RISK MANAGEMENT AND FINANCIAL RESILIENCE OF MSMEs : A BIBLIOMETRIC ANALYSIS OF GLOBAL RESEARCH TRENDS

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ABSTRACT

This study aims to map the development of literature on risk management and financial resilience of micro, small, and medium-sized enterprises (MSMEs) using a bibliometric approach. The dataset consists of 71 publications published between 2018 and 2026 and collected from Google Scholar. The analysis was conducted using VOSviewer through keyword co-occurrence, co-citation, and bibliographic coupling techniques. The results indicate a significant increase in publications, particularly after the COVID-19 pandemic. Five major research themes were identified: resilience and entrepreneurial resilience, organizational resilience, risk management and supply chain resilience, crisis and COVID-19, and determinants of MSME resilience. Overlay visualization reveals a shift in research focus from basic risk and resilience concepts toward the integration of risk management, organizational resilience, digital transformation, artificial intelligence, and business sustainability. These findings suggest that MSME resilience is increasingly recognized as a strategic capability for adaptation and long-term business sustainability. This study provides a comprehensive overview of the field and highlights future research opportunities.

Keywords : Risk Management, Financial Resilience, MSMEs, Bibliometrics, Business Resilience

ABSTRAK

Penelitian ini bertujuan untuk memetakan perkembangan literatur mengenai manajemen risiko dan ketahanan keuangan usaha mikro, kecil, dan menengah (UMKM) melalui pendekatan bibliometrik. Data penelitian terdiri atas 71 publikasi yang terbit pada periode 2018–2026 dan diperoleh dari Google Scholar. Analisis dilakukan menggunakan perangkat lunak VOSviewer melalui teknik co-occurrence keywords, co-citation, dan bibliographic coupling. Hasil penelitian menunjukkan bahwa jumlah publikasi mengalami peningkatan terutama setelah pandemi COVID-19. Analisis kata kunci mengidentifikasi lima tema utama, yaitu resilience dan entrepreneurial resilience, organizational resilience, risk management dan supply chain resilience, krisis dan COVID-19, serta faktor-faktor yang memengaruhi ketahanan UMKM. Visualisasi overlay menunjukkan pergeseran fokus penelitian dari kajian risiko dan resiliensi dasar menuju integrasi manajemen risiko, ketahanan organisasi, transformasi digital, kecerdasan buatan, dan keberlanjutan bisnis. Temuan ini menunjukkan bahwa ketahanan UMKM semakin dipandang sebagai kapabilitas strategis yang mendukung adaptasi dan keberlanjutan usaha dalam menghadapi ketidakpastian. Penelitian ini memberikan gambaran komprehensif mengenai perkembangan literatur sekaligus mengidentifikasi peluang penelitian di masa mendatang.

Kata kunci : Manajemen Risiko, Ketahanan Keuangan, UMKM, Bibliometrik, Business Resilience .

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) represent a strategic sector that contributes significantly to economic growth, job creation, poverty alleviation, and the improvement of social welfare across many countries. In developing economies, including Indonesia, MSMEs serve as the backbone of the economy due to their ability to absorb labor and maintain domestic economic stability. Nevertheless, MSMEs are also among the most vulnerable business groups to various business risks and economic shocks because of limitations in resources, access to finance, managerial capacity, and risk mitigation capabilities. Recent studies indicate that financial resilience has become a key determinant of MSME sustainability in the face of global economic uncertainty, technological change, inflation, geopolitical crises, and digital market disruptions (Nongnuch et al., 2026).

In recent years, scholarly attention toward MSME risk management and financial resilience has increased substantially. The increasingly dynamic business environment requires MSMEs not only to focus on profitability but also to strengthen their adaptive capacity, risk management practices, and financial sustainability. Financial resilience is no longer understood merely as the ability to survive during crises; rather, it is viewed as a strategic capability that enables organizations to anticipate, respond to, and recover effectively from various business disruptions Anton, Baba, and Bucșoiu (2025) explain that integrating risk management with sustainability strategies can improve financial performance while simultaneously strengthening organizational resilience in the face of business uncertainty.

The advancement of digital technology has also transformed the paradigm of MSME financial management. The adoption of Financial Technology (FinTech), digital banking, electronic payment systems, artificial intelligence (AI), and big data analytics provides opportunities for MSMEs to enhance financial management efficiency and strengthen risk mitigation systems. Digital transformation enables business owners to gain broader access to financing, improve risk prediction capabilities, and accelerate financial decision-making processes. Zhang and Wang (2024) demonstrate that digital finance has become a critical instrument in enhancing financial flexibility and the adaptive capacity of MSMEs in response to changes in the business environment.

