

FACTORING SERVICES AND BUSINESS PERFORMANCE: A BIBLIOMETRIC REVIEW OF GLOBAL RESEARCH TRENDS

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Abstract

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This research presents an in-depth bibliometric analysis of global trends in factoring services and accounts receivable. The paper dives into how these fields have evolved, highlighting their impact on academia and the collaborative networks that have developed over the years. The research relies on data from the Scopus database and employs tools such as VOSviewer and RStudio to depict the structure and dynamics of this expanding research area. This strategy brings together several techniques, including co-citation analysis, keyword co-occurrence, bibliographic coupling, Bradford's law, and thematic mapping. By using these methods, we can reveal important authors, top institutions, major journals, and worldwide research trends from 1938 to the present. The findings show a steady increase in the number of publications, greater international collaboration, and changes in the focus of topics. It aims to emphasize the importance of knowledge sharing across borders and to highlight the active roles that different institutions play in the world of factoring services, and the results are illustrated through the analysis of co-authorship networks and contributions from different countries. This research is an invaluable resource for scholars, practitioners, and policymakers eager to grasp the growing significance of factoring in global finance and business operations.

Keywords: Factoring Service, Bibliographic Coupling, Co-citation Analysis, Thematic Mapping, Keyword Co-occurrence, Co-authorship Networks

Authors' individual contribution: Conceptualization — S.P.; Methodology — V.K.K.; Software — T.K.S.; Formal Analysis — M.S.; Investigation — S.R.; Writing — Original Draft — L.S.; Writing — Review & Editing — A.H.; Visualization — S.R.

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1. INTRODUCTION

The process of factoring accounts receivable encompasses debt collection, credit management,

credit protection, and the administration of outstanding accounts. According to the conceptual framework, the legal structure is the factoring agreement, which is a contract between the seller and

the factor and gives the factor the power to handle credit, warranties, and provisions. Fiordelisi and Molyneux (2004) include guarantee and financial services in credit management and collections. Before setting up a philosophical or legal framework, one must look at the historical context of the basic idea.

Factoring is a common way to handle money. Around 4000 BC, merchants in Babylon and the Roman Empire used factoring to pay for goods. Many businesses today use factoring to help pay for their operations (Bunich et al., 2018). Bilgin and Dinc (2019), Surikova et al. (2022), and Soufani (2002) all use the terms “factoring” and “accounts receivable” to mean the same thing. A person has a full understanding of possible problems and their solutions, as well as the importance of factoring services in today’s business world. When a downstream store receives trade credit, the supplier must monitor the accounts receivable, necessitating the need for specialized departments or workers. Accounts receivable that are not getting paid on time might cost the company a lot of money, and the store may have trouble meeting its credit obligations because of changing market demand. Factoring can help with problems that come up with trade credit suppliers (Tian et al., 2020). Factoring refers to accounts that owe money. A factor buys a company’s receivables. The factor quickly gets 80% of the value of the sold accounts (Borgia et al., 2010) in exchange for owning the receivables. Businesses that want to obtain loans from banks need to factor in cash. Factoring might be a better choice for businesses that need guaranteed collections or have hit the limit on their bank credit. Factoring helps businesses keep track of their cash flow by carefully planning their financial operations (Bilgin & Dinc, 2019). Factoring has facilitated equal opportunities for micro, small, and medium-sized enterprises (MSMEs) and multinational companies across various global regions. Accounting errors turn receivables into cash, making it easier to do business across borders and improving the company’s working capital and financial strength. Many studies published in reputable journals such as Scopus and Web of Science (WoS) indicate that most countries have been using factoring for a long time, while only a few have recently begun to adopt it.

This study will be important for anyone who studies global literature and how it connects to other things. This link would help research networks keep their post-analysis balanced by country, author, and institution. The analysis of co-citation and co-authorship will reveal the connections among individuals in the study field. The bibliometric engine uses VOSviewer and Bibliometrix in RStudio to show service networks based on 843 papers published between 1938 and the middle of 2024.

The paper is organised as follows. Section 2 gives a detailed review of the relevant literature. Section 3 explains the method used for the bibliometric analysis. Section 4 shows and discusses the main results and findings in depth. Finally, Section 5 presents the concluding remarks and outlines the study’s implications.

2. LITERATURE REVIEW

2.1. Theoretical background

It’s interesting that the changes in factoring have made it better. In 1397, Blackwell Hall in London

opened as a market for textiles. The building that used to be a market for drapers and clothiers belonged to the mayor and the people of London. For a long time, it has helped English textiles by turning raw materials into cloth. The Clothworkers’ Guild was one of the oldest and most important guilds in London. It worked with fabrics, put them in order, and sold them. Clothworkers were those who helped buyers and sellers get in touch with each other. Clothiers borrowed money before they sold their goods. The textile sector was the first to employ this method of factoring. A new group of enterprises was created to focus on lending money to people who wanted to buy stuff and making sure they could pay it back (Keegan, 2020). In the 15th and 16th centuries, it became more popular to hire people to do factoring. As England, France, and Spain learned more about their colonies, they sent goods and hired people to connect producers and merchants in those countries. The agents’ main job was to sell things, but they also helped with moving and storing them (Maes et al., 1999). Factoring started in international trade when new markets needed to figure out how to sell their goods (Kiholm Smith & Schnucker, 1994).

Many factoring agreements were made that set the same rules, obligations, rights, and repercussions for everyone who employs factoring services in modern businesses. Spasić et al. (2012) say that many factoring agreements included the same terms, circumstances, repercussions, termination clauses, duties, and rights for everyone engaged. The way the law is set up makes it easier to get factoring contracts, which lowers the cost of conducting business. Civil law courts have trouble enforcing common law contracts, especially when it comes to debts that will come due in the future and conditions that imply you cannot give up your rights. National factoring standards are supported by traditional conventions and legal groups. This deal solves many of the problems that the International Institute for the Unification of Private Law (UNIDROIT) and United Nations Commission on International Trade Law (UNCITRAL) brought up in 1988 and 2001, respectively. It’s preferable to have these accords than to make new laws in every country. Milenkovic-Kerkovic and Dencic-Mihajlov (2012). A United Kingdom study found that the size of the company, the types of products it sells, the industry it is in, the age of the company, the demographics of its customers, the availability of published financial statements, the effectiveness of its management, the compatibility of its operations, its profitability, and the quality of its receivables are all important factors in financial underwriting (Baker et al., 2020; Soufani, 2002). If judges in states that are part of a factoring or receivables contract do not follow the rules, states that are not part of the contract must follow the rules that apply to the state that is part of the contract. This plan stops people from shopping around for a forum (Radley-Gardner et al., 2003). Many well-known companies use factoring services. This is a stereotype since individuals do not have to enjoy or agree with the product’s life cycle. Managers do different things to lower risk in different scenarios.

