Review article

Unravelling trends, patterns and intellectual structure of research on bankruptcy in SMEs: A bibliometric assessment and visualisation

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A B S T R A C T

Despite the burgeoning interest among academics in investigating the factors contributing to the high business failure rate among SMEs (small and medium-sized enterprises), the systematic synthesis of the literature on *bankruptcy in SMEs* is restricted. This article aims to significantly advance the understanding of the causes and repercussions of bankruptcy in SMEs and the preventative actions that may be taken to avoid it. This review assesses 282 articles from 175 outlets employing quantitative and statistics-based bibliometric tools. This bibliometric assessment helped delineate the citation and publication trends and the top contributors to the domain. The underlying thematic clusters of research on bankruptcy in SMEs were also identified, deciphered and elaborated, along with charting the future research vistas through the lens of theory, context, and methods framework. The authors believe this bibliometric variant of systematic literature review makes a significant contribution to bankruptcy and SME research by highlighting the development of the literature and some of the most active research fronts in the domain by offering insights that were not clasped thoroughly or assessed by prior literature assessments.

1. Introduction

The topic of bankruptcy or business failure has been a staple in the financial literature for over seventy years [1]. Bankruptcy is a legal status that indicates an individual or organization's inability to repay their debts [2]. A business's bankruptcy has significant consequences for many parties, including clients, vendors, creditors, and employees [3]. At the same time, small and medium-sized enterprises (hereafter, SMEs) play a vital role in the country's economic development [4]. They contribute to the employment generation [5,6], innovation [7], and overall growth of the economy [8]. However, SMEs also face a higher risk of bankruptcy compared to large firms [9,10]. According to the World Bank's (2016) report, the average bankruptcy rate for SMEs is three times higher than that of large firms. Recent studies have shown that SMEs have a higher bankruptcy rate than larger companies. According to a report by the European Commission [11]; SMEs in the European context have reported a failure rate of 50–60 % within the first five years of

operation. This is particularly concerning as SMEs are often the backbone of local economies, and their failure can have a ripple effect on the community. The bankruptcy of SMEs affects business owners and their employees and has repercussions for the entire economy. Therefore, understanding the underlying issues related to bankruptcy in SMEs is crucial for policy-makers and practitioners.

Bankruptcy prediction has existed since the early 1900s, when financial analysts began developing models to predict corporate bankruptcy. The first bankruptcy prediction model was developed by Beaver [12]; who used financial ratios to predict bankruptcy in US corporations. Since then, a large body of literature has emerged on the topic of bankruptcy prediction, with numerous models and techniques developed for predicting bankruptcy in different contexts. While early bankruptcy prediction models focused on large corporations, there has been increasing interest in predicting bankruptcy in SMEs lately. One reason could be the growing recognition of the importance of SMEs in the economy and the need to support these firms in times of financial distress. It is also due to the fact that SMEs often face different challenges than large corporations, such as limited access to credit and resources, which can make them more vulnerable to bankruptcy. The need for effective bankruptcy prediction in SMEs has become particularly acute in the wake of the COVID-19 pandemic, which has placed many SMEs under significant financial pressure. Organization for Economic Co-operation and Development's (OECD) [13] report highlights that SMEs are likely disproportionately affected by the economic fallout from the pandemic due to their limited financial resources and exposure to certain sectors of the economy. This has highlighted the need for early warning systems to identify SMEs at risk of financial distress and bankruptcy.

There are several factors that contribute to the higher rate of bankruptcy in SMEs [14,15]. One is the lack of access to finance [16, 17]. SMEs often have a more challenging time obtaining loans [18] and other forms of financing [9,19] due to their smaller size and lack of collateral [20–22]. Another factor is the lack of management experience and skills [23,24]. People often initiate entrepreneurial ventures without the essential knowledge and expertise to run a business successfully [25,26]. Furthermore, SMEs are more vulnerable to external shocks [21], such as economic downturns and natural disasters [25,27–29]. A study by the International Monetary Fund [30] (IMF) found that SMEs are more likely to go bankrupt during a recession than larger companies. This is because they have less financial flexibility and depend more on the local economy. Despite the challenges, several factors can help SMEs avoid bankruptcy [24,31]. One is access to business mentoring and advice [32,33]. A study by the Kauffman Foundation [34] found that companies that received mentoring were more likely to survive and grow than those that did not. Another is access to networks and partnerships. A World Bank (2016) study found that SMEs that were part of a business network had a higher survival rate than those that were not.

1.1. Shortcomings of previous reviews

Despite the existence of prior reviews on the domain of bankruptcy in SMEs, key challenges remain and, therefore, require further study. A systematic literature review method on bankruptcy has been used in some studies but is not closely related to SMEs. For example, Daubie and Meskens [3] intended to present a broad overview of the literature from the past decade while also addressing the causes, symptoms, and potential treatments for insolvency. In addition, Balcaen and Ooghe [1] explored the review of statistical methodologies on business failure predictions over 35 years. They discovered that MDA (multiple discriminant analysis) and LA (logit analysis), two traditional cross-sectional statistical approaches, have been used widely. To our limited knowledge, only four reviews on bankruptcy in SMEs exist: "Small Business Failure and Survey of the Literature" by Berryman [35]; "Small Business Failure and Bankruptcy: What progress has been made in a decade?" by Berryman [36] (ABDC-C), "Rethinking SME default prediction: a systematic literature review and future perspectives" by Ciampi et al. [37] (ABDC-A) and "South African business incubators and reducing the SME failure rate – A literature review" by Msimango-Galawe and Hlatshwayo [38]. However, these studies are limited in a variety of ways due to a number of distinct factors. In particular, Berryman [35] has conducted a conceptual review using a narrative approach to inquire into the issues that cause small enterprises to fail. In his attempt to synthesise the literature, he did not use any systematic approach.

Additionally, the author concentrated just on small businesses, ignoring medium-sized ones. Berryman [36] subsequently extended his work by synthesizing the literature on the same topic, emphasizing the reasons and the preventive measures for the problem of small business failure. Lacking a systematic approach, this review lacks generativity and replicability, the essential tenets of a good quality literature review. Concomitantly, Ciampi et al. [37] chose to conduct their literature evaluation on 'SME default forecasts' using a hybrid methodology and covered a total of 111 articles. They limit their review work to techniques like influential papers, journals and bibliographic coupling.

Meanwhile, Msimango-Galawe and Hlatshwayo [38] explored the literature to determine the success of business incubators in lowering the business failure rate of SMEs. Their article, which utilizes a systematic approach to synthesise the literature, was limited to a content analysis. On top of that, they looked just at the part incubators play in the SME failure rate in South Africa. Overall, it appears that extant reviews of SME bankruptcy research are limited to contextual (e.g., business incubators, South African) insights gained via traditional review methodologies (e.g., content analysis, narrative type) with a small review sample (e.g., up to 111 articles). In light of the fact that scholarly literature evaluations are supposed to act as a road map for subsequent research, the current state of affairs is seen as problematic. Too often, these evaluations are too narrow in scope and procedure, necessitating a new, improved review to address these issues and get the academic community back on track [39,40]. The aforementioned gaps served as the impetus for beginning this review. Our systematic review differs from others in numerous ways. First, as far as we are aware, no literature study on bankruptcy in SMEs has ever used in-depth bibliometric tools, such as co-occurrence analysis, collaboration networks, prolific journals, authors, and articles, to assess the subject's state and answer research questions. Second, the current review covers the data up to 2022. Third, past evaluations employed less comprehensive data than our study. For instance, Ciampi et al. [37] analyzed just 111 articles. Fourth, we pinpoint the problems preventing research on bankruptcy in SMEs and provide recommendations for future research utilizing the TCM framework. Finally, as a result of this analysis, we intend to present a straightforward, crisp,

and brief synthesis of bankruptcy in SMEs-relevant research. Table 1 shows a contrasting picture of our review with past studies based on several criteria. Our review, however, covers more ground and a broader range of sources; our literature significantly advances the understanding of the underlying issues related to bankruptcy in SMEs and the preventative actions that may be taken to avoid it. As a result, it is vital to provide a comprehensive overview of bankruptcy in SMEs.