In addition to digital transformation, the concept of Environmental, Social, and Governance (ESG) has increasingly attracted attention in studies of MSME risk management and financial resilience. The implementation of ESG principles is considered capable of enhancing business sustainability through stronger governance mechanisms, improved environmental risk management, and increased trust among investors and financial institutions. Recent research indicates that organizations integrating sustainability considerations into their business strategies tend to exhibit higher levels of resilience when facing economic crises and market pressures (Suciati, 2025).

The growing interest in MSME risk management and financial resilience is reflected in the increasing number of scientific publications in reputable international journals and accredited national journals. Numerous studies have examined topics such as financial literacy, financial capability, risk management, business resilience, digital finance, and sustainable finance. However, the existing body of literature remains fragmented and dispersed across multiple disciplines, making it difficult for researchers to obtain a comprehensive understanding of knowledge development, intellectual structures, research trends, and future research directions. Rekha, Sriram, and Hungund (2025) emphasize that bibliometric studies are necessary to identify the evolution of research themes, key scientific contributors, collaboration networks, and emerging research opportunities in the field of MSME finance.

Based on a review of recent literature, most bibliometric studies have focused on MSME financial literacy, financial inclusion, and FinTech adoption, while studies that specifically integrate risk management and financial resilience within a single global bibliometric investigation remain relatively limited. Furthermore, emerging themes such as artificial intelligence, sustainable finance, ESG, and digital financial resilience have not yet been systematically mapped in the MSME context. This condition highlights a research gap that warrants a more comprehensive bibliometric analysis (Ngoc et al., 2025).

In response to these issues, this study aims to analyze the global development of research on MSME risk management and financial resilience through a bibliometric approach. Specifically, the objectives of this study are to: (1) identify publication trends related to MSME risk management and financial resilience; (2) map the authors who have made the greatest contributions to this field; (3) analyze the intellectual structure and emerging research themes through keyword analysis, co-citation analysis, and bibliographic coupling; and (4) identify future research directions and potential research opportunities.

From a theoretical perspective, this study is expected to contribute to the development of literature on risk management, financial resilience, and MSME sustainability through a comprehensive mapping of the knowledge structure. The findings are also expected to enrich discussions on the relationships among financial resilience, digital finance, artificial intelligence, and sustainable business management within the MSME context. From a methodological standpoint, this study extends the application of bibliometric approaches as a tool for identifying scientific developments and research trends in the field of MSME financial management.

Practically, the findings of this study are expected to serve as a reference for governments, financial institutions, academics, and MSME practitioners in formulating strategies to strengthen business financial resilience. For policymakers, the findings may provide a foundation for developing MSME policies oriented toward risk management and business sustainability. For financial institutions, the results may offer insights into designing financing schemes that support MSME financial resilience. Meanwhile, for MSME practitioners, this study highlights the importance of risk management, digital transformation, and financial capacity building in navigating business uncertainty.

This study anticipates that future research trends will increasingly focus on the integration of risk management, artificial intelligence, digital finance, ESG, and sustainable financial resilience. Consequently, the development of technology-driven and sustainability-oriented financial resilience models is expected to become one of the primary research priorities in the MSME field over the coming decade.

LITERATURE REVIEW

Risk Management in MSMEs

Risk management is a systematic process of identifying, assessing, controlling, and monitoring various risks that may affect the achievement of organizational objectives. In the context of Micro, Small, and Medium Enterprises (MSMEs), risk management has become increasingly important due to the inherent characteristics of MSMEs, which generally face limitations in resources, access to financing, and managerial capacity compared to large corporations (Safari et al., 2024).

The implementation of risk management enables MSMEs to anticipate a wide range of threats originating from both internal and external environments, including financial, operational, market, technological, and supply chain risks. According to Testorelli et al. (2022), effective risk management enhances decision-making capabilities and reduces the potential for losses that may threaten business continuity.

In recent years, the concept of risk management in MSMEs has evolved from a reactive approach to a more proactive and strategic orientation. Han & Um (2024) demonstrate that integrated risk management strategies can enhance organizational resilience while supporting long-term business sustainability. Consequently, risk management is no longer viewed merely as a protective mechanism but rather as a strategic capability that contributes to value creation and competitive advantage.