People act differently depending on how many of these things they buy. When there are a lot of competitors in a market, it’s hard for consumers and sellers to get what they want. This is why factoring

services are so common (Summers & Wilson, 2000). Factoring is useful for vendors who get a lot of new customers but not many recurring customers. These perks also attract picky consumers. It's easier and cheaper to collect credit and product risk information from one place than from a number of different places, both for the buyer and the supplier (Kiholm Smith & Schnucker, 1994). For businesses to do well, people need to have a good opinion of factoring. Factoring services could become an important part of the financial tools that help the economy thrive (Rexhepi et al., 2022). There are not enough checks and balances in small businesses. It makes it more likely that there will be problems with internal control. Small and medium-sized businesses (SMEs) that do not follow the rules may have a hard time competing with bigger businesses that have more money, better technology, and more contacts in the market. A lot of small businesses have started using factoring to get cash in the past several years. Risk analysis is no longer just for small businesses as factoring grows more common. This makes the market more competitive and gives SMEs more options for money and services (Soufani, 2001). Any business that meets the requirements for factoring can get money to help with its short-term cash flow. These loans could make it easier for these small businesses to get money in the long run (Soufani, 2000). Banks provided more services as the need for factoring grew. It's hard to acquire a loan when the food, pharmaceutical, and car businesses are all in debt. As the market grows, this problem needs to be fixed quickly. Stroeve et al. (2015) say that the Visegrad Group (V4) countries are slowly starting to use measures to lower risk. More and more consumers need factoring packages that can handle both banking and non-banking claims (Čulková et al., 2018). These products will assist USA firms in getting back on their feet and help the economy rebuild after the crisis. They also help businesses keep their money stable by letting them wait to pay bills. A lot of businesses want more cash on hand, but more and more customers want to be able to receive credit. At this point, factoring is helpful, and Nesterenko et al. (2019) confirm this. Factoring does not operate if there is not enough demand, but it does help Mexican SME owners get the money they need to run their firms.

When big corporations with good credit pay for a lot of suppliers, factoring happens more commonly. Pérez-Elizundia et al. (2020) say that bibliometric analysis can help both new and seasoned business studies teachers. Donthu et al. (2021) say that VOSviewer is an extra program that may be used to make and look at bibliometric maps. These maps show how often keywords show up together and how often authors and journals cite each other. Bibliometrix is a free R package that can be used for both bibliometric and scientometric research, as well as for quantitative analysis. This piece utilizes advanced statistical methods and tools to showcase data (Kemeç & Altınay, 2023). Through Bibliometrix's term co-occurrence analysis in academic literature, keyword networks can be formed. VOSviewer, leveraging bibliometrics, creates graphs that reveal patterns in publications. It can also search for and extract text (Ali et al., 2023). RStudio's Bibliometrix and VOSviewer can be utilized to analyze the total citations, collaboration networks, keyword utilization, literary themes, and publication frequency for either the entire dataset or selected portions thereof.

Bibliometric analysis is a great way to find out how much work scientists do (Hidayat et al., 2024). It aids researchers at schools and anyone else who works with them (Ellegaard & Wallin, 2015).

This study uses Scopus data and bibliometric analysis to explore how changes in worldwide factoring service research affect business performance, innovation, and strategic partnerships. We used VOSviewer and RStudio (Bibliometrix) to look at the data. CiteSpace, Gephi, HistCite, Bibliometrix, and Python libraries all have bibliometric functions.

2.2. Conceptual framework

Figure A.1 (see Appendix) shows the conceptual framework that came out of the bibliometric analysis. It demonstrates how VOSviewer and RStudio (Bibliometrix) were utilized to delve into global research trends, influences, and the evolution of factoring services. The figure outlines crucial analytical areas, including research dynamics through co-authorship and contributions from different countries (refer to Figures 6 and 11). It also assesses the global and local impact through citations and author productivity (see Figure 8 and Tables 4 and 5) and identifies evolving trends through keyword analysis, annual output, and thematic mapping (check Figures 2, 9, and 10, Table 2). Additionally, it presents recent updates with a Sankey diagram and an analysis of production by country (see Figure 3 and Table 6). This summary effectively captures how the study investigates the academic landscape of factoring services.

3. RESEARCH METHODOLOGY

3.1. Method

With the growing amount of literature on factoring services, we opted for bibliometric analysis as a reliable and systematic way to assess research trends and scholarly impact. This methodology allows researchers to quantitatively evaluate how knowledge evolves by analyzing publication patterns, citation performance, and thematic developments. By employing techniques such as co-citation, co-authorship, and co-word analysis, bibliometric tools create intricate maps of scientific knowledge. These tools help reveal the often-overlooked relationships among authors, institutions, and research areas. As highlighted by Subeesh and Joseph (2023), Tijjani et al. (2021), and Alshater et al. (2021), this approach provides valuable information about the dynamics of scholarly communication across different geographical and disciplinary boundaries. In addition, bibliometric approaches significantly help in reducing any subjective bias.

Bibliographic analysis is a simple and dependable approach to indicate how a topic's intellectual structure and growth have altered (Donthu et al., 2021). In this paper, the bibliometrix software, like VOSviewer and RStudio, was used for the bibliometric investigation. Both software are free and open-source tools that enable the construction and display of bibliometric networks like citation, keyword co-occurrence, and co-authorship networks (Ahmed et al., 2022). Utilizing the maps' zoom, pan, and search functionalities, one may reveal subject clusters and patterns in text mining (Liu et al., 2013). The graphs do a wonderful job of displaying how

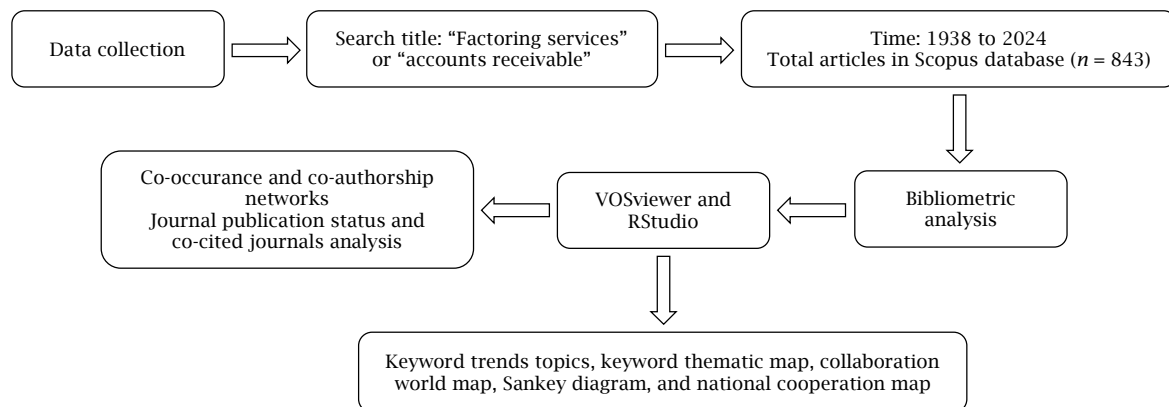
authors, journals, and nations are linked to one another. We did more statistical analysis and made graphs of bibliometric data using RStudio and the Bibliometrix R package. RStudio is a free, open-source program that includes better and more customizable statistical features than VOSviewer. Bibliometrix can accomplish things like seeing how individuals work together, making co-citation networks, and studying co-words (Gao et al., 2021). This tool makes it easier to find the most important authors, publications, and themes in the field in a systematic way (Abdulrasool & Othman, 2020; Khan et al., 2022). The web-based interface makes it easier for academics who do not know how to code to accomplish challenging bibliometric tasks. This feature makes it a powerful and easy-to-use tool for teachers in the classroom. Shah (2013) and Baker et al. (2020) state that bibliometrics' ability to organize and arrange scattered keyword networks is particularly crucial for bibliometric and scientometric evaluations. Researchers may easily and thoroughly see the intellectual landscape of factoring services research by using VOSviewer and RStudio.