The academic allure of bankruptcy stems from the fact that it has far-reaching ramifications for society as a whole (in the form of reduced GDP) and devastating effects for the individual partners of the failing enterprises [41]. In light of the importance of SMEs in the economy and the impact of bankruptcy on them, it is vital to comprehend the elements or factors that contribute to the higher rate of bankruptcy among SMEs and identify strategies to help them avoid it [42,43]. Therefore, this article aims (1) to review the performance of the literature on bankruptcy in SMEs [*Trends and patterns*], (2) to provide insights into the intellectual structure related to bankruptcy in SMEs and the underlying nuances [*Structure*], and (3) to propose vistas for future research. We intend to cover these aims by employing bibliometric analysis; for this purpose, we ultimately respond to the following research questions (RQs).

RQ1. What are the publication trends, most cited articles, authors, and journals in bankruptcy in SMEs?

RQ2. What are the significant collaboration networks in bankruptcy in SME research?

RQ3. What main themes (structure of knowledge) exist within bankruptcy in SMEs?

RQ4. What are the potential future research lines for researchers on bankruptcy in SMEs?

The manuscript's structure is as follows: following the introduction, Section 2 introduces the study's materials and methodologies, such as literature resources, methods of analysis, and visualization tools. After that, Section 3 summarises and analyses the findings based on publishing trends, performance analysis, collaboration networks, and keyword co-occurrence analysis. Section 4 provides a summary and discussion of the findings for managers and policymakers as well as the recommendations for further study (as per the TMC framework). Section 5 represents the conclusion, along with notable limitations.

2. Methodology

A systematic review is a transparent and reproducible research method involving identifying and critically appraising relevant research [44–46]. Comparing it with traditional literature reviews, there is a clear advantage [47]. It is argued that systematic reviews offer reliable and high-quality methods for assessing extant literature in any given area with utmost rigour and efficiency [48]; additionally, it helps minimise bias [49,50]. To address the research questions crafted for this review, the current study systematically reviews the research on bankruptcy in SMEs using various bibliometric tools. Through a bibliometric analysis, the authors identified the most seminal publications and the overall direction of the topic of study. As an added bonus, the incorporation of quantitative analysis (objective analysis) into a systematic literature review and the charting of the study enables analysts to give conclusions without being prejudiced against the subject matter [51–56]. Using bibliometric analysis tools, we carried out performance analysis (publication trends, most influential journals, authors, countries) [57] and science mapping (collaboration network analysis and co-occurrence of keyword analysis) [58]. Based on the performance analysis, this article exhibited the publication trends, contributing/prolific journals, authors, articles, and influential/prolific countries. The coauthorship analysis was used to determine the author's influence in the authorship network. Keyword co-occurrence analysis was incorporated to discover the themes and knowledge structure related to bankruptcy in SME research. This research adds significantly to the body of knowledge in the area since it compiles

Table 1
Comparison of our study with earlier research on bankruptcy in SMEs.

S. No.	Points for comparison	[35]	[36]	[37]	[38]	This Manuscript
1.	Data limit	Not specified (Limited to only small businesses, excluding medium-sized enterprises)	Not specified (Limited to only small businesses, excluding medium-sized enterprises)	111	Not specified	282
2.	Techniques	Conceptual-Narrative type	Conceptual-Narrative type	Performance analysis and bibliographic coupling	Systematic review	Bibliometric analysis with a vast variety of techniques, i.e., performance analysis, contribution network analysis and co-occurrence analysis
3	FRDs	Structurally Unspecified	Structurally Unspecified	Using the bibliographic coupling	Structurally Unspecified	Utilized TCM framework for illustrating future research directions
4	The subject area included while searching	Not specified	Not specified	Not specified	Not specified	Limit to "Business and Management Accounting" and "Economics, Econometrics and Finance"
5	Tools used for analysis	Not specified	Not specified	VOS viewer	Not specified	Bibliometrix-R, VOSviewer, and MS-Excel (2019)

Source: Authors' own work

the previously dispersed literature and identifies key sources, articles, authors, countries, and themes that have shaped the development of the field.

These results are useful for academics, policy-makers, and evaluators in insolvency research as they shed light on the underlying
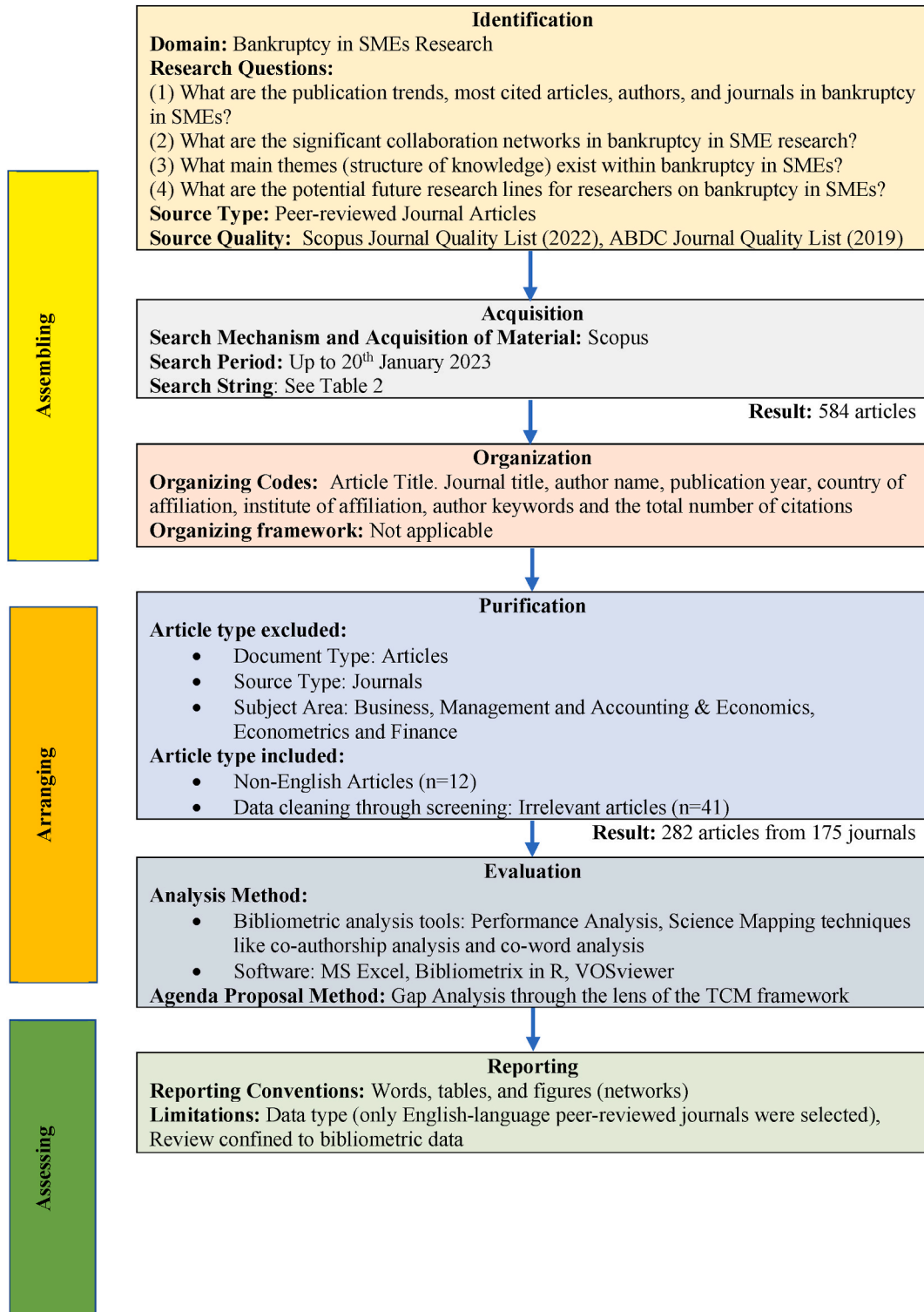

