southeast Asian countries: Evidence from MGARCH-DCC and wavelet approaches | 63              | 7           | 1.82          |

These perspectives all analyze the impact of citations on scholarly papers. They provide insights into the various aspects that can affect an article's visibility and, consequently, its citation record. Our work combines different viewpoints, using a robust analytical method to determine the most critical factors that influence the impact of citations in the *BIR* corpus.

### 3.2.3. Independent variables

Based on the universalist perspective, the citation frequency of academic articles is influenced by several variables.

- **Article Length:** The number of pages of an article is often associated with the depth of its content. Longer articles are believed to offer more comprehensive insights, which could increase the number of citations (Valtakoski, 2020).
- **Lead Article:** Articles placed first in a journal issue are considered highly influential, a practice assumed to be shared among journal editors to highlight significant research, potentially increasing the number of its citations (Dang & Li, 2020; Valtakoski, 2020).
- **Conceptual and Review Articles:** These articles are thought to provide greater theoretical clarity or comprehensive literature reviews, attributes that may lead to higher citation rates.
- **Special Issue Articles:** Articles featured in special issues focus on current and specific topics, which might attract more citations because of their relevance and timely nature (Baker et al., 2021; Valtakoski, 2020).

From the social constructivist perspective, several variables contribute to an article's citation count.

- **Number of Authors:** The collective involvement of multiple authors in an article can indicate more fruitful collaboration and a broader interest in ensuring the article's success, which could lead to a higher citation count (Baker et al., 2021; Hota et al., 2020).
- **Author Geographic Affiliation:** The geographic location of authors plays a role, with authorship from the US, Europe, or Asia potentially correlating with a higher number of citations. This is based on the premise that these regions significantly contribute to the field. Thus, articles from these areas might receive more attention (Gao et al., 2024).
- **Number of References:** The extent of an article's reference list often reflects its academic thoroughness and its embeddedness in existing literature. A higher number of references may signify an article's strong connection to its research area, which might prompt other

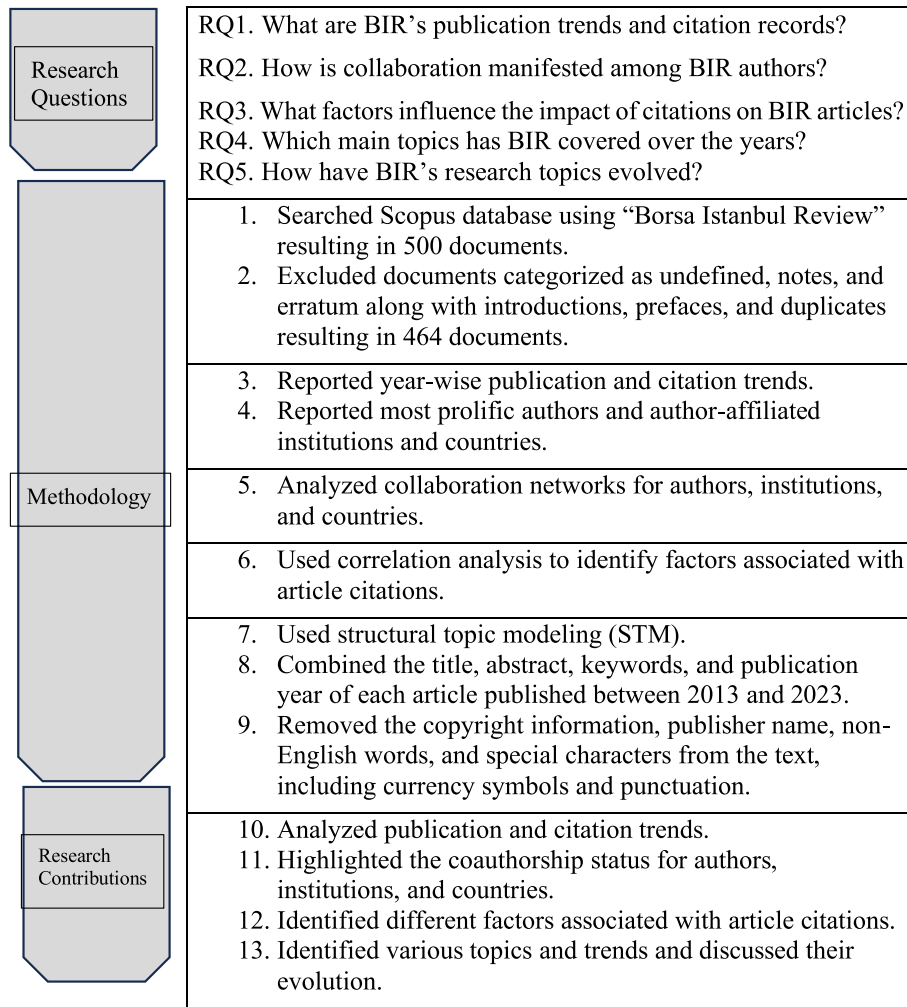


Fig. 1. The study’s research design *Methods used in the study.*

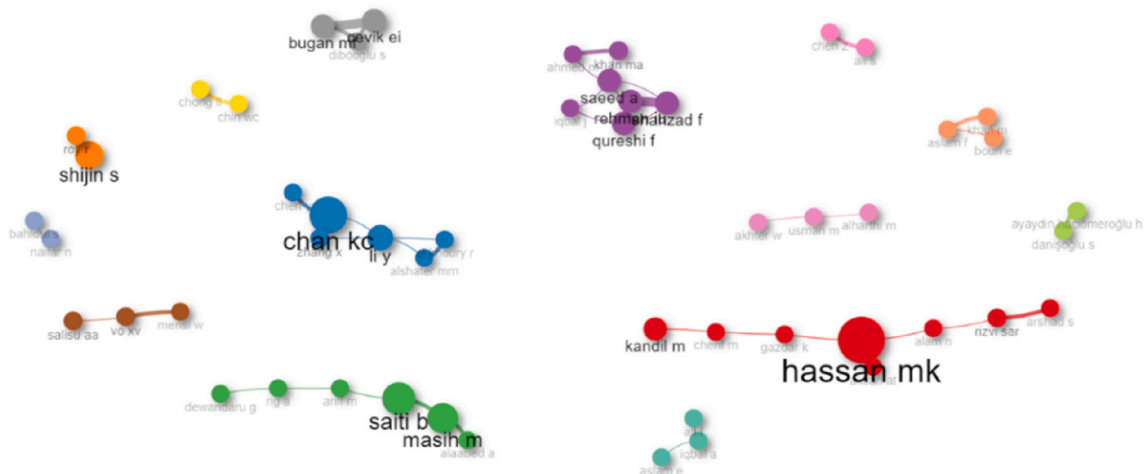


Fig. 2. BIR author network.

researchers to cite these references, thereby increasing the article’s visibility (Baker et al., 2021).