3.2. Data sources

Figure 1 highlights the processes of the research process: collecting data, cleaning it up, and

analyzing it. We used Bibliometrix (v4.1.0), RStudio (v4.2.1), and VOSviewer (v1.6.20). We utilized the LinLog/modularity approach to display the network, the default clustering settings with a resolution of 1.00, and the same strength of connection. We used bibliometrix products like Bibliometrix, bibliometrics analysis, and thematic map to keep track of our work and our kids' progress. This study presents a brief overview of research on factoring services from around the world, focusing on the most important work done by well-known authors and groups. Classifying keywords into categories elucidates the intrinsic linkages and thematic associations between them. When we look closely at temporal and burst keywords, we start to see some exciting trends. By leveraging both co-occurrence clustering and burst detection, we can identify active research fronts and development paths in the field. We sourced our bibliometric data from Scopus, which examined English-language journal articles published from 1938 through mid-2024. The focus was on articles containing the phrases "factoring services" or "accounts receivable". We filtered out duplicates and irrelevant entries, ultimately adding 843 new items to our collection. To enhance readability, we removed metadata fields that included authors, their affiliations, publication types, keywords, citations, and references.

Figure 1. Flowchart of data collection, analysis, and visualization.



Source: Authors' elaboration based on the Scopus database.

4. FINDINGS AND DISCUSSION

Table 1 presents a quick overview of Scopus, which makes bibliometric analysis easier. A total of 843 documents from 419 sources, primarily journal articles, were published between 1938 and 2024. Publications have steadily increased, as shown below. Because these records grow by 4.25% per year. This collection includes ancient and fresh items with an average age of 18.6 years old. The average number of citations per document is 12.73, which shows that these works have had a big effect on their field. The investigation discovered 16,819 references in the data collection. Keywords Plus has 1,676 keywords, and writers have 1,613, covering many topics. There are 1,626 writers in the collection. There are 311 writers published a total of 335 documents, each authored by a single individual.

Table 1. Timeline information

Description	Results
Period	1938-2024
Sources (journals, books, etc.)	491
Documents	843
Annual growth rate (%)	4.25
Document average age	18.6
Average citations per doc	12.73
References	16819
Keywords Plus (ID)	1676
Author's keywords (DE)	1492
Authors	1626
Authors of single-authored documents	311
Single-authored docs	335
Co-authors per doc	2.14
International co-authorships (%)	10.44
Total articles	843

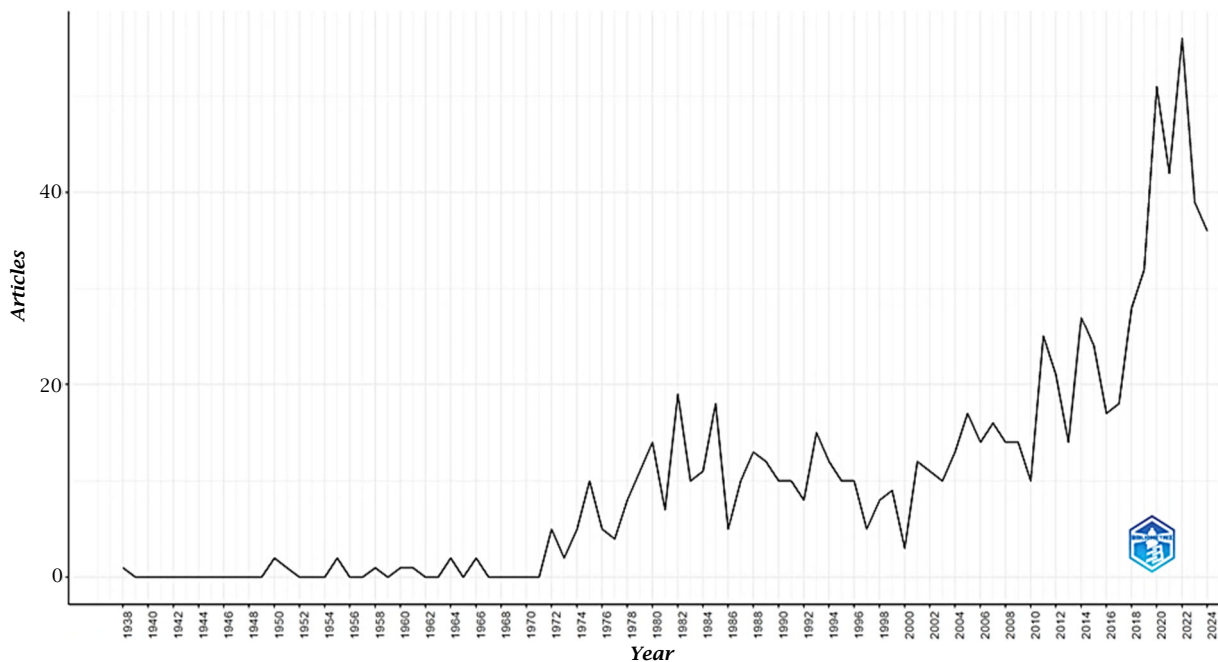
Source: Authors' elaboration based on the Scopus database employing RStudio.

Our co-authorship scale shows that 2.14 authors per document collaborate. Many foreigners are working on these publications; 10.44% are in multilateral partnerships. This number reflects global interest in this study issue. All 843 documents are articles; hence, the dataset is mostly articles. There are 843 documents in the bibliometric data from 1938 to 2024, and they come from 419 different sources. There is more interest in research because publications are expanding by 4.25% per year. Each piece gets an average of 12.73 citations, which shows how important it is. There is some teamwork, with 2.14 writers per submission and 10.44% of them having co-authors from other

countries. The fact that all of the texts are journal articles shows that they are peer-reviewed.

Figure 2 shows the yearly trend of Scopus-indexed research and review articles on “factoring services” and “accounts receivable” from 1938 to 2024. The first article was published in 1938, and there was a 12-year gap before consistent publication started in 1950. Since then, the number of publications has increased steadily. This growth reflects rising academic interest and acknowledgment of the subject’s importance. Figure 2 highlights how the field has changed over time, with impact factor acting as a key measure of journal quality throughout the analysis.

Figure 2. Annual scientific production of articles



Source: Authors' elaboration based on the Scopus database employing RStudio.

Table 2 shows a clear increase in academic publications on factoring services. The highest point was in 2022, with 56 articles published. This rise shows a growing understanding of factoring as an important financial tool, especially during global economic challenges. There was also a significant jump in 2015, with 24 publications, suggesting

a steady growth in academic interest over time. The data indicate more research activity, wider participation from institutions, and relevance across different fields. This highlights how important factoring has become in finance, economics, supply chain management, and the growth of MSMEs.

Table 2. The top 10 annual production of articles over the years

	2011	2014	2015	2018	2019	2020	2021	2022	2023	2024
Articles	25	27	24	28	32	51	42	56	39	36

Source: Authors' elaboration based on the Scopus database employing RStudio.