Financial Resilience

Financial resilience refers to an organization's ability to maintain financial stability, adapt to economic pressures, and recover from unexpected disruptions. This concept has become increasingly relevant following various global crises, including the COVID-19 pandemic, which exposed the vulnerability of many MSMEs to economic shocks (Achumie et al., 2024).

Financial resilience reflects a firm's capacity to manage cash flow, maintain liquidity, access financing sources, and sustain profitability under uncertain conditions. According to Alshebami & Murad (2022), a high level of financial literacy enhances MSMEs' ability to cope with economic pressures and supports the sustainability of business performance.

Beyond financial factors, resilience is also influenced by a firm's ability to identify risks and implement appropriate mitigation measures. Aassouli & Ahmed (2023) explain that the integration of financial literacy and risk management constitutes a critical factor in building long-term resilience among MSMEs. Therefore, financial resilience encompasses not only current financial conditions but also an organization's capacity to adapt and survive in a changing business environment.

Organizational Resilience in MSMEs

Organizational resilience refers to an organization's ability to anticipate, respond to, adapt to, and recover from disruptions without losing its core functions. This concept has emerged as one of the dominant themes in contemporary management literature due to the increasingly complex and uncertain business environment (Koporcic et al., 2026).

Within the MSME context, organizational resilience exhibits characteristics that differ from those of large corporations. Resource constraints often make MSMEs more vulnerable to crises; however, they also tend to possess greater flexibility in adapting to changing circumstances (Lestari et al., 2024). This flexibility enables MSMEs to adjust their strategies rapidly when confronted with market changes or operational disruptions.

Matteis et al. (2023) found that the implementation of business continuity management enhances organizational resilience by strengthening anticipation and recovery capabilities in response to business disruptions. Furthermore, Eichholz et al. (2024) reported that a strong risk management orientation positively influences the development of organizational resilience and competitive advantage.

Entrepreneurial Resilience

Entrepreneurial resilience refers to the ability of entrepreneurs to endure, adapt, and recover from pressures, failures, and changes in the business environment. In MSMEs, the characteristics of business owners often play a decisive role in organizational success, as most strategic decisions are concentrated at the individual level (Nautiyal & Pathak, 2024).

Entrepreneurial resilience is crucial in helping MSME owners navigate market uncertainty, resource constraints, and various business risks. According to Zighan et al. (2022), entrepreneurs with high levels of resilience are more likely to develop adaptive strategies that enhance their firms' ability to withstand crises.

Additionally, Rezaei-Moghaddam et al. (2023) explain that entrepreneurial resilience is influenced by factors such as experience, social networks, learning capability, and innovation capacity. These factors enable entrepreneurs to identify opportunities amid challenges and formulate strategies that support long-term business sustainability.

The Relationship Between Risk Management and Financial Resilience in MSMEs

The literature suggests that risk management and financial resilience are closely interconnected and mutually reinforcing. Effective risk management practices help organizations reduce uncertainty, anticipate potential losses, and maintain financial stability when facing business disruptions (Glowka et al., 2024).

In the MSME context, sound risk management enables firms to allocate resources more efficiently and enhance their adaptability to environmental changes. Ciocoiu et al. (2025) found that the consistent implementation of risk management contributes significantly to improved organizational performance and business resilience.

Moreover, recent studies indicate that MSME financial resilience is determined not only by internal factors such as profitability and liquidity but also by the organization's ability to build resilience, manage risks, leverage digital technologies, and foster business innovation (Dey et al., 2024; Wong et al., 2024). Therefore, integrating risk management and financial resilience has become a critical approach for ensuring MSME sustainability in an era of uncertainty.

Bibliometrics as a Literature Analysis Approach

Bibliometrics is a quantitative method used to analyze the development of scientific literature based on publications, citations, author collaborations, and inter-document relationships. This approach is widely employed to map the intellectual structure of a research field and identify trends in knowledge development (Mehta et al., 2024).

In bibliometric research, techniques such as keyword co-occurrence, co-citation analysis, and bibliographic coupling are utilized to identify research themes, conceptual relationships among articles, and the evolution of the literature. According to Ciocoiu et al. (2025), bibliometric methods provide a more objective perspective on the evolution of a research field compared with traditional literature review approaches.

Through the use of software such as VOSviewer, bibliometric results can be visualized in the form of networks that illustrate relationships among authors, documents, and keywords. Therefore, this method is highly relevant for comprehensively mapping the development of research on MSME risk management and financial resilience.