The presentation perspective holds that several variables contribute to an article’s citation count.

- Title Length: The number of words in an article’s title is crucial, as researchers often employ titles in literature searches. Nevertheless, studies suggest a negative relationship between longer titles and citation counts (Dang & Li, 2020).
- Number of Keywords: An article’s total count of keywords is examined for its potential impact on visibility. Having a larger number of

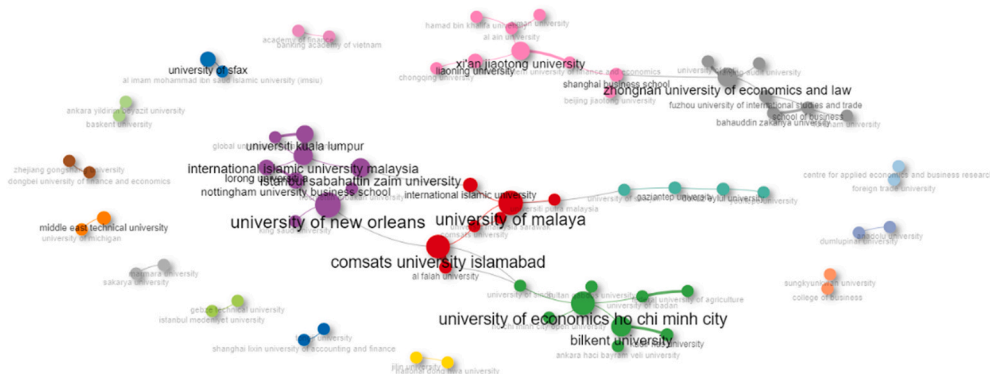


Fig. 3. Authors' affiliation network.

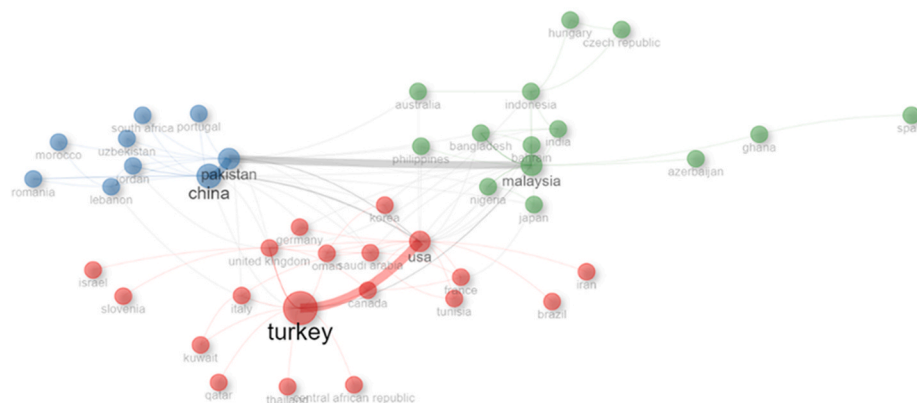


Fig. 4. Authors' country network.

keywords may enhance the article's appearance in searches, potentially leading to more citations (Valtakoski, 2020).

- **Author Order:** The order in which authors are listed, mainly if it is alphabetical order, is explored. Some researchers perceive articles with alphabetically listed authors as indicating higher quality, anticipating a positive association (Stremersch et al., 2015).
- **Number of Figures and Tables:** The presence of figures and tables in an article is considered, as these elements contribute to the expositional clarity of the writing. A positive association with citation count is expected.
- **Title Novelty:** This refers to the inclusion of attention-catching elements in a title, such as words like "new" and symbols like ! and #.

These variables collectively contribute to analyzing presentation-related attributes that impact citation counts in *BIR*.

### 3.2.4. Additional parameters

**Article Age ( $\pm$ ):** This means the number of years between 2020 and the publication year. The article's age is considered a factor that potentially influences the citation count. Although an article's age might have a positive association with the number of citations, the relationship might not be linear. Prior research suggests that the variable demeaned age squared should be incorporated into the analysis to account for potential nonlinearity (Chan et al., 2009; Valtakoski, 2020).

**SSCI Indexation ( $\pm$ ):** The inclusion of *BIR* in the Social Sciences Citation Index (SSCI) indicates the journal's reputation. The journal was included in the SSCI index in 2018. Hence, we assign papers published in 2018 and afterward a value of 1; otherwise, 0.

**Collaborative Countries of Authors ( $\pm$ ):** This encompasses two sets of variables, Multiple Authors from a Single Country (MASC) and Multiple Authors from Multiple Countries (MAMC), that check the impact of the

collaboration of authors from a single country and multiple countries. If the paper meets any of these criteria, we assign a value of 1; otherwise, 0.

### 3.2.5. Dependent variable

Our analysis focuses on examining characteristics related to articles and their association with total citations. Although it is acknowledged that an article's accessibility might introduce bias in its citation count, total citations are deemed a conventional metric for assessing impact in the scholarly literature (Rosenzweig et al., 2016; Stremersch et al., 2015). In this context, total citations denote the aggregate count of citations received by an article, serving as a standard measure for gauging its overall impact (Gao et al., 2024; Grogan et al., 2021).