In Figure 3, we can see how the terms “factoring services” and “accounts receivable” have shifted in the realm of academic literature. It points out that key authors such as Bilgin and Dinc (2019), Surikova et al. (2022), and Soufani (2002) often treat these terms as interchangeable. While six authors typically link “accounts receivable” to auditing, recent studies are beginning to associate “factoring services” with broader themes like sustainability, especially in Switzerland. This figure highlights a transition from the traditional focus on cash conversion through receivables to the modern significance of factoring in both financial and

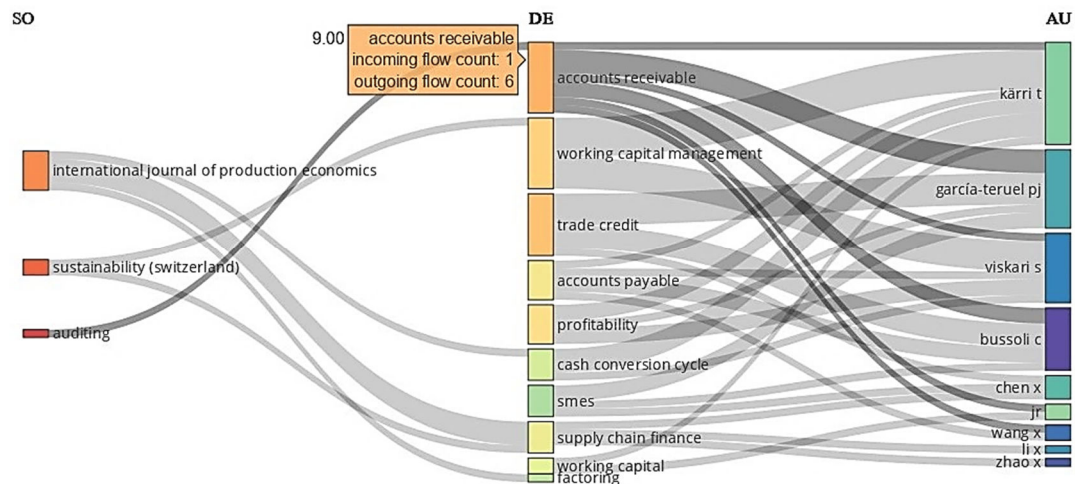
sustainability contexts. It underscores the ongoing development and expansion of factoring services as a research area.

Figure 4 shows the global use of the keywords “accounts receivable” and “factoring services”. Both terms connect to three major institutions. This indicates that these concepts are well-known and researched in many countries. The figure highlights strong academic interest and increased involvement from institutions in factoring services. Ultimately, it shows promising growth and a heightened awareness of the topic on a global level.

Check out Figure 5, which showcases the top authors in the realm of factoring services. Influential figures like Kinnunen et al. (2020) have made a significant mark on this field with their research focusing on liquidity, credit risk, and financing options for SMEs. Their impactful publications

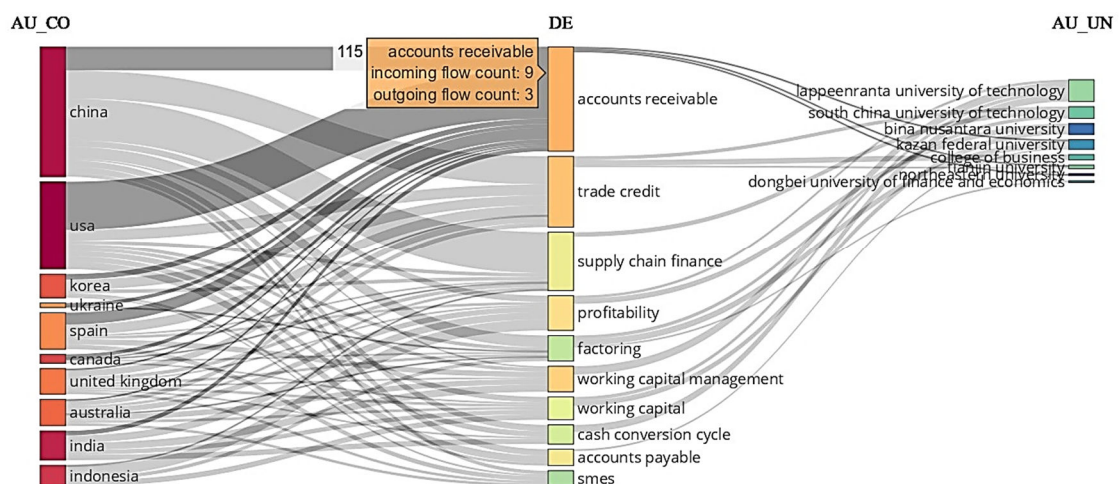
have shaped both the academic world and the practical side of factoring. This figure really highlights their essential role in promoting factoring as a vital financial tool for addressing short-term funding needs.

Figure 3. A Sankey diagram (key sources, keywords, and authors)



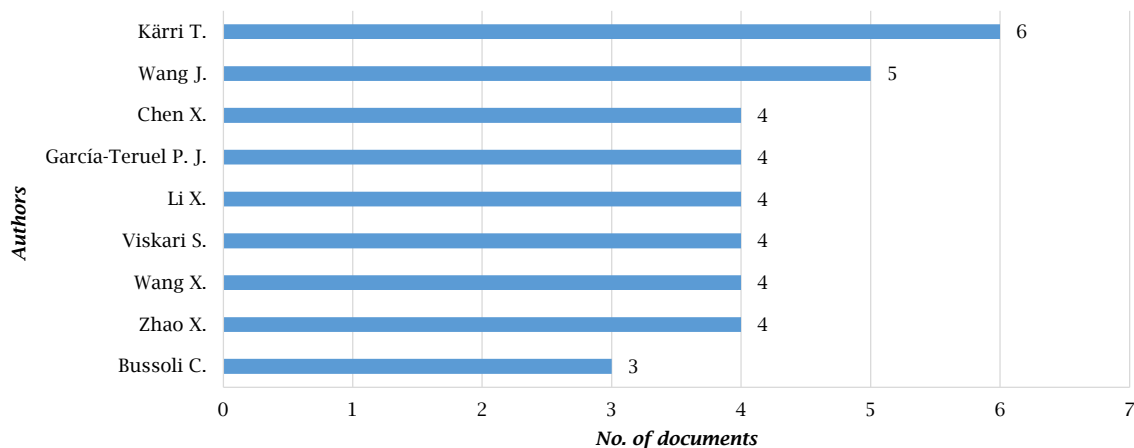
Source: Authors' elaboration based on the Scopus database employing RStudio.

Figure 4. A Sankey diagram (countries, keywords, and affiliation)



Source: Authors' elaboration based on the Scopus database employing RStudio.