Identification
Domain: Bankruptcy in SMEs Research
Research Questions:
(1) What are the publication trends, most cited articles, authors, and journals in bankruptcy in SMEs?
(2) What are the significant collaboration networks in bankruptcy in SME research?
(3) What main themes (structure of knowledge) exist within bankruptcy in SMEs?
(4) What are the potential future research lines for researchers on bankruptcy in SMEs?
Source Type: Peer-reviewed Journal Articles
Source Quality: Scopus Journal Quality List (2022), ABDC Journal Quality List (2019)

Acquisition
Search Mechanism and Acquisition of Material: Scopus
Search Period: Up to 20th January 2023
Search String: See Table 2

Result: 584 articles

Organization
Organizing Codes: Article Title. Journal title, author name, publication year, country of affiliation, institute of affiliation, author keywords and the total number of citations
Organizing framework: Not applicable

Purification
Article type excluded:
- Document Type: Articles
- Source Type: Journals
- Subject Area: Business, Management and Accounting & Economics, Econometrics and Finance
Article type included:
- Non-English Articles (n=12)
- Data cleaning through screening: Irrelevant articles (n=41)

Result: 282 articles from 175 journals

Evaluation
Analysis Method:
- Bibliometric analysis tools: Performance Analysis, Science Mapping techniques like co-authorship analysis and co-word analysis
- Software: MS Excel, Bibliometrix in R, VOSviewer
Agenda Proposal Method: Gap Analysis through the lens of the TCM framework

Reporting
Reporting Conventions: Words, tables, and figures (networks)
Limitations: Data type (only English-language peer-reviewed journals were selected), Review confined to bibliometric data

Assembling

Arranging

Assessing

Fig. 1. Protocol for reviewing research on Bankruptcy in SMEs.

issues related to insolvency among SMEs. It helps academics comprehend the breadth and depth of prior field studies. It is particularly helpful for future researchers to evaluate both existing literature and potential new areas of study. Research evaluators can use the data to better judge which scientists are exceptional. Additionally, this study encourages practitioners to acknowledge the significance of bankruptcy prediction in SMEs to propel their organisations along a positive growth trajectory. Debating and evaluating the topics covered in the relevant studies found through this research will give them insight into the situations at hand. On the other hand, the results of the keyword co-word analysis will be of particular interest to practitioners such as managers, policy-makers, financial planners, and evaluators. As a result of the investigations conducted, new patterns and topics have emerged that will help SMEs avoid bankruptcy and instead focus on recovery, which is crucial to the economy's growth trajectory.

We used a recently published but reliable protocol for our review to bring maximum objectivity to this SLR, i.e., the SPAR-4-SLR protocol [40]. It has been discussed in the subsequent section.

2.1. Review protocol: SPAR-4-SLR

To ensure objectivity and transparency in our Systematic literature review, we decided to use the "Scientific Procedures and Rationales for Systematic Literature Reviews" (SPAR-4-SLR) protocol [40]. SPAR-4-SLR is a relatively new protocol. It has been developed to tackle the methodological confusion created over the years, as there exist numerous guiding manuals to do a review [48, 59–62]. SPAR-4-SLR represents a better alternative over other available protocols, like the "Preferred reporting items for systematic review and meta-analysis" (PRISMA) protocol and (PRISMA- P) by Moher et al. [63] and Moher et al. (2015), respectively. These protocols are quite popular in social sciences despite their origins tracing back to the medical sciences [64]. This protocol has been successfully tested and applied in entrepreneurship [65,66]. Fig. 1 depicts the SPAR-4-SLR methodology, divided into three stages (assembling, arranging, and assessing) and six sub-stages (identification, acquisition, organization, purification, assessment, and reporting) (Marc et al., 2022; [67,68]).

2.1.1. Assembling

After reviewing relevant literature to compile the corpus of relevant articles, this study finalized the search string comprising germane terms for the domain of 'bankruptcy in SME research.' To assess the appropriateness of those terms, the authors sought the assistance of two academic experts. This process zeroed in on keywords like 'bankruptcy' and SME-related keywords (See Table 2). Several keywords were searched with an asterisk (*) to identify every potential variation of the chosen terms. The selected database, Scopus, is regarded as the biggest and most comprehensive database of scientific literature for academic research [17,40,69,70]. It was selected as opposed to the Web of Science, which has less articles available for evaluation [71]. After finalizing the search keywords, we searched for documents employing the search keywords in the "article title, abstract, and keywords" option on Scopus. The number of articles retrieved as a result of the search was 584.

2.1.2. Arranging

This review utilized various Scopus functions to return the results categorized according to the year, publishing stage, document type, subject area, source type, and language. The results of the search were narrowed down to include only "business, management, and accounting," "article," "final," "journal," and "English" in each of the respective categories. This filtration criterion is consistent with Paul et al.'s [40] suggestions since the domain of bankruptcy in SME research exists within a 'business, management, and accounting' and 'Economics, Econometrics and Finance' subject areas; document types like notes and editorials were also avoided as they may not be peer-reviewed; sources such as a book section, working notes, and conference proceedings were also omitted. This process resulted in a dataset of 324 documents for review, verified by random cross-checking on a few other databases [71], such as Science Direct and other databases like ProQuest, EBSCO, JGate, etc., to prevent inadvertent exclusion of relevant documents for the domain. A data cleaning process suggested by Donthu et al. [72] was also undertaken to remove irrelevant papers, resulting in a final corpus of 282 articles.

2.1.3. Assessing

In the current review, bibliometric tools were used to analyze the final corpus, which consists of 282 articles pertaining to bankruptcy in SME research and is considered a relatively suitable corpus. Notably, systematic reviews incorporating bibliometrics are now widespread in business and management research [73–76], as a bibliometric analysis, which is essentially quantitative in nature [77] can help alleviate the bias that exists in manual and qualitative reviews as they are essentially subjective and thereby error-prone, mainly when the returned dataset for review is considerably large [72]. In concordance with previous review articles from the business and management discipline [78–82], this study incorporated bibliometric analysis tools like (1) performance analysis [83] to delineate

Table 2
Search string development.

Topic under review	Search terms with Boolean protocol and truncation
Bankruptcy AND	"Bankruptc*" OR "Business Failure*"
Small and medium-sized enterprises	"SME" OR "Small firm*" OR "Small business" OR "SMEs" OR "Medium firm" OR "Small and medium enterprise*"

Source: Authors' own work

the trends of publications, prominent articles and publication outlets (journals), most cited authors, influential institutions, and dominating nations in the field, and (2) science mapping using a coauthorship analysis [84] and network analysis with keyword co-occurrence [85] in VOSviewer [86] and bibliometrix in R [87] to deconstruct the major topics and themes delineating the critical intellectual structure of knowledge. Moreover, to ensure efficacy and effectiveness while interpreting the bibliometric analysis results, we scanned, sensed and substantiated the retrieved data, as suggested by Lim and Kumar [88].

Further, the authors create an agenda (through the lens of the TCM framework) for the future based on reading papers from the identified clusters and reflection on current gaps under each thematic pattern identified. Finally, several limitations of the present review article were conceded (See Fig. 1).

3. Results and findings

3.1. Performance analysis

In the first phase of our research, we conducted a performance analysis to identify the prominent scholars in the field, their publishing patterns, and the most influential journals that publish articles on bankruptcy in the SME context.

3.1.1. Publication and citation trends

In Table 3, the authors have outlined the leading indicators of publication and citation trends of bankruptcy in SME research.