### 3.2.6. Binomial regression

The descriptive statistics (Table 8) provide a complete overview of the characteristics of articles published in *BIR*, with total citations per paper (TC) as the dependent variable and several independent variables. The mean TC is 16.227, with a standard deviation of 35.635, ranging from 0 to 582. The independent variables include Article Age (mean = 2.886 years), Demeaned Age Squared, and Article Length. Other variables are binary indicators for article type (Conceptual, Empirical), geographic location (US, Europe, Asia), inclusion in special issues (SI), and whether it is a lead article. Additionally, it reports the mean and range for the number of authors, references, title length, keywords, authorship order, the number of figures and tables, title novelty, and inclusion in SSCI, MASC, and MAMC indexes. The values demonstrate significant variability in article characteristics and citation counts.

The correlation matrix (Table 9) for *BIR* focuses on significant relationships with our main variable, total citations. The table shows that TC has a moderately positive correlation with Article Age (0.255) and a





**Table 10**  
Results of the regression analysis.

|                      | Negative binomial regression | VIF  |
|----------------------|------------------------------|------|
| TC                   |                              |      |
| Article age          | 0.405**<br>(0.047)           | 5.35 |
| Demeaned age squared | -0.058**<br>(0.008)          | 2.43 |
| Article length       | -0.013<br>(0.022)            | 2.75 |
| Conceptual           | -0.209<br>(0.234)            | 1.04 |
| Empirical            | 0.073<br>(0.146)             | 1.07 |
| Number of authors    | 0.097<br>(0.074)             | 2.71 |
| Number of references | 0.002<br>(0.003)             | 1.69 |
| Title length         | 0.011<br>(0.015)             | 1.09 |
| Number of keywords   | 0.111**<br>(0.045)           | 1.19 |
| Order of authors     | -0.097<br>(0.143)            | 1.82 |
| US                   | -0.145<br>(0.222)            | 1.21 |
| Europe               | -0.230*<br>(0.132)           | 1.58 |
| Asia                 | 0.489**<br>(0.147)           | 1.86 |
| SI                   | -0.483**<br>(0.214)          | 1.08 |
| Lead article         | -0.256<br>(0.187)            | 1.06 |
| Figures              | -0.046**<br>(0.018)          | 1.42 |
| Tables               | -0.065**<br>(0.018)          | 1.70 |
| Title novelty        | -22.243<br>(27,892.075)      | 1.02 |
| SSCI                 | -0.150<br>(0.285)            | 5.00 |
| MASC                 | -0.210<br>(0.200)            | 3.79 |
| MAMC                 | -0.142<br>(0.234)            | 3.15 |
| Constant             | 1.642**<br>(0.533)           |      |
| Mean VIF             |                              | 2.09 |
| Lalpha               | 0.210**<br>(0.070)           |      |
| Observations         | 463                          |      |
| AIC                  | 3235.629                     |      |

Note: Standard errors are in parentheses. \* $p < 0.1$ , \*\* $p < 0.05$ .

other than the empirical nature and demeaned age squared significantly influence normalized citations per paper.

### 3.3. Structural topic modeling

In our BIR research, we prioritize the words that are most likely to occur in order to categorize extracted subjects intuitively. This is done regardless of the influence of commonly used domain-specific terms such as “financial” and “risk.” Using Frequency-Exclusivity (FREX) statistics, we tackle difficulties in subject interpretation, enabling the detection of widespread phrases exclusive to topics (Bai et al., 2021; Das et al., 2023; Levine et al., 2022). This analytical technique allows us to give themes more significant labels.

The findings in Table 11 demonstrate a thorough examination of several finance subjects in BIR, using both commonly used terminology and FREX statistics to identify complex themes. For instance, the issue of “market rate and exchange effect” is examined by analyzing terminology such as “market,” “rate,” and “volatility,” in research emphasizing the

**Table 11**  
Topic labels, top words, and exemplary studies.

| Topics                                    | Top words  | Top words by FREX  | Representative studies   |
|---|--|--|--|
| Market rate and exchange effect           | Market, rate, volatility, exchange, effect, use, period                        | Rate, spillover, exchange, volatility, shock, monetary, inflation                              | Alqaralleh et al., 2019; Ben Rejeb & Boughrara, 2015; El Khoury et al., 2023 |
| Credit risk                               | Risk, portfolio, Islam, fund, invest, banks, firms, credit                     | Diversify, fund, portfolio, credit, benefit, connected   | Deng et al., 2023; Naifar, 2023; Wei et al., 2023                            |
| Investors and stock returns               | Return, stock, market, price, investor, signific, find                         | Return, abnormal, stock, surprise, sentiment, attend, announcement                             | Akarsu, 2023; Azimli, 2020; Mollaahmetoglu & Altay, 2023                     |
| Islamic and conventional finance          | Bank, Islam, capital, study, risk, use, signific                               | Bank, deposit, stable, competitive, loan, Islam, banks   | Alam et al., 2019; Hachicha et al., 2022; Hassan et al., 2023                |
| Investors, board, and firms               | Investor, market, board, study, initial public offerings (IPOs), perform, firm | IPO, overconfident, board, director, bias, compensation, heuristic                             | E-Vahdati et al., 2022; Ocak et al., 2023; Qayyum et al., 2021               |
| Bonds and sukuk                           | Trade, bond, sukuk, market, spread, order                                      | Bond, sukuk, spread, trade, order, trader  | Katterbauer et al., 2022; Naifar, 2016; Razak et al., 2019                   |
| Price model and hedging                   | firm, invest, hedge result, study, use, price, oil, model                      | Hedge, enterprise, CEO, cash, debt, firm, leverage, oil prices, model                          | Das & Kumar, 2023; Mensi et al., 2022; Nekhili & Sultan, 2022                |
| Bank efficiency                           | Banks, stability, efficiency, Islamic, conventional                            | Finance, conventional, risk sharing, Islamic, growth, efficiency, stability                    | Bougatef, 2015; Ledhem, 2022; Ur Rehman et al., 2022                         |
| Financial development and economic growth | Financial, development, countries, growth, economic                            | Growth, inclusion, development, financial, foreign direct investment (FDI), countries, economy | Bayraktar et al., 2023; Chu et al., 2023; Ozdemir et al., 2023               |
| Corporate performance of firms and ESG    | firm, ESG, perform, environment, disclosure, social                            | ESG, disclosure, social, CRS, environment, score   | Pereira da Silva, 2022; Saygili et al., 2022; Zahid et al., 2023             |