Figure 5. Geographic spread of the authors in the field

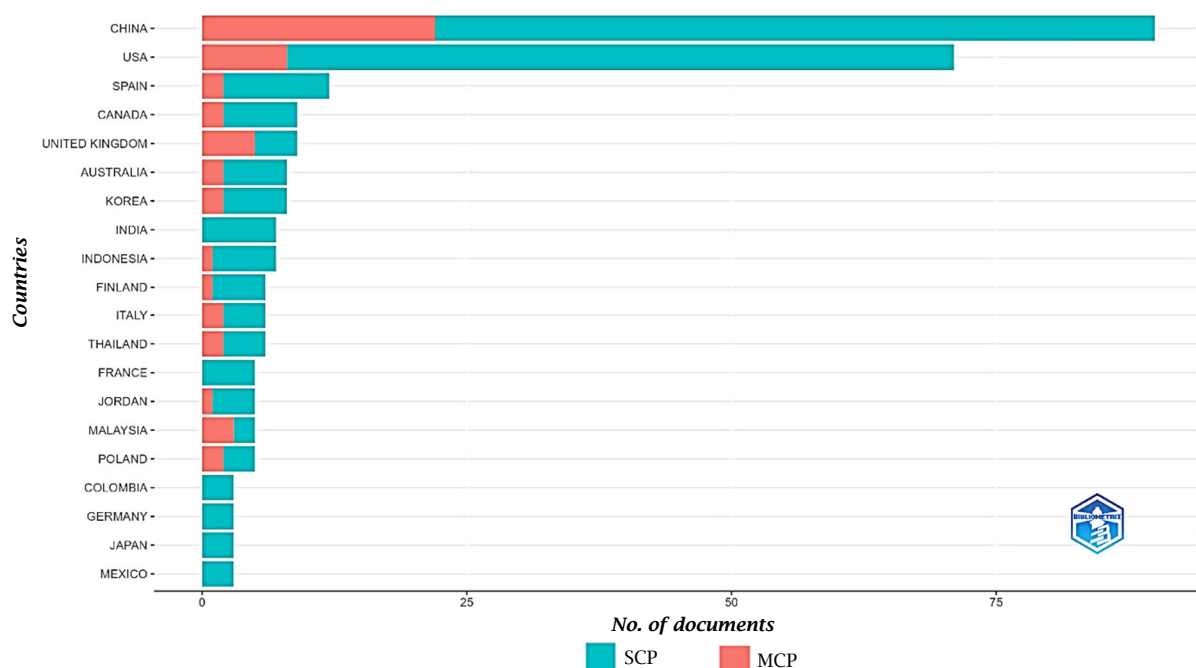


Source: Authors' elaboration based on the Scopus database employing RStudio.

In Figure 6, we see a bibliometric analysis that highlights the geographic spread of authors in the factoring services industry. The information is sourced from RStudio and the Scopus database. The accompanying bar chart displays the number of publications (N) for each country, categorizing them into single-country publications (SCP) and those that involve multiple-country publications (MCP). This distinction allows us to assess how well countries work together and the value of the research. China leads significantly. It has the highest number of papers and collaborates on projects both domestically and internationally. In addition to conducting extensive research in this field, China maintains connections with academic networks worldwide. The USA ranks second, with a strong mix of SCP and MCP. This demonstrates its importance

in global research. Despite their limited international collaboration, Spain, Canada, and the United Kingdom also significantly contribute. In contrast, countries like India, Indonesia, and Pakistan produce much SCP, showing that most of their research occurs within their borders rather than in collaboration with others. This trend may result from researchers focusing on specific themes or challenges that arise during international collaborations. Japan, Germany, and Mexico are lower on the list, suggesting they are involved but not heavily investing. From a bibliometric perspective, the data reveal notable differences in how leaders and researchers collaborate in factoring services globally. Donthu et al. (2021) state that a researcher gains recognition and influence through collaboration with international peers.

Figure 6. Corresponding author's countries



Source: Authors' elaboration based on the Scopus database employing RStudio.

Table 3 illustrates the citation trends from the 10 most-cited years in the Scopus database, which we analyzed using RStudio. 1998 had the highest research impact, averaging 154.50 citations per article from just eight publications. Conversely, 2016 recorded the lowest average, with only 21.82 citations despite having 17 articles published.

Additionally, although 1992 had 33 years of citable publications, it did not achieve the highest citation score. This indicates that longer citation periods do not always lead to greater impact. Overall, the data reveal notable differences in research influence over time.

Table 3. The top 10 average citations (per year)

Year	1992	1998	1999	2001	2004	2005	2009	2011	2013	2016
Mean total citation per article	45.25	154.5	25.89	53.42	22.54	38.59	28.21	33.8	34.57	21.82
N	8	8	9	12	13	17	14	25	14	17
Mean total citation per year	1.37	5.72	1	2.23	1.07	1.93	1.76	2.41	2.88	2.42
Citable years	33	27	26	24	21	20	16	14	12	9

Source: Authors' elaboration based on the Scopus database employing RStudio.

Table 4 shows the local impact of journals in the specific research dataset on factoring services. It illustrates how often sources are cited in this focused academic context, rather than across all fields. Among the top 10 journals, the *International Journal of Production Economics* ranks highest. This

piece boasts impressive impact metrics, featuring an H-index of 8, a G-index of 9, and an M-index of 0.421. The data suggests that factoring services are a key research topic in certain journals, which in turn encourages more academic contributions to these publications.

Table 4. Sources' local impact

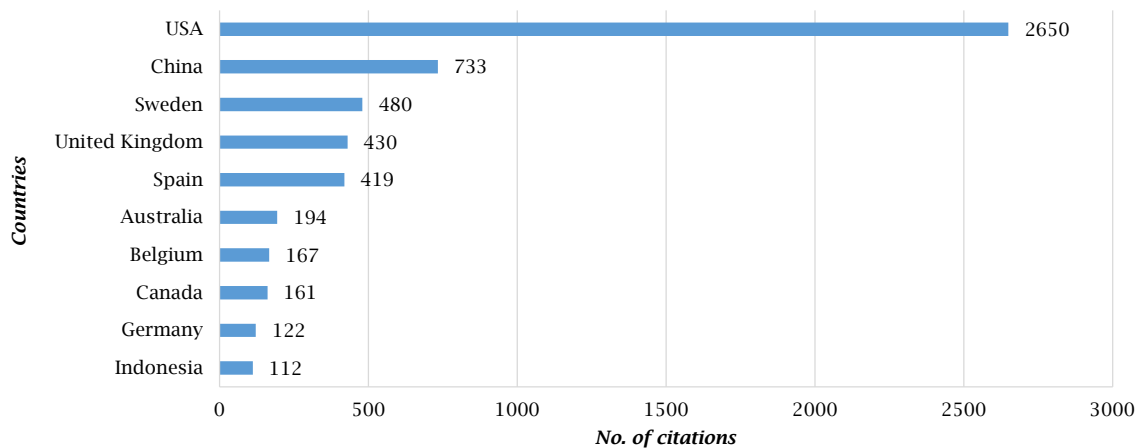
Source	H-index	G-index	M-index	TC	NP	PY_start
<i>International Journal of Production Economics</i>	8	9	0.421	420	9	2006
<i>Auditing: A Journal of Practice & Theory</i>	7	10	0.241	476	10	1996
<i>Journal of Small Business and Enterprise Development</i>	5	5	0.208	188	5	2001
<i>Sustainability</i>	5	7	0.714	57	10	2018
<i>Contemporary Accounting Research</i>	4	6	0.103	223	6	1986
<i>Journal of Theoretical and Applied Electronic Commerce Research</i>	4	4	1	120	4	2021
<i>Managerial Finance</i>	4	5	0.571	28	5	2018
<i>Accounting Horizons</i>	3	3	0.15	454	3	2005
<i>Applied Economics</i>	3	3	0.333	28	3	2016
<i>European Journal of Operational Research</i>	3	3	0.115	167	3	1999

Note: TC — total citations, NP — number of papers, PY_start — year of first publication on this topic.

Source: Authors' elaboration based on the Scopus database employing RStudio.