Beginning with the publication trends, the research on bankruptcy in the SME context has a time span of 68 years (1954–2023), but the active years were nearly half of the time span, i.e., 37 years, as per the Scopus database. This recent surge in the research on bankruptcy in SMEs may be attributed to the recent economic downturns and financial upheavals (e.g., the Global Recession of 2008 and COVID-19) [89,90], which have rocked the world economies in the past two decades.

Since its inception in 1954, this field has published 282 peer-reviewed conceptual and empirical publications (TP), which have appeared in 175 journals. Its average annual output is 4.25 publications (PAY). A total of 256 (90.78%) of the 282 publications were cited by other authors (TCP). To date, 63 single-authored publications (SA) and 219 co-authored articles (CA) in the field of bankruptcy research have each been produced by 57 different single authors (ASA) and 528 different co-authors (ACA).

On the other hand, the bankruptcy citation trends in SME research show that this area has received 7089 citations in total, with an average of 25.14 citations per publication. Furthermore, the field's citation impact, i.e., h-index, is 41, showing that a minimum of 41 (h) citations have been given to each of the 41 (h) publications.

3.1.2. Most influential outlets (journals)

To determine the most prolific outlets for bankruptcy in SME research (RQ1), we ranked the journals according to the number of articles and total citations. Table 4 delineates the outlets publishing bankruptcy in SME research. Based on the total citations, the *Journal of Small Business Management* is the leading journal (606 citations), followed by the *Journal of Finance* (570)*, International Small Business Journal* (519)*, Small Business Economics* (504)*, and Quarterly Journal of Economics* (376). Of these five outlets, three focus on small businesses, and all three are A-ranked journals or outlets of the ABDC JQL (Journal Quality List) (2022). Based on the number of publications, The outlets where bankruptcy articles are most frequently published are *Small Business Economics* (17 articles), *Journal of Small Business Management* (10), *Journal of Banking and Finance* (8), *International Small Business Journal* (6), and *Decision* Support *System* (3). Markedly, most of the outlets illustrated in Table 4 are ranked higher by the ABDC (Australian Business Deans Council).

Table 3
Trends for citations and publications.

Description	Results
Publication related metrics	
Total Publications (TP)	282
Total Cited Publications (TCP)	256
Total Sources (Journals)	175
Number of active years (NAY)	37
Productivity per active year (PAY)	4.25
Author of the single-authored document (ASA)	57
Author of co-authored author document (ACA)	528
Single-authored documents (S.A.)	63
Co-Authored Documents/Publications (C.A.)	219
Number of active years (NAY)	37
Citation related metrics	
Total Citations (T.C.)	7089
Average citations per publication (TC/TP)	25.14
h-index	41

Note: Period of coverage = 1954–January 2023.
Source: Authors' own work

Table 4
Most influential Outlets as per citation metric.

Journal	ABDC Ranking	h	Number of Publications	Total Citations
Journal of Small Business Management	A	9	10	606
Journal of Finance	A	2	2	570
International Small Business Journal	A	6	6	519
Small Business Economics	A	10	17	504
Quarterly Journal of Economics	A*	1	1	376
Journal of Financial and Quantitative Analysis	A*	1	2	358
International Journal of Production Economics	A	2	2	249
Journal of Banking and Finance	A	5	8	246
Decision Support Systems	A*	3	3	200
Management Decision	B	1	1	192

Source: Authors' own work

3.1.3. Most influential articles

Table 5 illustrates the most influential article published in bankruptcy in SME research (as per the total citations). It is evident that [19] article titled "The employment effects of credit market disruptions: Firm-level evidence from the 2008-9 financial crisis" is the most prolific article with the highest citations of 376, followed by "An Empirical Test of Financial Ratio Analysis for Small Business Failure Prediction" [91] (GC:357), "How costly is external financing? Evidence from a structural estimation" [92] (GC: 357), and The Performance and Competitive Advantage of Small Firms: A Management Perspective" [93] (GC: 334). The other leading articles focused on organizational resilience in economic crises [27] (GC: 215), Defaults [94] (GC: 213), Small businesses in creative industries [95] (GC: 192), Small Business Failure [24] (GC: 163), role of factoring [96] (GC: 160) and Bankruptcy in Small Firm [97] (GC: 149). Most of these articles have focused on the underlying issues related to SMEs' financial crisis.

3.1.4. Most influential authors

To identify the most prolific scholar, we arranged the authors according to the total citations and the number of published articles, as illuminated in Table 6. From the analysis, it is evident that Christopher A. Hennessy is the most prolific author with the greatest amount of citations (TC: 474) in bankruptcy of SMEs research, followed by John Watson (TC: 403), Gabriel Chodorow-Reich (TC: 376), Robert O. Edmister (TC: 357), Toni M. Whited (TC: 357), Graham Beaver (TC: 334), Peter Jennings (TC: 334), Jim Everett (TC: 282), Heikki Mattila (TC: 215), and Rudrajeet Pal (TC: 215). The authors who have the most publications in this respective research area are John Watson (4 articles), Jim Everett (3 articles), and Christopher A. Hennessy (2 articles). The research interest of Christopher A. Hennessy is largely inclined towards corporate finance, in which he has majorly focused on debt-related crises. Similarly, in his research focus, John Watson has largely worked on the failure of SMEs.

3.1.5. Most influential countries

Based on the overall number of citations, we evaluated the countries to discover the most prolific, producing the most research on bankruptcy in SMEs. From Table 7, it is evident that the USA is dominant with 1996 total citations, followed by the United Kingdom (TC: 801), Belgium (TC: 283), Sweden (TC: 247), Canada (TC: 242) and China (TC: 210). The performance of Australia (TC: 163), Spain (TC: 146), Poland (TC: 88), and France (TC: 78) is worth mentioning. The USA is found to have dominated this list due to the research focus of US researchers on exploring the factors behind the crisis faced by small businesses due to the extensive filing of SME

Table 5
Most influential articles.

Article Citation	Title	Year	LC	GC	LC/GC Ratio (%)	NLC	NGC
[19]	The employment effects of credit market disruptions: Firm-level evidence from the 2008-9 financial crisis	2014	0	376	0.00	0.00	9.14
[91]	An Empirical Test of Financial Ratio Analysis for Small Business Failure Prediction	1972	13	357	3.64	1.00	1.00
[92]	How costly is external financing? Evidence from a structural estimation	2007	0	357	0.00	0.00	2.72
[93]	The Performance and Competitive Advantage of Small Firms: A Management Perspective	1997	2	334	0.60	2.00	2.53
[27]	Antecedents of organizational resilience in economic crises - An empirical study of Swedish textile and clothing SMEs	2014	0	215	0.00	0.00	5.22
[94]	Do bankruptcy codes matter? A study of defaults in France, Germany, and the U.K.	2008	7	213	3.29	5.44	4.44
[95]	Small businesses in the new creative industries: Innovation as a people management challenge	2011	0	192	0.00	0.00	4.80
[24]	Small Business Failure and External Risk Factors	1998	11	163	6.75	2.20	2.00
[96]	The role of factoring for financing small and medium enterprises	2006	0	160	0.00	0.00	1.50
[97]	Bankruptcy and Small Firms' Access to Credit	2004	9	149	6.04	3.00	2.55

LC: Local Citations; GC: Global Citations; LC/GC Ratio: Local citations/Global Citations; NLC: Normalized Local Citations; NGC: Normalized Global Citations.
Source: Authors' own work

Table 6
Most prolific authors as per productivity metric.

Author	Author's affiliation	h	Total publications	Total citations
Christopher A. Hennessy	London Business School	2	2	474
John Watson	University of Western Australia	4	4	403
Gabriel Chodorow-Reich	Harvard University	1	1	376
Robert O. Edmister	Retired	1	1	357
Toni M. Whited	University of Michigan	1	1	357
Graham Beaver	University of Derby	1	1	334
Peter Jennings	University of Southampton	1	1	334
Jim Everett	University of Western Australia	3	3	282
Heikki Mattila	Högskolan i Borås, School of Textiles (THS)	1	1	215
Rudrajeet Pal	Högskolan i Borås, School of Textiles (THS)	1	1	215

Source: *Authors' own work*

Table 7
Most prolific countries.