**Table 12**  
Average citations per theme.

| Theme                                     | Average number of citations |
|---|-----------------------------|
| Bank efficiency                           | 49.33                       |
| Bonds and sukuk                           | 2.0                         |
| Corporate performance and ESG             | 2.2                         |
| Credit risk                               | 16.6                        |
| Financial development and economic growth | 18.35                       |
| Investors and stock returns               | 13.05                       |
| Islamic and conventional finance          | 38.33                       |
| Market rate and exchange effect           | 13.61                       |
| Other                                     | 8.33                        |
| Price model and hedging                   | 6.33                        |

influence of exchange rates and monetary policies. “Credit risk” highlights the significance of diversification and credit management in the banking and investing sectors. However, the term “investors and stock returns” investigates the impact of market sentiment and announcements on stock performance. The examination of “Islamic and conventional finance” highlights disparities in bank stability and competition. Research on topics such as “bonds and sukuk” and “price model and hedging” provides valuable knowledge about bond markets and ways to minimize financial risks. The studies examine the efficiency and stability

**Table 13**  
Average number of citations per theme and correlation analysis.

| Theme                                     | Average number of citations | Proportion |
|---|-----------------------------|------------|
| Bank efficiency                           | 49.33                       | 0.02       |
| Bonds and sukuk                           | 2.0                         | 0.002      |
| Corporate performance and ESG             | 2.2                         | 0.01       |
| Credit risk                               | 16.6                        | 0.06       |
| Financial development and economic growth | 18.35                       | 0.03       |
| Investors and stock returns               | 13.05                       | 0.04       |
| Islamic and conventional finance          | 38.33                       | 0.064      |
| Market rate and exchange effect           | 13.60                       | 0.73       |
| Other                                     | 8.33                        | 0.01       |
| Price model and hedging                   | 6.33                        | 0.00       |

of Islamic and conventional banks, focusing on “bank efficiency.” The topic “financial development and economic growth” explores the impact of financial inclusion and foreign direct investment on economic development. Finally, the topic “corporate performance and environmental, social, and governance [ESG]” emphasizes the importance of environmental, social, and governance concerns in the success of companies. The various topics are covered by individual studies that illustrate significant research themes and directions in financial economics.

Fig. 5 reveals that the topic “market rate and exchange effect” accounts for the highest percentage (16%) of the data, suggesting that it is the most dominant issue. The analysis indicates that “credit risk” accounts for 11.51 percent of the focus in the data. The topics “bank efficiency” and “investors and stock returns” are also important, accounting for just over 10 percent of the research focus. Topics such as “Islamic and conventional finance” and “financial development and economic growth” represent less than 8 percent each.

Fig. 6 examines different topics by graphically representing them based on two important measurements: semantic coherence and topic exclusivity. Semantic coherence measures the degree to which the words in a topic are consistently related, indicating the issue’s conceptual clarity. Issue exclusivity quantifies the degree to which words are unique to an issue, indicating the use of specialized language. Topics such as “investors and stock returns” and “market rate and exchange effect” have higher exclusivity scores, suggesting that they employ more exclusive language in their subjects. This may indicate a narrow and specialized focus in the research.

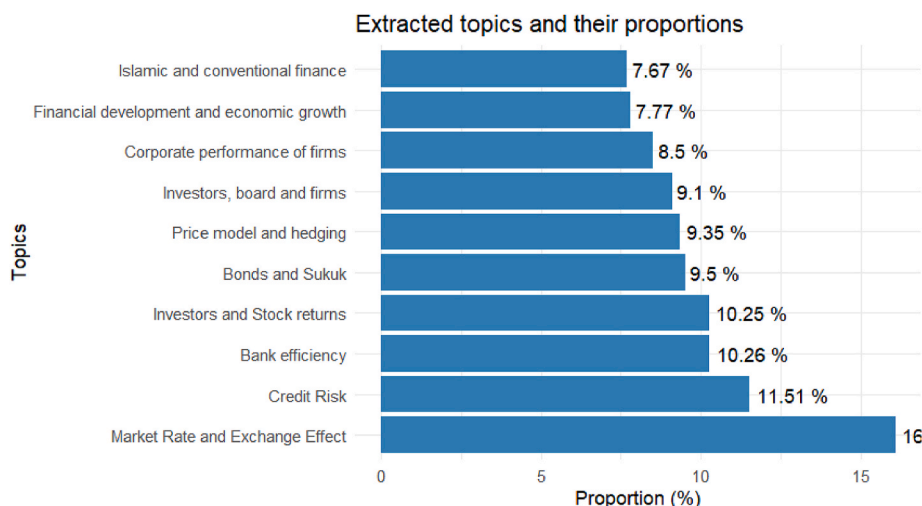
“Islamic and conventional finance” as a topic has less uniqueness, indicating that the language used in that context is less unique and may be similar to language in common financial discussions. Most themes demonstrate negative semantic coherence, suggesting they may

encompass a more comprehensive collection of concepts and contexts. This can complicate their delineation or even indicate the influence of multiple disciplines. This map provides a complete representation of the financial study topics, showing their geography and revealing the nature of their self-contained or interconnected conversations.