Figure 7 facilitates the identification of countries most commonly referenced in research on factoring services. This indicates their significance in academia and their global reputation. The USA ranks at the top, reflecting its strong research output and investment in this area. Following it are China,

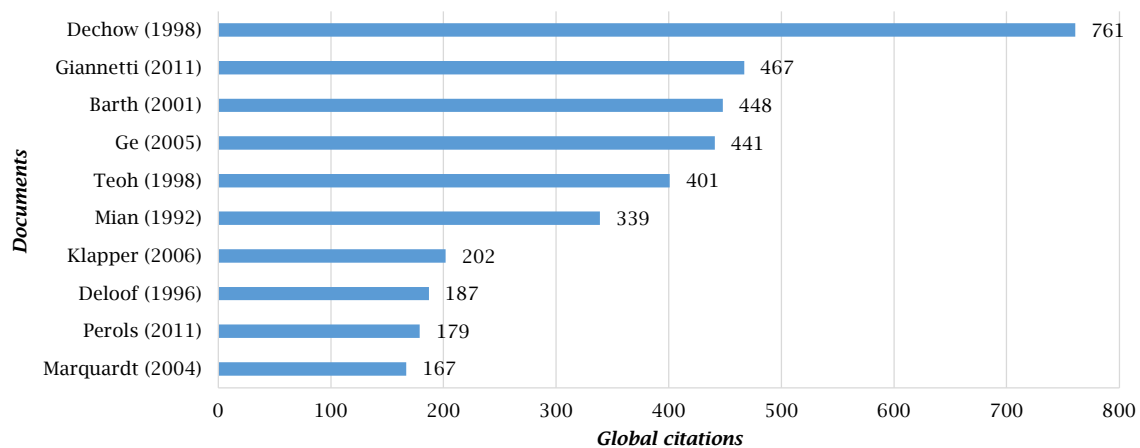
Sweden, and the United Kingdom, which have all made substantial contributions, backed by effective research systems and international collaboration. In summary, the figure emphasizes the global and interconnected nature of academic work in factoring services.

Figure 7. Most cited countries

Source: Authors' elaboration based on the Scopus database employing RStudio.

Figure 8 presents a bibliometric analysis of the most cited documents related to factoring services worldwide. We collected the data from the Scopus database using RStudio. The chart highlights the most cited papers globally, showing their importance and influence on later research. Papers that attract substantial numbers of citations typically present influential concepts, novel methodologies, or theoretical perspectives that significantly shape scholarly conversations within their disciplines. The article by Dechow (1998) stands out as a notable example; it has made a considerable impact on the academic discourse. Published in the *Journal of Accounting and Economics*, this paper has become the most cited. It underscores its vital contribution to understanding how working capital and factoring mechanisms impact accounting practices. Other notable works offer informative perspectives on credit management, financial reporting, and SME financing, which are essential for understanding

factoring services. Some of these publications appear in respected journals, such as the *Journal of Finance*, *The Accounting Review*, and *Contemporary Accounting Research*. This evidence demonstrates how credible and relevant their contributions are to the field. Many works from the 1990s and early 2000s demonstrate a continued interest in how factoring works and its role as a financial tool. This interest continues to grow. From a bibliometric viewpoint, this trend indicates that key works continue to influence ongoing research. This phenomenon demonstrates how knowledge accumulates over time. As Donthu et al. (2021) note, highly cited texts serve as important benchmarks in any field and often act as foundational references for subsequent research. The increase in global citations over time reflects a growing consensus among scholars regarding the significance of factoring, not only in corporate finance but also in studies of supply chains and risk management.

Figure 8. Most globally cited documents

Source: Authors' elaboration based on the Scopus database employing RStudio.

In Table 5, we can see the local influence of authors in the realm of factoring services through citation metrics. It highlights the top 10 authors according to their H-index, G-index, and M-index. These indices reveal their productivity, the significance of their most-cited works, and the steadiness of their contributions over time. This analysis

underscores which authors are making the biggest waves in this dataset. It provides essential insights into the leading contributors who are pushing research in the field of factoring, allowing us to recognize those researchers who consistently leave a mark.

Table 5. Authors' local impact

Author	H-index	G-index	M-index	TC	NP	PY_start
Kärri T.	5	6	0.357	56	6	2011
Chen X.	4	4	0.8	69	4	2020
Viskari S.	4	4	0.286	32	4	2011
García-Teruel P. J.	3	4	0.2	207	4	2010
Li H.	3	3	0.5	38	3	2019
Li X.	3	4	0.6	25	4	2020
Martínez-Solano P.	3	3	0.2	204	3	2010
Olson D. L.	3	3	0.273	56	3	2014
Pirttilä M.	3	3	0.214	38	3	2011

Source: Authors' elaboration based on the Scopus database employing RStudio.

Table 6 shows the scientific output by country, highlighting global participation in research on factoring services. It lists the number of research articles and reviews published, showcasing each country's role in knowledge creation and international collaboration. The USA tops the list in

research production, with China not far behind. This indicates their strong involvement and impact in this area. It also implies that factoring services are studied more extensively and likely used more often in these regions, emphasizing their importance in global financial research and practice.

Table 6. Countries' scientific production

	USA	China	India	Indonesia	Canada	South Korea	Australia	United Kingdom	Spain	Ukraine
Frequency	464	286	42	37	36	36	32	31	27	24

Source: Authors' elaboration based on the Scopus database employing RStudio.

In Figure 9, we have a "WordCloud" that was created using RStudio. This WordCloud highlights the most commonly mentioned keywords found in the academic literature on factoring services. WordClouds are fantastic tools for bibliometric analysis because they allow us to pinpoint key themes and emerging research trends. The size of each word indicates how often it appears in the dataset. This gives us a visual insight into the main ideas in this field. "Accounts receivable" is the most common keyword, highlighting its importance in discussions about factoring. Its popularity suggests that academic conversation often focuses on managing cash flow, credit policies, and receivables financing, all crucial aspects of how factoring services operate. Other significant phrases to consider are "working capital management",

"trade credit", "profitability", and "accounts payable". These terms reflect the focus on short-term financial strategies and liquidity management in the field. It's also worth mentioning that while "factoring" is the main research topic, it actually ranks ninth in terms of how frequently these keywords are used. This suggests that researchers tend to look at factoring more through its financial implications and applications rather than just the term itself. Keywords such as "supply chain finance", "cash conversion cycle", and "working capital" indicate that this topic is closely linked to larger themes in operations, finance, and risk management. The WordCloud shows that the literature on factoring services is closely linked to key areas such as credit risk, operational efficiency, and financial performance. Donthu et al. (2021) state that

keyword-based bibliometric techniques play a key role in identifying new research areas and supporting systematic literature reviews. Figure 9

offers researchers a visual tool to navigate and contribute to the expanding knowledge about factoring services.