Country	Total citations	Average article citations
USA	1996	47.52
United Kingdom	801	28.61
Belgium	283	40.43
Sweden	247	49.40
Canada	242	60.50
China	210	23.33
Australia	163	81.50
Spain	146	13.27
Poland	88	11.00
France	78	8.67

Source: *Authors' own work*

bankruptcies, particularly in the USA.

3.2. Science mapping

3.2.1. Country Collaboration Analysis

From the data corpus, we studied the collaboration network amongst the author's associated countries regarding the frequency of such alliances. A cross-country collaboration network and additional collaborations are shown graphically in Fig. 2. The thickness of each connecting line represents the number of bilateral collaborations. Table 8 and Fig. 2 demonstrate that the United States is involved in most international collaborations. Unambiguously, the top five alliances are between the USA and Portugal (4), the United Kingdom and Spain (3), the USA and Australia (3), the USA and China (3), and the USA and Netherlands (3). It is evident from the analysis (depicted in Table 8 and Fig. 2) that the authors from developed countries yield the most bankruptcy in SME research and tend to collaborate. Nevertheless, including developing countries in such partnerships would enable developing countries to participate in the knowledge-creation process that developed nations typically lead.

3.2.2. Co-authorship analysis

To address RQ2, coauthorship analysis was carried out to identify the authors who have collaborated in the research of bankruptcy in SMEs [98], resulting in the improvement and development of ideas. It leads to growth in the research productivity of the countries. Additionally, it raises the research and knowledge production standards in the research area [55,84].

Fig. 3 displays notable research collaborations among bankruptcy in SME scholars. More significant nodes and denser connecting lines signify ongoing collaborative efforts. Twenty-two authors contributed to the coauthorship network, divided into 9 clusters illustrated by different colours. The leading collaborating authors are Xavier Brédart, Loredana Cultrera, Erkki K. Laitinen, Edward I. Altman, Jaroslav Belas, Andros Gregoriou, Jairaj Gupta, N.Wilson, Jerome Healy, Christine Duller, and Christine Mitter, among these clusters. Two authors from cluster 9 have contributed the highest publications (9 articles) to each other. Out of the nine, a few clusters constituted a small number of substantially closed networks with minimal interconnections between networks. For instance, Xavier Brédart and Loredana Cultrera have collaborated on several bankruptcy articles, although they have done so far less frequently than they have with one another. Collaboration among academics is essential to advance a field, suggesting that bankruptcy in SME literature could benefit from further collaborations.

3.2.3. Co-occurrence (keyword) analysis of key terms (RQ3)

A keyword co-occurrence analysis is employed in this study to elucidate the essential themes present in the conceptual framework of bankruptcy in SMEs [99]. A keyword co-occurrence analysis determines a topic's intellectual structure by mapping authors' terms in
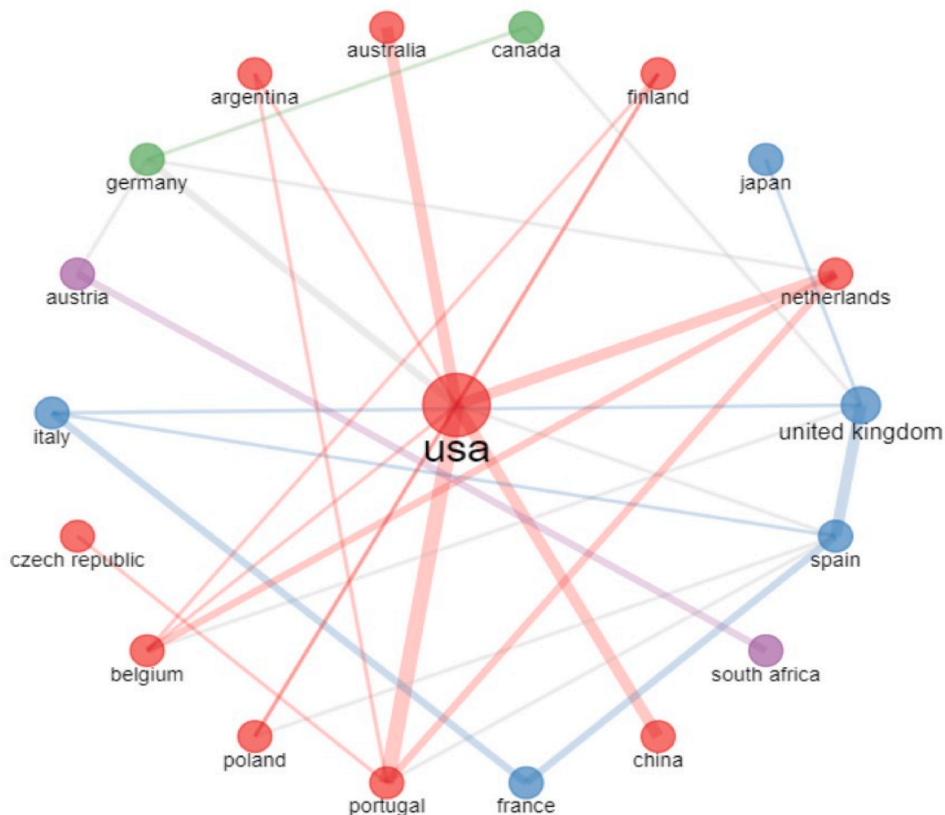
Fig. 2. Country collaboration analysis.
Source: *Bibliometrix-R*

Table 8
Bankruptcy in SMEs research collaboration among countries.

From	To	Frequency
USA	Portugal	4
United Kingdom	Spain	3
USA	Australia	3
USA	China	3
USA	Netherlands	3
Belgium	Netherlands	2
Czech Republic	Slovakia	2
France	Italy	2
Germany	Lithuania	2
Italy	Ireland	2
Portugal	Netherlands	2
South Africa	Austria	2
Spain	France	2
USA	Germany	2
USA	Hong Kong	2
USA	Israel	2