Fig. 7 shows a network of subject correlations, highlighting the interconnectedness of different issues in financial studies. Every node symbolizes a unique subject, such as “credit risk,” “Islamic and conventional finance,” and “corporate performance of firms and ESG,” indicating specific areas of academic concentration. The lines that connect the nodes in the figure represent the existence of correlations or interdependence among various topics. The proximity and interconnections between “market rate and exchange effect” and “Islamic and conventional finance” imply a robust correlation, potentially suggesting that alterations in market rates and exchange effects are thoroughly examined within the framework of Islamic and conventional financial systems. Likewise, the node “investors, board, and firms” seems to be a pivot point, indicating that it could have a significant role in influencing or being influenced by several other subjects, such as “bonds and sukuk” and “financial development and economic growth.” The network’s overall structure suggests a complicated and interrelated field in which comprehending one area can provide valuable insights into others. This reflects the complex and integrated nature of financial studies.

The correlation matrix in Fig. 8 illustrates the interconnections among different financial subjects. A negative value signifies reciprocal correlation, indicating that when one issue is discussed, the likelihood of discussion of the other topic decreases. For instance, “market rate and exchange effect” and “Islamic and Conventional Finance” might have an inverse relationship, indicating that publications that primarily analyze market rates tend to mention Islamic financing less frequently. The negative score of  $-0.22$  between “investors, board and firms” and “market rate and exchange effect” indicates a significant difference in content. However, all topics have a degree of inverse connection with each other, although the extent may differ. This suggests that financial literature frequently separates these topics into separate areas of emphasis.

Fig. 9 illustrates financial subjects’ projected occurrence over time, supported by their 95 percent confidence intervals. The “market rate and exchange effect” has a diminishing trend, with a significant decline from 2014 to 2022. The “credit risk” level has a reasonably consistent pattern, with a minor decline observed around 2018, followed by a subsequent stabilization. The “bank efficiency” metric gradually rose in 2016, followed by stabilization. The relationship between “investors and stock returns” also has a persistent decline, indicating a diminishing



**Fig. 5.** Extracted topics and their proportions.

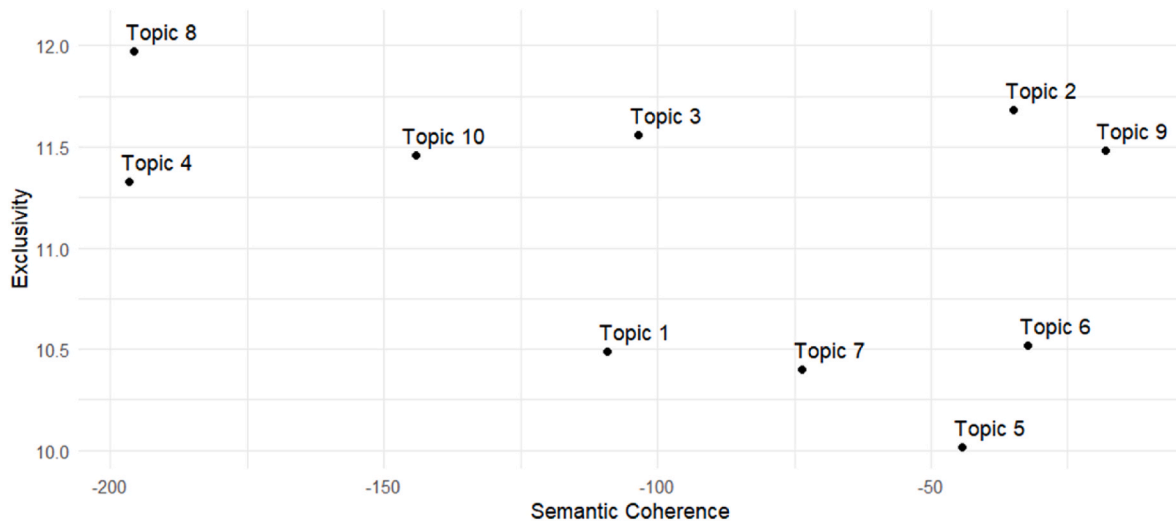


Fig. 6. Semantic coherence and exclusivity map.

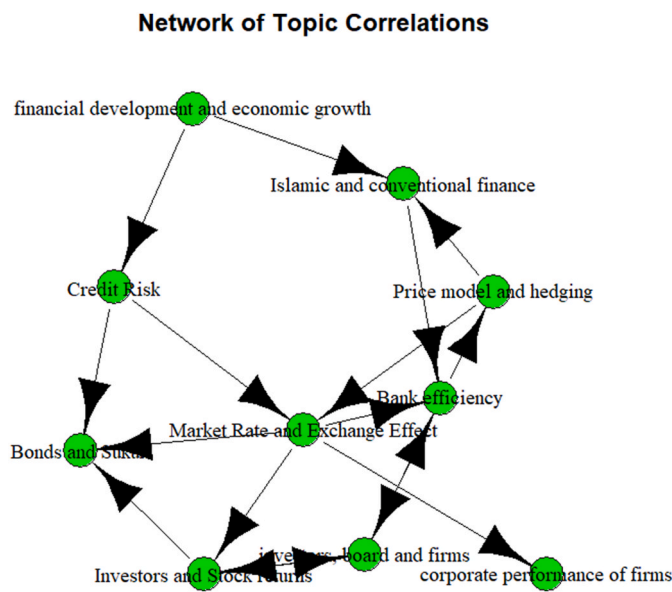


Fig. 7. Network of topic correlations.

level of attention over time. The “bonds and sukuk” trajectory shows an initial reduction until 2016, followed by a consistent rise, suggesting renewed interest in recent years. The topic “price model and hedging” shows a constant decline, mirroring the pattern observed in the topic “market rate and exchange effect.” The topics “investors, board, and firms” and “financial development and economic growth” have a positive trajectory, indicating greater research attention. Finally, the topic “Islamic and conventional finance” is trending upward, demonstrating its increasing importance in financial literature. These trends indicate changes in research and interest in finance throughout the sample period.