Figure 9. WordCloud showing the most frequently used keywords by authors

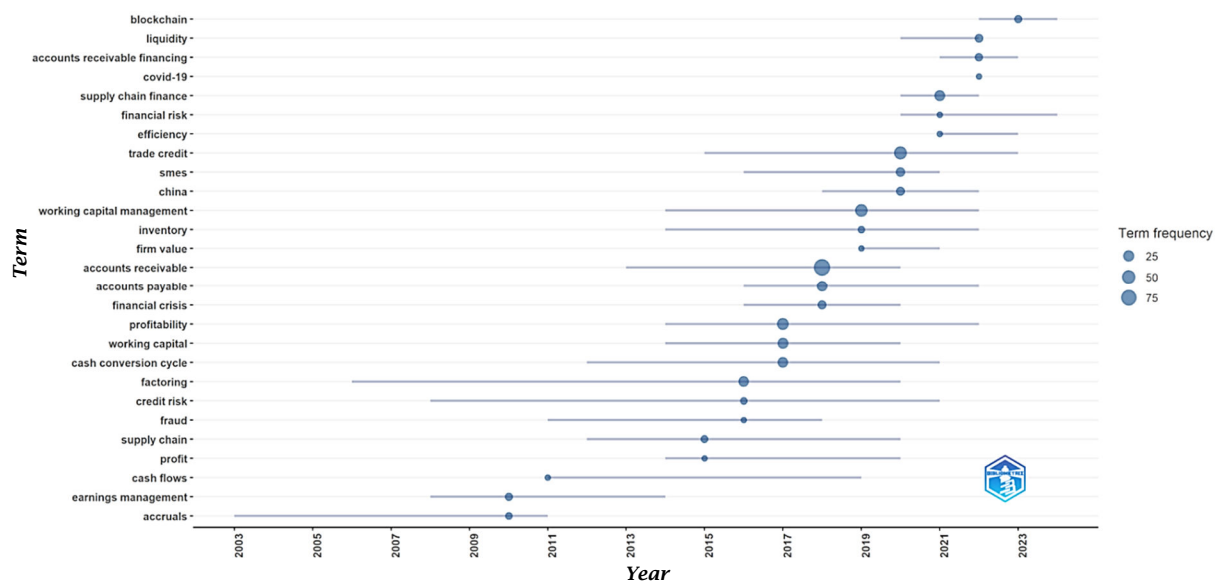


Source: Authors' elaboration based on the Scopus database employing RStudio.

Figure 10 shows the trending topics in factoring research based on keywords provided by authors. The term “accounts receivable” is the most common and currently trending keyword. In contrast, “factoring services” comes in ninth.

This trend analysis shows how research interests have changed over time and emphasizes “accounts receivable” as the main focus in recent academic work on this subject.

Figure 10. Trending topics based on authors' keyword analysis



Source: Authors' elaboration based on the Scopus database employing RStudio.

Thematic mapping analysis organizes groups of subjects by how central (important) and dense (developed) they are. We created the thematic map, which splits topics in factoring-related research into four quadrants: 1) emerging or declining themes, 2) specialist themes, 3) basic themes, and 4) motor themes. The first quadrant indicates themes that are either getting more or less common. Some of these terms are “supply chain finance” and “risk assessment”. This suggests that certain subjects are either growing more or less popular in schools. The second quadrant is known for specialist issues and covers topics like “stochastic models” and “economic analysis”. These themes are well developed on their own, but not very connected to other topics. This means that they do not have much of an effect on bigger thematic structures. The third

quadrant has basic themes like “accounts receivable” and “information management”. These are significant to the subject, but not fully developed. This means that these are important topics that deserve greater scholarly study. The analysis shows that “accounts payable and receivable” is a major axis on which much of the factoring discussion relies. This highlights its significance and the potential for further research in the future.

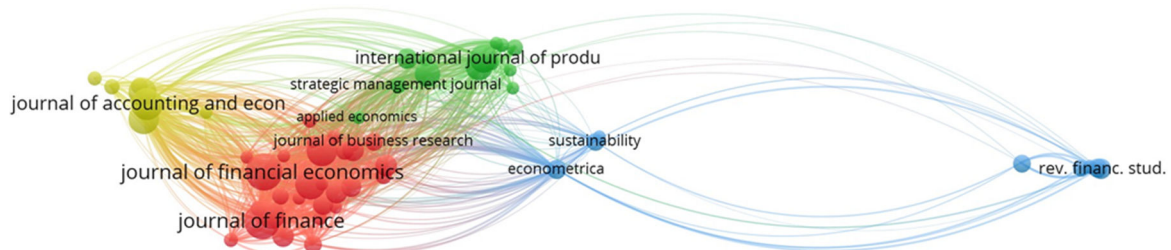
The further analysis of the authors provides a fascinating co-authorship analysis that maps out the collaboration patterns among researchers in factoring services. The larger nodes indicate authors with more publications, while the lines connecting them reflect the strength of their partnerships. Kärri T. is the most connected individual, belonging to four significant clusters. While well-cited authors

like Dechow, Kotha, and Watts have a considerable impact, they tend to have fewer collaborative ties. In conclusion, the network shows a varied distribution of authors, with some regions exhibiting strong co-authorship.

Figure 11 shows the co-citation mapping analysis. The colored circles represent journals that are cited often and their citation connections. Larger and brighter circles indicate a stronger citation impact. Red circles, including the *Journal of Financial Economics* and the *Journal of Finance*, have

the highest citation strength. They form a central yellow cluster with other prominent journals like *Financial Management* and the *Journal of Accounting and Economics*. Green circles point out connections among journals such as the *International Journal of Production Economics* and *Management Science*. In contrast, blue circles represent journals with fewer citations and weaker co-citation ties. This suggests they have lower influence or a more specialized focus within the field.

Figure 11. Co-citation networking map with cited source

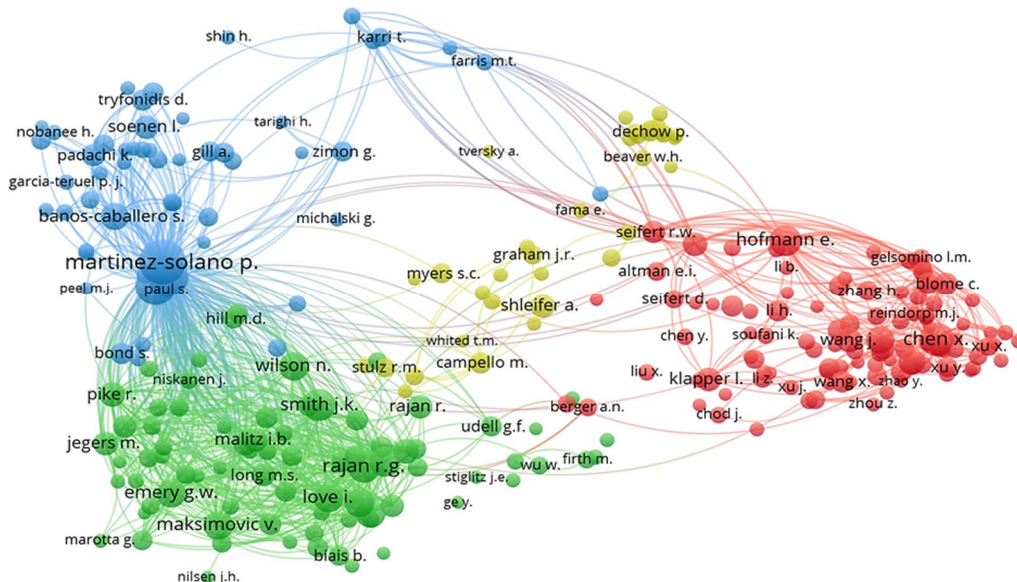


Source: Authors' elaboration based on the Scopus database using VIsviewer.

Figure 12 showcases a co-citation network map that reveals the relationships among cited authors. The colorful circles represent individual authors and their citation strength, with larger and more connected circles indicating a higher frequency of co-citation. Martínez-Solano P. and García-Teruel P. J. make up a solid green cluster, which means they are frequently referenced together in factoring research.

This cluster also highlights important co-citations, including Rajan R. G. In contrast, the red nodes, like Chen X., have fewer connections, indicating they have more limited co-citation ties. In summary, the map effectively highlights the key authors who have made an impact and how they're organized according to their shared citation trends in the literature.

Figure 12. Co-citation network map with cited authors



Source: Authors' elaboration based on the Scopus database using VIsviewer.