Source: *Authors' own work*

their publications. The theme convergences in the research are revealed by the uniform grouping of terms in this analysis (Andersen, 2021; [64,72,100,101]. VOSviewer is employed to derive and display the keywords network (See Fig. 4). From our analysis of keyword co-occurrence, a total of six thematic clusters have emerged, as illustrated through the colours in Fig. 4 [102,103], in which the red cluster designates the risk and bankruptcy predictions in SMEs, the green cluster delineates the theme of entrepreneurship and small business bankruptcy during COVID-19, the blue cluster reflects the theme of the financial crisis, the yellow cluster signifies the theme of financial distress, the purple cluster indicates the theme of business failure in SMEs, and the sea green cluster designates the innovations and sustainability in SMEs. Our research statistically computes and publishes the information of bibliometric data relevant
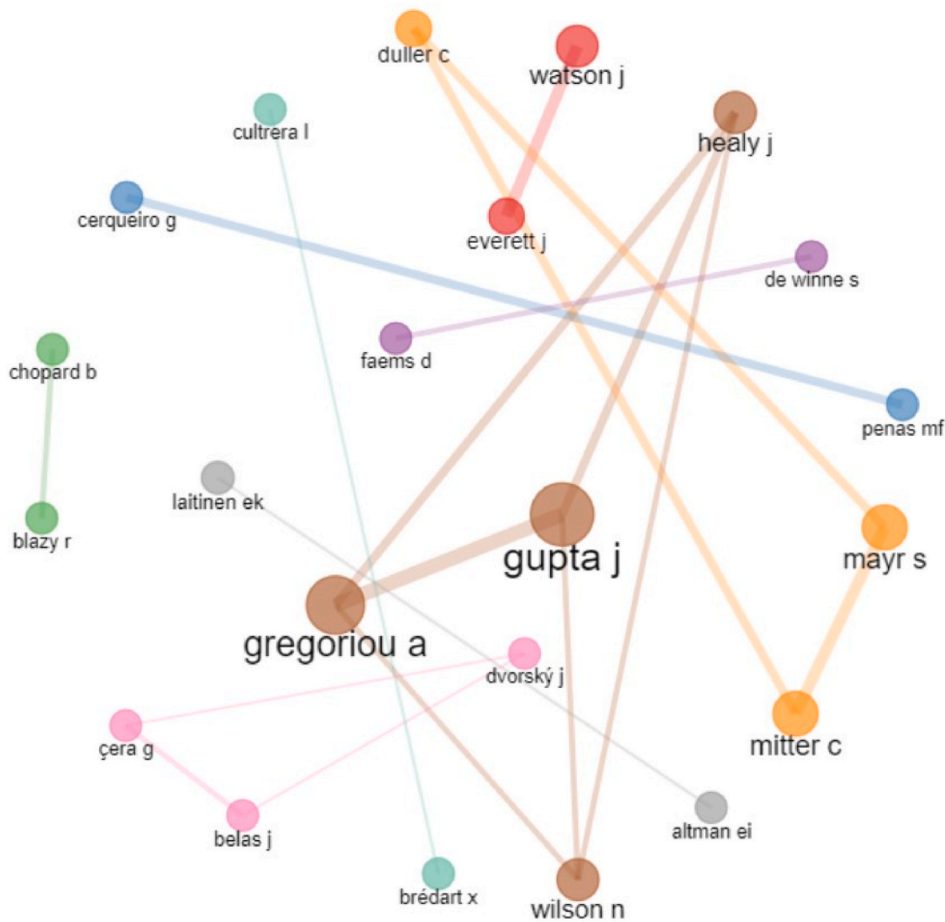
Fig. 3. Co-authorship analysis.
Source: *Bibliometrix-R*

to the occurrence (OC), total link strength (TLS), and frequency (FQ) in order to offer an unbiased assessment of the themes that arise from the co-occurrence of keywords (See Table 9) [72,104–106].

Cluster 1: Risk and bankruptcy predictions. The first cluster of keyword co-occurrence ponders on risk and bankruptcy prediction research, consisting of thirteen prominent topics or keywords. This cluster illuminates a myriad of keywords such as "bankruptcy predictions," "bankruptcy risk," "credit scoring," "finance," "financial performance," "financial ratios," "forecasting," "predictive analytics," "risk," "risk assessment," "Risk management," "Small and medium-sized enterprise." The most occurred, connected, and frequent keyword is small and medium-sized enterprise (OC: 155; TLS: 52; FQ: 15), followed by bankruptcy predictions (OC: 7), finance (OC: 7), financial ratios (OC: 6), etc. The combination of these keywords evaluates the precision and efficacy of several estimation techniques for anticipating the financial crisis of SMEs. For example, Altman et al. [107] used various techniques, including filter and wrapper selection, for a sizable collection of financial and non-financial factors to forecast bankruptcy up to ten years in the future. The results demonstrate that neural networks and logistic regression outperform alternative strategies. Similarly, Gabbianelli [108] examined how certain default prediction models for SMEs are implemented by looking at the variables inherent to the territory and enterprise-territory interaction. Moreover, Tobback et al. [2] demonstrated that linking businesses based on their managers and board members enhances the standard bankruptcy prediction by adding complementary predictive power in SMEs.

Cluster 2: Entrepreneurship and Small Business during COVID-19. The second cluster of keyword co-occurrence encapsulates bankruptcy predictions in entrepreneurship and small business during COVID-19. This cluster consists of twelve prominent keywords or topics. The cluster irradiates a myriad of keywords like "bankruptcy probability", "credit risk", "crisis", "entrepreneurial orientation", "entrepreneurship", "liquidity", "small and medium enterprises", "small business", "South Africa", "supply chain". Entrepreneurship (OC: 17) is the most occurred keyword in this cluster, followed by small business (OC: 16), Small and medium enterprises (OC: 9), and COVID-19 (OC: 7). The most connected and frequent keyword is a small business (TLS: 27; FQ: 2). This cluster delineates the predictions of bankruptcy in SMEs during COVID -19 [109]. For example, Dörr et al. [110] reported that the COVID-19 policy response in Germany has resulted in a backlog of insolvencies, especially prominent among financially fragile small businesses, potentially having long-term ramifications for entrepreneurship and economic recovery. Similar research was explored by Dvouletý

Fig. 4. Keyword co-occurrence analysis
Fig. 4: The co-occurrence of keywords in the themes network. Notes: Cluster 1 (Red) = Risk and bankruptcy predictions in SMEs. Cluster 2 (Green) = Entrepreneurship and small business bankruptcy during COVID-19. Cluster 3 (blue) = Financial crisis. Cluster 4 (yellow) = Financial distress. Cluster 5 (Purple) = Business failure in SMEs. Cluster 6 (Sea green) = Innovations and sustainability in SMEs. **Source:** *VOSviewer*. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

[111] in the context of Czech entrepreneurial activity. In line with this, Giunipero et al. [112] employed a case study approach to examine the effects of COVID-19 on the supply chain for small enterprises in the trucking sector. The findings demonstrated that the businesses exhibit greater volatility than the index. Noteworthily, studies such as lean principles in entrepreneurship and SMEs in the operational process during COVID-19 [113] and incorporating a sustainable model for business growth for SMEs [114] fall in this cluster.

Cluster 3: Financial crisis. The third cluster ponders research on the financial crisis, consisting of eleven major keywords (or topics). The financial crisis (OC: 6; TLS: 19; FQ: 3) is the most observed, connected, and frequent keyword in this cluster, followed by banking (OC: 5), employment (OC: 5), entrepreneurs (OC: 4), firm size (OC: 4), credit provision (OC: 3) and corporate failure (OC: 3). This group sheds light on the financial crisis or the credit crunch of SMEs [115]. For instance, Luís Pacheco et al. [116] built a model for SMEs to predict corporate bankruptcy. Malakauskas and Lakštutienė [117] explored the prediction of financial crisis or financial distress for SMEs using machine learning. Similarly, the article of [19] examined how bank lending frictions impacted employment during the financial crisis of 2008-09. He discovered a decreased likelihood of loan results for companies with pre-crisis contacts with less robust lenders.

Cluster 4: Financial distress. The fourth cluster ponders on bankruptcy and financial distress research, comprising ten significant keywords (or topics). Bankruptcy (OC: 52 TLS: 86; FQ: 5) is the most observed, connected, and frequent keyword in the cluster keyword in this cluster, followed by financial distress (OC: 13), small firms (OC: 8), capital structure (OC: 6), corporate governance (OC: 3), earnings management (OC: 3), insolvency (OC: 3), lending infrastructure (OC: 3), liquidation (OC: 3), panel data (OC: 3). This cluster's research shed light on bankruptcy in tandem with capital structure in MSEs. For example [118], explains the causes of SMEs' difficulties in obtaining loans and issues with collateral provision. The findings revealed that the existing asset structure and liquidity significantly influence financial leverage [119]. This echoed the work of [120]; who explored how a country's lending infrastructure affected the capital structure of SMEs and found that the debt of SMEs is higher in nations with less severe regulatory frameworks and in nations with more effective bankruptcy regimes in terms of recovering debt. Noteworthily studies include research on the relationship banking's role in bankruptcy settlement, with emphasis on company size [121], inside-debt in tandem with bankruptcy [122], auction bankruptcy system of Swedish [123], and capital acquisition in tandem with bankruptcy law [8].