3.3.1. Discussion of the top 10 topics

3.3.1.1. Market rate and exchange effect. This topic examines the interaction between market rates and exchange rate impacts, explicitly emphasizing how market volatility and fluctuations in exchange rates affect global economic stability. The main topics covered include the influence of rate instability on currency systems (Sadiq et al., 2023), the transmission of monetary volatility to global markets, and the function

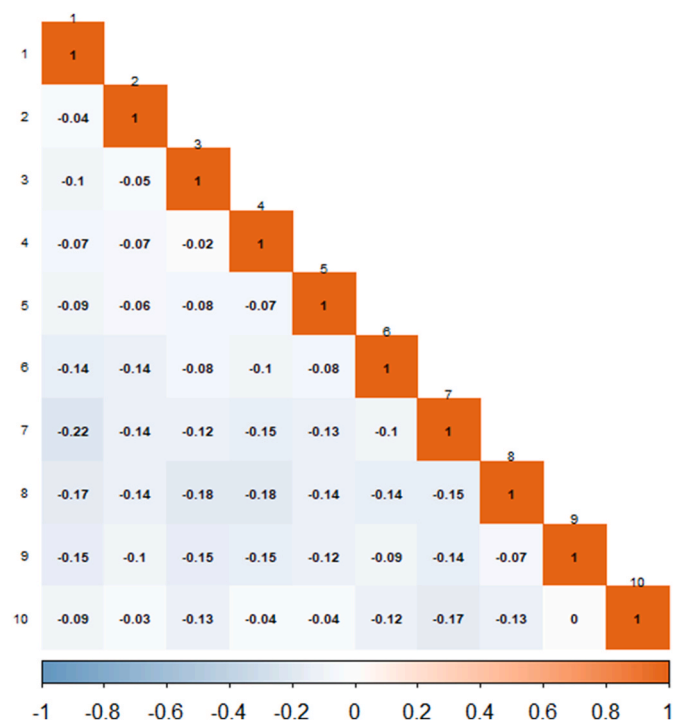


Fig. 8. Topic correlation matrix: Expected topic prevalence over time with 95% confidence intervals.

of exchange rates in mitigating inflationary pressures (Gur et al., 2023). Furthermore, studies have explored the use of exchange rates in times of monetary instability and the overall impact of market rates on the development of economic policies (Mahapatra & Bhaduri, 2019; Salisu & Ayinde, 2018).

3.3.1.2. Credit risk. This topic covers the complexity of credit risk in banking and finance, emphasizing the adaptation of portfolio risk management strategies (Ghenimi et al., 2017; Hossain et al., 2023; Naifar, 2023). Furthermore, the research examines the distinctive structure of financial instruments, which effectively spread and oversee credit risk, promoting a cohesive network of secure and sharia-compliant investment opportunities (Srairi, 2013; Wang et al., 2022).

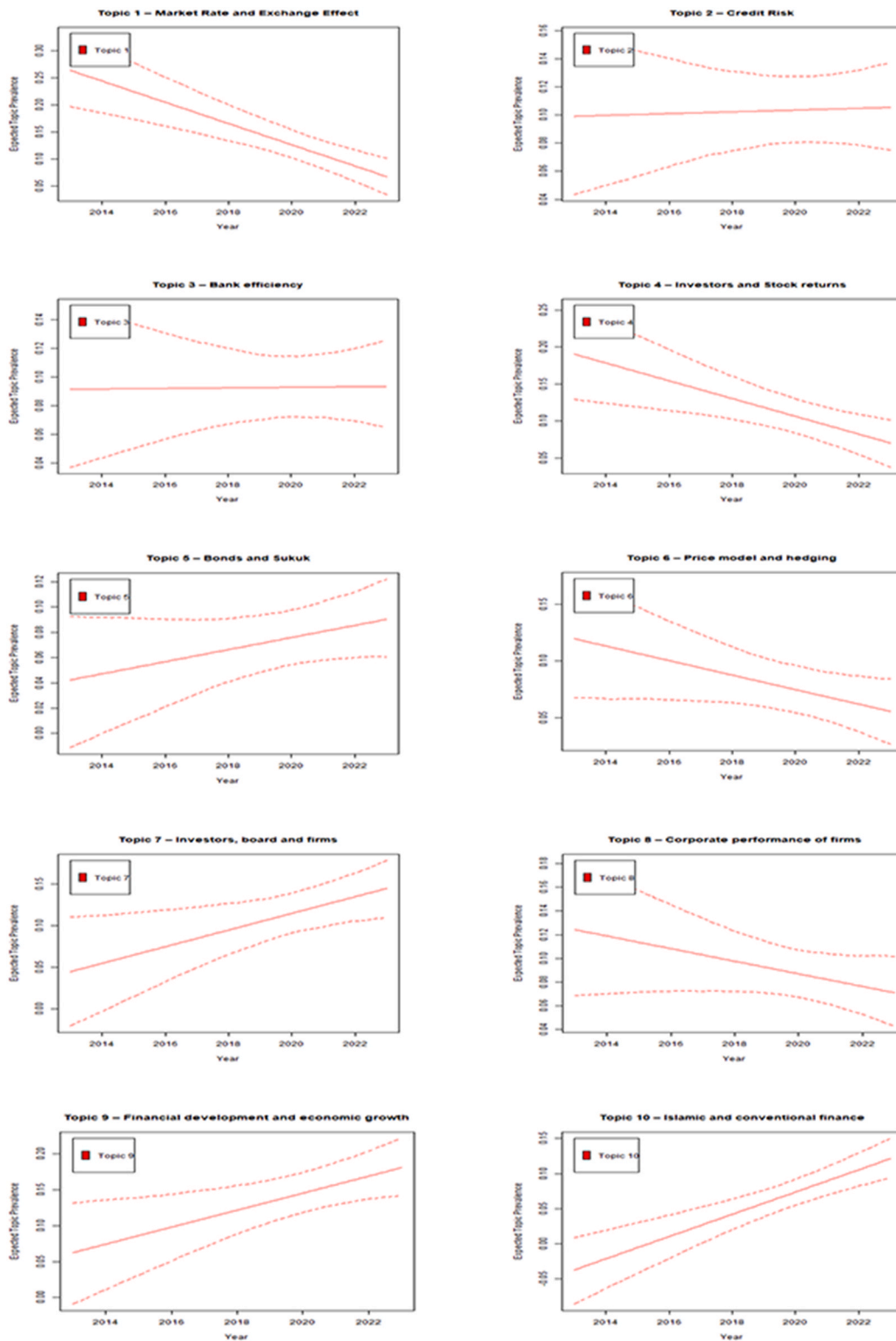


Fig. 9. Expected topic prevalence over time with 95% confidence intervals.