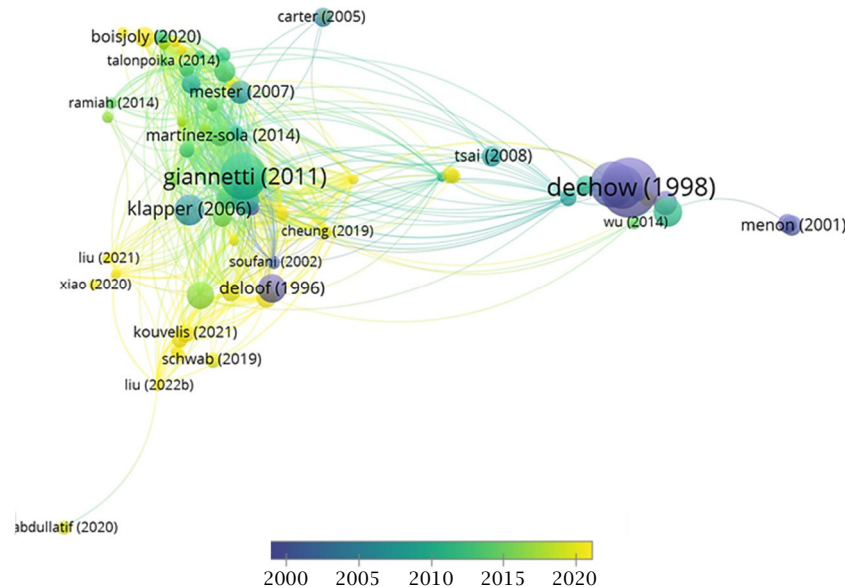
Figure 13 illustrates the bibliometric overlay visualization that VOSviewer made. This displays how often people read academic publications and how they are shared. The blue-to-yellow color gradient reflects how many more people have talked about this work than others. Every node is a different magazine. Blue nodes connect to research that is not mentioned frequently, while yellow nodes connect to articles that have a large impact on academics. Bolder colors highlight the most well-

known and discussed studies in the literature on factoring, financial intermediation, and credit markets. Some of the most well-known studies include Dechow (1998), Giannetti (2011), and Klapper (2006). The network structure also shows a strong connection between mid-impact research (in green) and other studies. The diagram illustrates that many academic articles address the same issues. Kouvelis (2021) and Luo (2021) are both in the yellow-green area. This trend suggests that

research that blends old ideas with new financial data is becoming more significant. This picture makes it easy to identify which works have altered

the way people talk about academics over the years. It also shows us how the field has changed over time and how to use citations.

Figure 13. Overlay visualization of bibliographic coupling



Source: Authors' elaboration based on the Scopus database using VIsviewer.

5. CONCLUSION

Bibliometric analysis on factoring services and accounts receivable helps to show how research has been developed over time in different parts of the world. To overcome the financial problems faced by many organizations, especially SMEs, research on factoring services seems to be becoming increasingly significant in both academic settings and real-life situations. After conducting the research on bibliometric analysis, it is found that more and more students are conducting academic research if one takes a look at citation behavior, keyword dynamics, and collaborative networks. The study illustrates that factoring is a more efficient financial management instrument than traditional loans by shifting the emphasis of examination. Notable contributors to this field of research include distinguished scientists such as Kärri T. and Wang J., as well as prestigious periodicals like the *International Journal of Production Economics*. The USA, China, and India receive the most money from people all across the world. This also means that they do their jobs in various ways. Research on co-citation and bibliographic coupling shows that the early studies

of Dechow (1998), Giannetti (2011), and Barth (2001) are particularly important. It's also good to know where the research is going and what might happen in the future, as terms like "factoring services" and "accounts receivable" become more widespread and get more attention. Scopus makes the data more accurate, but it also means that contributions from locations that do not speak English or are not indexed cannot be included. We can still utilize the results to improve our MSME funding and see whether we need to change the rules. We should look at new data sets and use qualitative methods to learn more about how to address evolving financial systems, both in theory and in practice.

In conclusion, this study enriches our understanding and practical conversations by charting the intellectual landscape and growth of research on factoring. It identifies crucial areas for future inquiry, including the need for empirical validation, the examination of policies in different countries, and the influence of technology on evolving factoring practices. Designed to enhance both theoretical insights and practical applications, these recommendations focus on financial management for MSMEs as they adapt to the current economic landscape.

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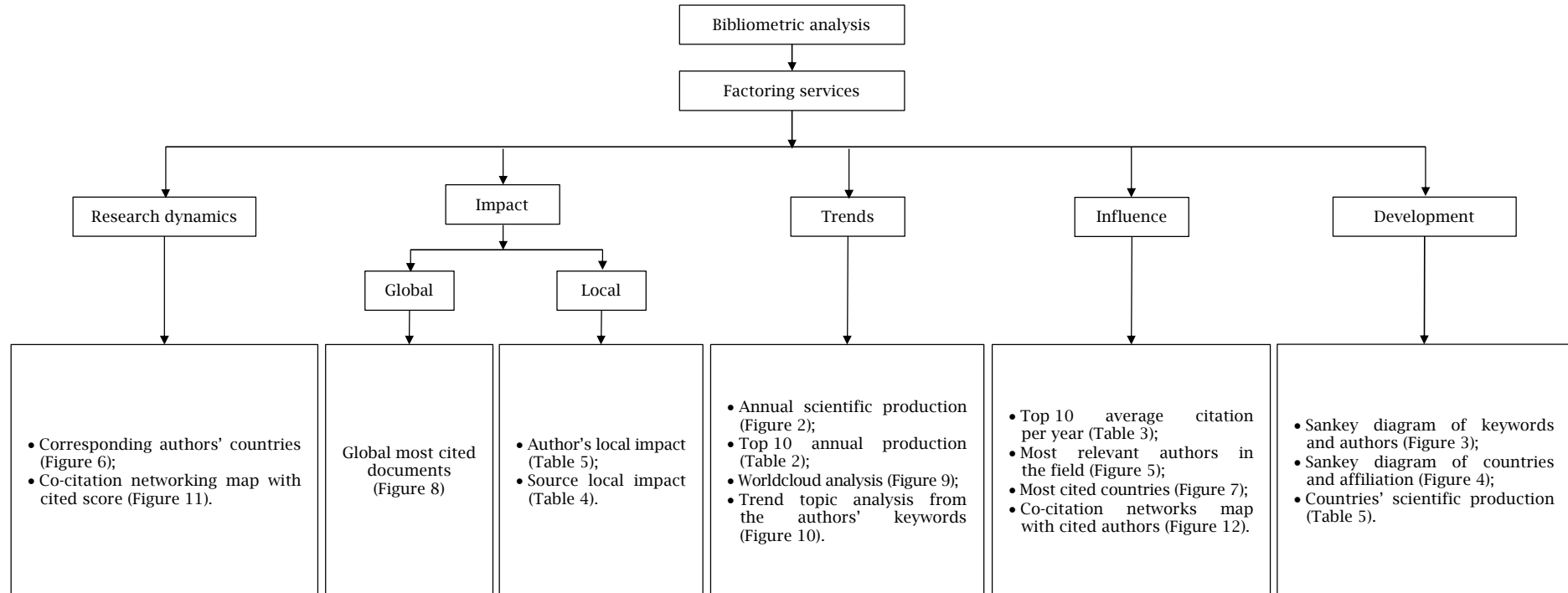
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APPENDIX

Figure A.1. Conceptual framework



Source: Authors' elaboration.