RESEARCH METHOD

Method is a method of work that can be used to obtain something. While the research method can be interpreted as a work procedure in the research process, both in searching for data or disclosing existing phenomena (Zulkarnaen, W., et al., 2020). This study employs a bibliometric approach combined with a thematic review to analyze the development of research on risk management and financial resilience in Micro, Small, and Medium Enterprises (MSMEs). The bibliometric approach was selected because it enables the systematic mapping of scientific knowledge through the identification of publication patterns, author productivity, influential articles, publication sources, research networks, and emerging themes within a specific field of study. Meanwhile, the thematic review is used to interpret the bibliometric findings, thereby providing a more comprehensive understanding of research trends and future research opportunities.

The research data were obtained from the Google Scholar database using the Publish or Perish (PoP) application. The bibliographic data were collected on January 15, 2026. The publication period of 2018–2026 was deliberately selected to capture contemporary developments in MSME risk management and financial resilience research. This period reflects the rapid growth of studies related to business resilience, digital transformation, and post-pandemic adaptation strategies. Limiting the analysis to recent publications also reduces the inclusion of outdated literature and allows the identification of emerging research trends.

Google Scholar was selected due to its broad coverage of scholarly literature, encompassing both international and national scientific publications. Google Scholar was selected as the primary data source because it provides broader coverage of scholarly publications compared with many subscription-based databases, particularly for studies related to SMEs and MSMEs in developing countries. In addition to international journals, Google Scholar indexes regional and emerging journals that are highly relevant to MSME research. To ensure data quality, all retrieved records underwent a manual screening and cleaning process, including duplicate removal, metadata verification, and relevance assessment based on titles, abstracts, and keywords.

The literature search was conducted using a combination of English and Indonesian keywords related to risk management, financial resilience, and MSMEs. The search terms included “SME,” “MSME,” “small and medium enterprise,” “risk management,” “financial resilience,” “UMKM,” “usaha mikro kecil menengah,” “manajemen risiko,” and “ketahanan keuangan.” The publication period was limited to 2018–2026 in order to capture recent developments in the research area. To improve transparency and replicability, the search query was constructed using Boolean operators. The search string applied in Publish or Perish was:

("SME" OR "SMEs" OR "MSME" OR "MSMEs" OR "small and medium enterprise" OR "UMKM" OR "usaha mikro kecil menengah")

AND

("risk management" OR "financial resilience" OR "business resilience" OR "manajemen risiko" OR "ketahanan keuangan").

The search was conducted through Publish or Perish using Google Scholar, and the keywords were searched within article titles, abstracts, and available metadata fields.

The data collection process consisted of four stages: literature identification, screening, data cleaning, and final selection. During the identification stage, all articles retrieved from the search process were collected and exported in RIS format. Subsequently, a screening process was conducted to remove duplicate records, irrelevant articles, and documents that did not meet the research criteria. Eligible articles were required to discuss risk management, financial resilience, business resilience, or related topics within the MSME context, be published between 2018 and 2026, be available as scientific journal articles, and contain complete bibliographic metadata. Following the selection process, a total of 71 articles met the established criteria and were included in the analysis. Although the final dataset consisted of 71 articles, this number is considered adequate for bibliometric mapping because the objective of bibliometric analysis is to identify relationships, research themes, and intellectual structures rather than to achieve statistical representativeness. Previous bibliometric studies on specialized topics have also employed comparable sample sizes when the research field is relatively focused.

Data analysis was conducted using Publish or Perish and VOSviewer. Publish or Perish was employed to retrieve article metadata, including titles, authors, publication years, publication sources, and citation counts. The data were subsequently exported in RIS format and analyzed using VOSviewer to map relationships among bibliographic data. The bibliometric analysis included publication trend analysis to identify the annual growth of research output, citation analysis to determine the most influential articles, author and source analysis to identify the most productive authors and journals, and country and institutional analyses to examine geographical and organizational contributions to the field.

In addition, keyword co-occurrence analysis was performed to identify relationships among keywords and emerging research themes. This analysis generated network visualization, density visualization, and overlay visualization maps. The study also employed bibliographic coupling analysis to identify relationships among documents based on shared references, thereby revealing the intellectual structure and research clusters within the field of MSME risk management and financial resilience.

The results of the bibliometric analysis were subsequently interpreted through a thematic review to identify major themes, research trends, and existing research gaps. By combining bibliometric techniques with thematic analysis, this study seeks to provide a comprehensive overview of the global development of research on MSME risk management and financial resilience while offering insights into promising directions for future research.