Cluster 5: Business failure in SMEs. The fifth cluster sheds light on the research on business failure predictions in SMEs and comprises nine primary keywords (or topics). SMEs (OC: 41) is the most occurred keyword in this cluster, followed by business failure (OC: 22), small and medium-sized enterprises (OC: 10), logistic regression (OC: 8), failure (OC: 5), Malaysia (OC: 3), entrepreneurs (OC:3), default risk (OC:3), and failure predictions (OC:3). The most connected and frequent keyword is the business failure (TLS: 26; FQ: 2). This cluster revolves around the business failure that SMEs have witnessed. For example [23], explored the factors leading to the success or failure of SMEs in the West Bank of Palestine. They reported that having enough cash, an ideal capital structure, and

Table 9
Keyword Co-occurrence analysis.

Themes/Clusters	Keywords	OC	TLS	Frq
Cluster1: Risk and bankruptcy predictions	Bankruptcy predictions	7	16	3
	Bankruptcy risk	4	3	1
	Credit scoring	4	16	2
	Finance	7	27	5
	Financial performance	3	5	1
	Financial ratios	6	16	1
	Forecasting	5	20	4
	Predictive analytics	3	8	2
	Risk	4	11	1
	Risk assessment	5	25	5
	Risk management	6	8	2
	Small and medium-sized enterprise	15	52	15
	Sweden	3	6	1
Cluster2: Entrepreneurship and Small Business during COVID-19	Bankruptcy probability	3	5	
	COVID -19	7	11	1
	Credit risk	4	7	
	Crisis	3	10	1
	Entrepreneurial orientation	3	7	
	Entrepreneurship	17	19	
	Liquidity	3	7	
	Small and medium enterprises	9	15	1
	Small business	16	27	2
	Small businesses	6	12	2
	South Africa	3	6	
	Supply chain	3	7	1
Cluster 3: Financial crisis	Banking	5	3	5
	Business	3	5	3
	Corporate failure	3	11	2
	Credit provision	3	16	3
	Employment	5	16	4
	Entrepreneur	4	8	2
	Europe	4	16	4
	Financial crisis	6	19	3
	Firm size	4	6	2
	Regression analysis	3	8	2
	United Kingdom	4	12	3
Cluster 4: Financial distress	Bankruptcy	52	86	5
	Capital structure	6	5	
	Corporate governance	3	6	
	Earnings management	3	7	
	Financial distress	13	30	2
	Insolvency	3	6	
	Lending infrastructure	3	6	
	Liquidation	3	5	
	Panel data	3	8	1
	Small firms	8	13	
Cluster 5: Business failure in SMEs	Business failure	22	26	2
	Default risk	3	6	
	Entrepreneurs	3	4	2
	Failure	5	7	
	Failure prediction	3	9	1
	Logistic regression	8	17	1
	Malaysia	3	5	
	Small and medium-sized enterprises	10	18	15
	SMEs	41	74	1
Cluster 6: Innovations and Sustainability in SMEs	Firm performance	3	2	
	Innovation	5	8	1
	SME	18	31	1
	Sustainability	4	10	1
	Sustainable development	3	9	2

OC: occirence; TLC: Total Link Strenght; Frq: Frequency.
Source: Authors' own work

maintaining accurate records are crucial for SMEs. Similarly [29], identified the Causes and Signs of SME Failure and demonstrated that the reasons for failure could be from inside and outside the firm. This echoed [124] research, which investigated business failure using machine learning techniques for French SMEs and produced new insights for the policy-makers. In line with this [125], explored the reasons for failures among female entrepreneurs in Malaysia.

Cluster 6: Innovations and Sustainability in SMEs. The sixth cluster elucidates the research on adopting innovation and sustainable practices in SMEs and comprises five significant keywords (or topics). Noteworthily, SME (OC: 18, TLS: 31; FQ: 1) is the most occurred and most related keyword in this cluster, followed by innovation (OC: 5), sustainability (OC: 4), sustainable development (OC: 3) and financial performance (OC: 3). This cluster delineates the innovation and sustainability in SMEs. For example [95], aimed to offer insights for an SME case study and examine how people management techniques evolve. They urge an improved duality management strategy when the business transitions to producing IP work. Likewise [7], investigated the impact of bankruptcy law on a firm's innovation activities in tandem with capital availability. The association between CSR indicators and the sustainability of SMEs was evaluated by Ref. [126] in central European countries. They claimed that sustainability practices could lower the likelihood of MSEs' bankruptcy. Similarly [114], developed a Triple Bottom Line (TBL) structure for advanced technology-oriented businesses to set up an innovative, sustainable company growth model for SMEs' long-term survival. They reported that SMEs might be able to thrive over the long run by strategically combining social, environmental, economic, and digital performance.

4. Discussion

4.1. Managerial implications

Due to their large share of employment and economic activity, SMEs are essential to the economy. However, SMEs are also more likely to face financial distress and bankruptcy, which can have severe implications for the firms and the broader economy. As a result, this research offers a great deal of food for thought to policy-makers and practitioners.

4.1.1. From the perspective of managers
First, Bankruptcy can significantly affect the business's operations and survival of an SME [127]. SMEs that file for bankruptcy are significantly less likely to survive in the long term compared to those that do not. This is due to a number of factors, including the loss of customers, suppliers, and employees, as well as the negative impact on the firm's reputation and creditworthiness [128]. Additionally, managers may face personal financial losses and struggle to find new employment opportunities after the bankruptcy of their firm. Managers should partake in a very cautious decision-making process to lessen the possibility of bankruptcy in SMEs. Second, to prevent business failure, SMEs should provide their managers with the appropriate training, including establishing a business strategy, staffing the company, and marketing the small business [129]. In addition, SME owners'/managers' financial literacy helps mitigate information asymmetry when enterprises seek external finance in a competitive environment. Thus, formal educational institutions' learning management can improve the firm's operational capacities [130]. Third, to avoid stunted growth, business owners should avoid relying too heavily on foreign partners for innovations in products and technology. Therefore, licensing must complement independent investments in learning and competence development [14].

4.1.2. From the perspective of policy-makers
Policy-makers also have a role in addressing the implications of bankruptcy for SMEs. First, policy-makers can create policies that provide financial and non-financial support to SMEs facing financial distress [110]. This can include credit access and other forms of financing, in addition to training and education programs for managers. Additionally, policy-makers can implement regulations that make it easier for SMEs to restructure and recover from bankruptcy rather than liquidate [128]. Second, policy-makers who care about the success of small enterprises should consider increasing the availability of low-interest loans to ensure that new ventures are not underfunded.

Additionally, the government can offer more qualified guidance to small businesses at little to no expense to business owners [129]. Third, policy-makers may need to understand how bankruptcy laws affect entrepreneurial behaviour. Inadequate or wrong comprehension may lead to subpar legislation that negatively impacts attempts at economic development [8].

Further, policy-makers should consider fostering entrepreneurial teams. The worldwide engagement of SMEs requires specific initiatives to link entrepreneurs, support agencies and interested parties. In addition, these policies may stipulate that employees must collaborate in teams or provide designated areas for employees to congregate in order to network and find potential business partners [131].

In conclusion, bankruptcy can have severe implications for SMEs and their managers and broader economic effects. However, policy-makers can play a role in addressing these implications by providing support and implementing regulations that facilitate recovery rather than liquidation.

4.2. Directions for future research

We identified potential topics for future research vistas through the theory, context, characteristics, and methodology (TMC) framework [132–135].