**3.3.1.3. Bank efficiency.** This topic analyzes the efficacy and robustness of banks, comparing and contrasting the Islamic and conventional banking systems. Studies examine the impact of Islamic banks, which operate based on distinctive risk-sharing rules and on stability and efficiency in the finance industry. The research encompasses traditional banks and their contribution to promoting growth through strategies focused on efficiency. The research demonstrates the influence of different bank frameworks on overall financial stability by examining

and contrasting the operational models of Islamic and conventional banks (Eycyurt Batir et al., 2017; Rashid & Jabeen, 2016).

**3.3.1.4. Investors and stock returns.** The correlation between investor attitudes, market surprises, and stock returns is an important area of research, revealing substantial discoveries regarding the reaction of stock prices to news announcements. The studies emphasize the

significance of comprehending investor mood and attention patterns to forecast stock return trajectories after significant announcements (Akarsu, 2023; Bagan et al., 2022; Savaser & Tiniç, 2023). This understanding is vital for investors and analysts as they navigate the intricacies of the stock market and optimize investment plans.

**3.3.1.5. Bonds and sukuk.** This area covers discussions on the complex mechanics of bond and sukuk trading, highlighting their significance in the financial markets. The studies examine the trading methods, market spread, and the precise procedures in order execution, highlighting the subtle distinctions and similarities between these two types of assets (Almaskati, 2022; Razak et al., 2019).

**3.3.1.6. Price model and hedging.** This topic examines how corporations use price models and hedging methods to navigate the unpredictable oil market. The research examines how businesses, namely under the leadership of their CEOs, strategically employ hedging techniques to reduce the impact of risks linked to volatile oil prices. Firms use models to forecast price fluctuations, facilitating well-informed investing and hedging strategies that optimize cash flow stability while effectively managing leverage (Cayirli et al., 2022; Roy & Shijin, 2019).

**3.3.1.7. Investor, board, and firms.** This topic explores the complex interplay between investors, boards of directors, and companies, specifically focusing on initial public offerings (IPOs) and performance indicators. The studies examine the influence of investor market behavior on board choices, explicitly focusing on the effects of overconfidence and bias on corporate strategies among board directors (Khaoula & Moez, 2019; Ocak et al., 2023). These studies also investigate the impact of heuristics on board compensation policies, indicating that these mental shortcuts can substantially influence the results and company performance (Liang et al., 2022; Qayyum et al., 2021).

**3.3.1.8. Corporate performance of firms and ESG.** The correlation between business performance and ESG factors is closely examined, revealing the influence of ESG disclosures and practices on firm outcomes. The research emphasizes that companies with robust ESG frameworks frequently demonstrate better performance, resulting from superior environmental stewardship, social responsibility, and governance procedures (Naeem et al., 2022; Saygili et al., 2022).

**3.3.1.9. Financial development and economic growth.** This topic examines the vital connection between financial development and economic growth, specifically how advancement in a country's finance system contributes to economic progress. The analysis emphasizes the significance of financial inclusion and foreign direct investment (FDI) as catalysts of development, facilitating the provision of more readily available and varied financial services that stimulate economic growth (Khan, Khan, et al., 2022; Wu & Wang, 2023).

**3.3.1.10. Islamic and conventional finance.** This topic revolves around the contrasting dynamics of Islamic and conventional finance, focusing on how each system handles capital, risk, and competitive positioning in the banking industry. The studies highlight non-interest-based methods, such as profit-sharing and ethical investing, in Islamic banking, which is governed by sharia law, to promote stability and competitiveness (Adekoya et al., 2022; Alaabed et al., 2019; Zaman et al., 2019).

### 3.3.2. Correlation analysis between bibliometric impact and thematic impact

We perform additional analysis to examine the correlation between the bibliometric impact (total citations) (Ellegaard & Wallin, 2015) and the thematic impact of the literature in *BIR*. Using keywords from titles and abstracts, we assign one of the ten themes mentioned earlier to each paper. We then calculate the average number of citations for each theme

(See Table 12).

Our analysis reveals that “investors and stock returns” and “corporate performance and ESG” on average have more citations than other themes, indicating that these themes have a significant bibliometric impact and are well received by the academic community. We conduct a Pearson correlation analysis to understand further the relationship between the bibliometric impact and thematic representation in *BIR*. This analysis determines whether a significant correlation is found between the average number of citations of each theme and their representation in the journal.

We calculate the representation of each theme as a proportion of the total number of papers published and the Pearson correlation coefficient between the average number of citations of each theme and their proportion to assess the strength and direction of the relationship (See Table 13).

The Pearson correlation coefficient is  $-0.019$ , with a  $p$ -value of  $0.958$ . This indicates the absence of a significant correlation between the thematic representation and the average number of citations in *BIR*. This suggests that the representation of themes in the journal does not significantly impact their bibliometric impact. These findings imply that high-impact themes, as measured by average citations, are not necessarily represented more in *BIR*. This highlights the journal's diverse thematic coverage and suggests that various themes, regardless of their citation impact, receive adequate attention from the editorial board. The correlation analysis reinforces the importance of thematic diversity in *BIR*. Although some themes may have a higher average number of citations, the journal maintains balanced representation of different research areas, ensuring comprehensive coverage.

## 4. Summary and conclusions

This retrospective evaluation of *Borsa Istanbul Review (BIR)* from 2013 to 2023, using machine learning data analysis provides a comprehensive understanding of the journal's scholarly impact, authorship patterns, and thematic evolution. Over that period, *BIR* experienced a substantial increase in the volume of publications and citations, showing its rising prominence and influence in finance research. Expanding its author collaboration network, with significant contributions from Turkish and East Asian scholars, highlights *BIR*'s role as a global platform for finance research, fostering international collaboration and knowledge exchange. The increase in collaborative works, though the average number of authors per publication remains constant, indicates a larger pattern of collective scholarship, which is crucial for enhancing the quality and impact of research published in *BIR*.