4.2.1. Theory
The researchers have applied several theories in predicting bankruptcy in SMEs: bankruptcy prediction model, Managerial discretion theory, agency theory, pecking order theory, resource-based theory, and theory of asymmetric information. In the case of research on bankruptcy in SMEs, the product life theory (PLC) has been incorporated to investigate the impact of explanatory factors on business failure rates. The efficiency wage theory compared the high failure rate to low-capital-intensive industries [136]. Human

capital theory and bankruptcy forecasting models were utilized by Ref. [137] to develop and improve the conceptual framework for investigating the effect of Human Resource Management on SMEs' performance. Amankwah-Amoah et al. (2021) formulated their hypothesis based on the agency theory to explore the reasons for business failure during COVID-19 [138]. explored the debt policy of small businesses in tandem with the agency, pecking order, and asymmetric information theory. There haven't been many formally sanctioned initiatives to link social network theory and bankruptcy predictions [2]. An essential expansion of the inferential theory for penalized estimators and the super-population theory of Prentice should be used to determine SME failure. It should reactivate scholarship on these theories' sources to create fresh research opportunities [139]. There is no unified theory explaining why some businesses fail while others prosper. Therefore, further study is required to construct a theory of the success and failure of SMEs [129]. The extensive collection of predictions produced by applying continuous-time techniques to the trade-off theory points to the potential benefit of further extending structural pricing models [140]. Future studies are required to contemplate the resource based theory and lussier model simultaneously to assess the relative importance of several factors in predicting the success or failure of SMEs [129]. Future research may apply or incorporate new methods into these classic theories, expanding their applicability. Furthermore, Researchers can investigate probable underlying causes of bankruptcy in SMEs in various markets (e.g., emerging markets). Therefore, the research recommended further investigating established ideas from multiple angles and developing established theories for use in other areas of investigation in SMEs. Hence, we propose.

Proposition 1.   *The evolution of bankruptcy in SMEs over multiple angles of research.*

4.2.2. Method

Our review reveals the abundance of empirical investigations in the literature. Prior research heavily utilizes quantitative methodologies within the empirical approaches [91,116,141]. More advanced quantitative methods may be implemented to analyze the immediate consequences of bankruptcy on SMEs [142]. For example, the implementation of a cooperative supply chain strategy, uniform defect management procedure and rework, a simple/basic cost modelling method to improve the action research cycle for SMEs [143], using panel data for the shorter time period as the model may cause specification and convergence issues [6] and hazard models for predicting SME bankruptcy should be the subject of further study [144]. Alternative methods for estimating SME bankruptcy (e.g., binary logistic model and penalized shrinkage methods) may also be employed in further research. In addition, future researchers may compare the predicted accuracy of Merton-type models. Some additional models may be investigated using the accounting-based methodology, such as the ordinal logistic model and the survival analysis [145]. Determining how the different bankruptcy models perform in a struggling economy would be intriguing [141]. When accounting data is accessible, future studies can compare and contrast financial ratio-based variables and transactional data-based factors for bankruptcy prediction [146]. Hence, we propose.

Proposition 2.   *Applying various quantitative techniques can successfully unravel forecasts of bankruptcy in SMEs.*

The results of our dataset urge the need to employ qualitative methods for upcoming studies. Complementary approaches may include in-depth interviews with stakeholders [27], case studies [95], and longitudinal studies to get in-depth clarity regarding the long-term effect of bankruptcy in SMEs [147]. A qualitative research approach that focuses on the drivers of organisational change and expands on the success elements appears promising [148]. Future research might be fruitful and intriguing if it expands into a multi-period framework [149]. Further, a comprehensive understanding of bankruptcy research may be attained by combining individual subjectivity and broader social structure, making a mixed-method approach preferable to a single-method approach [108].
Hence, we propose.

Proposition 3.   *Bankruptcy in SMEs can be elucidated better with qualitative or mixed methodology.*

Additionally, we notice an increase in publications using various meta-analytical techniques [150]. Like a literature review, a meta-analysis integrates and synthesises previous work in a particular research area [151]. This sub-genre of literature reviews compiles quantitative data from many sources. One way to categorise literature reviews is by the level of rigour brought to the process of synthesising and interpreting the results. In contrast, systematic qualitative reviews utilise narrative synthesis to incorporate and integrate the results, whereas meta-analyses call for particular data extraction strategies and statistical tools to condense the findings [152]. Meta-analysis is beneficial, particularly in fields with already enough empirical studies [153,154]. Because bankruptcy in SMEs has significant consequences for many parties involved, including suppliers, customers, creditors, and employees, future research into the literature using a meta-analytic technique is highly desirable.
Hence, we propose

Proposition 4.   *Measurement of bankruptcy in SMEs from a different perspective of review technique can be utilised further.*

4.2.3. Context

This review on bankruptcy yields essential insights into the multifaceted realities of SME failures. However, additional extensive study in various industry/national settings or contexts is required to comprehend this multifaceted phenomenon further. We notice that bankruptcy research has been conducted specifically in SMEs, ignoring the probable variations in bankruptcy across different sectors. Consequently, there are generous prospects to conduct research in various industries or sectors, and more companies should be included to support the findings' relevance [155]. Further, research proposes that high-growth enterprises of various sizes belonging to multiple industries should be included in future research [142]. Moreover, Future scholars may begin to control the cultural variables and should investigate how cultural factors, regulatory environments, and other factors influence the success or failure of businesses [129]. Also, Future studies could look into how interconnections between vertical and horizontal supply chains are affected by the cost

of bankruptcy [149].

Regarding the regional distribution of bankruptcy research, developed countries predominate the domain, while emerging and poor economies are still vastly underrepresented. Henceforth, there are ample prospects to conduct research in emerging countries like India, China, etc., to pinpoint the differences and similarities in bankruptcy research in SMEs in multiple nations. Given the wide disparities in bankruptcy law worldwide, future research might compare several countries with various legal requirements [148]. Moreover, Future studies could examine the significance of the Human Resource system's strategic alignment in small enterprises. In addition, Additional studies may also generate provocative issues on the added value of Human Resource Management investments at various points of the life cycle [137].

Hence, we propose.

Proposition 5. *The incorporation of bankruptcy in SMEs varies in industrial and cross-cultural settings.*

5. Conclusion and limitations

5.1. Conclusion

The topic of bankruptcy or business failure has been a staple in the financial literature for over seventy years [1]. The bankruptcy of a business has significant consequences for many parties involved, including clients, vendors, creditors, and employees [3]. Small and medium-sized enterprises (SMEs) are a vital component of the economy, accounting for a significant portion of employment and economic activity. However, SMEs are also more likely to face financial distress and bankruptcy, which can have severe implications for the firms and the broader economy [156]. The present inquiry sheds light on bankruptcy research in SMEs and explores what new insights have been uncovered after several decades of study. At first, we provided a brief overview of the literature on bankruptcy among SMEs. We then performed several analyses from the bibliometric analysis toolbox. Hence, we conducted performance analysis (identified top authors, top journals, and top countries) and science mapping (collaboration analysis and co-occurrence analysis). We strove to comprehend the performance and prevailing intellectual knowledge structure and proposed vistas for future research from the lens of the TMC framework [40].

5.2. Limitations

Our review article contributes significantly to the study of bankruptcy in SMEs. However, it has some caveats that should be noted. First, articles only from the Scopus database are incorporated into the final corpora. Although extensive, this dataset may not be considered all-inclusive. Hence, we accept that some crucial articles may have missed the final dataset due to the limitations of the literature database. Second, published material such as books, reviews, conference proceedings, and reports are excluded from the study to maintain the sample's homogeneity. It would be interesting to see if the results of this review article may be bolstered by analyzing more studies that were not included in the sample. Third, although the research on bankruptcy in SMEs was analyzed using statistics-based bibliometric techniques such as keyword co-occurrence, its output, i.e., the thematic clusters and their interpretation, included some qualitative judgments that showed subjectivity [157]. Fourth, although this literature evaluation has some significant contributions, the scope of bibliometric data is limited [158]. As a result, future reviews can build upon the themes discovered here by combining the findings of other bibliometric analytical methods, such as keyword co-occurrence analysis with bibliographic coupling or page rank, to obtain more robust findings [72,159].

Availability of data and material

Data will be made available on request.

CRediT authorship contribution statement

Umra Rashid: Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Mohd Abdullah:** Writing – original draft, Software, Resources, Methodology, Data curation. **Saleh F.A. Khatib:** Supervision, Project administration, Investigation. **Fateh Mohd Khan:** Writing – review & editing, Supervision, Software. **Javaid Akhter:** Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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