By publishing 464 documents, including articles and reviews, *BIR* has contributed significantly to finance research. These works received 7522 citations, showing their impact and importance in academia. On average, each document received 16.21 citations, highlighting the influence of the research published in *BIR*. These documents referenced 23,436 sources, indicating a strong research foundation.

During the study period, 978 authors contributed to *BIR*, showing a diverse and active academic community. Among the 464 documents, 91 had a single author, but the majority were collaborative, with an average of 2.58 authors per document. Moreover, 27.16 percent of them were international, illustrating *BIR*'s role in promoting global research.

*BIR*'s output mainly consisted of 440 articles focused on original research and 24 reviews that evaluated and summarized existing literature. This combination of articles and reviews shows *BIR*'s commitment to advancing new knowledge and providing context in the broader field of finance research. Overall, *BIR*'s extensive publication record and the significant impact of its research highlight its important role in the finance research community.

Among the key contributors to *BIR* are Hassan, with nine publications and 199 citations, and Saiti, with six publications and an average of 43.17 citations per publication. The journal also features contributions

from top institutions worldwide, including COMSATS University Islamabad and INCEIF, Malaysia, which are noted for their significant scholarly impact.

Contributions from countries such as Türkiye, China, Malaysia, and the US demonstrate the journal's global reach. Malaysia has an h-index of 22, reflecting its influential research. Highly cited articles in *BIR* include works on digital finance by Ozili (2018) and green finance by Meo and Karim (2022), highlighting the journal's focus on timely and impactful topics in finance research.

Institutions such as the University of New Orleans, COMSATS University Islamabad, Ho Chi Minh City Open University, Xi'an Jiaotong University, and Zhongnan University of Economics and Law play a central role in *BIR*'s scholarly collaboration network. These institutions are significant nodes, highlighting their importance in fostering research partnerships. Although some affiliated authors are top contributors to *BIR*, others from these institutions may not have high individual publication counts. This illustrates the value of collaborative efforts and joint research, emphasizing collective contributions over individual achievements.

*BIR* experienced significant growth in its publication and citation records, peaking at 120 publications and 1331 citations in 2022. The average total citations per paper is 16.227 (the range is from 0 to 582), reflecting the wide variability in articles' impact. The descriptive statistics indicate considerable differences in article characteristics, with notable predictors of citations including article age, number of keywords, and geographic location, in particular Asia. However, special issue papers and the number of figures and tables negatively impact citations. Despite moderate multicollinearity, most variables show weak or no significant correlations with TC. The negative binomial regression result highlights the importance of the empirical nature and article age in influencing citations. Our normalized citation analysis further emphasizes the considerable effect of the empirical nature and demeaned age squared on citation counts. These findings suggest that *BIR*'s strategy should foster originality, promote geographic diversity, and balance detailed content with readability to maximize scholarly impact. Collaborative research and global partnerships are crucial contributors to *BIR*'s success, demonstrating the journal's role in advancing finance research at an international scale.

Our regression analysis identifies several factors that significantly influence citation rates, including article length, age, lead article status, regional author affiliation, having multiple authors, keywords, figures, and tables. Articles featured in special issues and lead articles tend to receive more citations, reflecting their perceived significance in academia. The thematic analysis, facilitated by STM, reveals ten dominant themes in *BIR*, such as firm dynamics, market growth, financial health, and stock market returns. These themes highlight the journal's focus areas and provide a roadmap for future research, in emerging areas

such as Islamic finance and green finance are gaining prominence.

The Pearson correlation coefficient between thematic representation and average citations in *BIR* is  $-0.019$ , with a  $p$ -value of 0.958, indicating no significant correlation. This means that specific themes in the journal do not affect their bibliometric impact. High-impact themes, as measured by the average number of citations, are not necessarily represented more in *BIR*, highlighting the journal's commitment to diverse thematic coverage. These findings suggest that *BIR*'s editorial board ensures balanced representation of various research areas, regardless of their citation impact. The correlation analysis shows the importance of maintaining thematic diversity, providing comprehensive coverage of finance research.

The study also has some limitations, such as reliance on Scopus for citation data, which could impact the results. Future investigations could broaden the scope of this study by providing comparable evaluations and further pinpointing areas for improvement in *BIR*. It would be preferable for the editors to invite the authors to evaluate the journal every ten or fifteen years. In conclusion, *BIR* is a prominent center for international finance research, attracting authors worldwide and facilitating various influential studies. This analysis provides valuable insights for the journal's editorial board and researchers who wish to navigate and contribute to the evolving landscape of finance research.

#### CRedit authorship contribution statement

**Hassnian Ali:** conducted the bibliometric analysis and was primarily responsible for drafting the manuscript and led the regression analysis, interpreting the data and contributing to the manuscript's methodology section, Prof. Dr. **Ahmet Faruk Aysan:** executed the structural topic modeling, analyzed the results, and significantly contributed to the discussion and conclusions, Associate Professor Dr. **Hasmet Gokirmak:** provided critical revisions, focusing on integrating thematic findings and their implications, coordinated the research project, contributed to the design and methodology, and oversaw the manuscript's finalization, All authors reviewed and approved the final manuscript for submission.

#### Data availability

Data will be made available on request.

#### Funding source

We received no external funding to conduct this study.

#### Declaration of competing interest

None.

## Appendix

**Appendix Table 1**

Results of the regression analysis with the normalization of the number of citations per paper (NCP)

| Variable             | NCP                 |
|----------------------|---------------------|
| Article age          | -0.037<br>(0.049)   |
| Demeaned age squared | -0.020**<br>(0.009) |
| Article length       | 0.012<br>(0.024)    |
| Conceptual           | 0.284<br>(0.249)    |

(continued on next page)