Inclusion and Exclusion Criteria

To enhance methodological transparency, inclusion and exclusion criteria were operationalized prior to article screening. Articles were included if they: (1) were published in peer-reviewed journals; (2) contained at least one of the predefined keywords in the title, abstract, or keywords section; (3) focused on MSMEs, SMEs, business resilience, financial resilience, or risk management; (4) were published between 2018 and 2026; and (5) contained complete bibliographic metadata. Articles were excluded if they were conference proceedings, books, book chapters, theses, dissertations, reports, duplicate records, or publications with incomplete metadata. To ensure the relevance and quality of the analyzed articles, this study applied inclusion and exclusion criteria as presented in Table 1.

Article selection was conducted based on the predefined inclusion and exclusion criteria. Included studies consisted of English- and Indonesian-language scientific journal articles published between 2018 and 2026 that addressed risk management, financial resilience, business resilience, or related topics within the MSME context and contained complete bibliographic metadata. Conversely, articles that were irrelevant to the research topic, classified as non-journal documents, published outside the specified time frame, or lacked sufficient bibliographic information were excluded from the analysis. Figure 1. Prisma 2020 Flow Diagram.

Study Selection Process Based on PRISMA 2020

The study selection process was conducted following the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure a systematic, transparent, and rigorous identification and screening of relevant literature. Initially, a total of 185 records were identified through a comprehensive search of the Google Scholar database using predefined search terms aligned with the objectives of the study. Following the identification stage, all retrieved records were subjected to a duplication check. As a result, 23 duplicate records were removed, leaving 162 unique records eligible for further screening.

During the screening stage, the titles and abstracts of the 162 records were carefully reviewed according to the predetermined inclusion and exclusion criteria. This process aimed to evaluate the relevance of each study to the research topic, objectives, target population, variables of interest, and methodological requirements. A total of 74 records were excluded at this stage because they did not meet the eligibility criteria, including irrelevance to the research focus, inappropriate study design, unsuitable population characteristics, or insufficient information. Consequently, 88 articles were retained for full-text assessment.

In the eligibility phase, the full texts of the remaining 88 articles were thoroughly examined to determine their suitability for inclusion in the review. The assessment focused on the methodological quality, relevance of findings, completeness of reported data, and consistency with the objectives of the study. Following this comprehensive evaluation, 17 articles were excluded because they failed to satisfy the established eligibility requirements. Common reasons for exclusion included inadequate methodological rigor, insufficient data reporting, limited relevance to the research questions, or failure to address the variables under investigation.

After completing all stages of the selection process, a total of 71 studies met the inclusion criteria and were ultimately included in the final review and synthesis. These studies provided the empirical foundation for the analysis and discussion presented in this research. The systematic application of the PRISMA 2020 framework enhanced the transparency, reproducibility, and methodological robustness of the review process, ensuring that only relevant and high-quality evidence contributed to the study findings.

Screening and Validation Procedure

The screening process was conducted independently by two researchers. Titles and abstracts were first assessed for relevance to the study objectives. Full-text reviews were subsequently performed for potentially eligible articles. Any disagreements regarding article inclusion were discussed and resolved through consensus. This procedure was implemented to minimize selection bias and improve the reliability of the final dataset.

To further ensure the robustness of the selection process, each article was evaluated against the predefined inclusion and exclusion criteria using a structured screening checklist. The consistency of article selection was periodically reviewed throughout the screening process to reduce subjective judgment and maintain methodological rigor. In addition, bibliographic information, including publication year, author details, source title, and keyword relevance, was verified before inclusion in the final dataset. This validation process helped ensure that only relevant and high-quality records were retained for bibliometric and thematic analysis.

Thematic Review Procedure

The thematic review was conducted in four stages. First, keywords and clusters generated by VOSviewer were extracted. Second, related keywords within each cluster were grouped into broader conceptual categories. Third, dominant themes represented by each cluster were identified and coded. Fourth, the identified themes were interpreted and compared with findings from previous studies to develop a comprehensive understanding of research trends and future research opportunities.

Data Reliability and Validity

To ensure the reliability and validity of the bibliometric analysis, several data-cleaning procedures were performed before conducting the VOSviewer analysis. These procedures included duplicate removal, metadata verification, author name standardization, keyword harmonization, and manual relevance checking. The resulting bibliographic dataset was re-examined prior to visualization to ensure consistency and minimize potential errors in network mapping and thematic interpretation.

RESULTS AND DISCUSSION

Characteristics of the Analyzed Articles

This study utilized bibliographic data retrieved from Google Scholar through the Publish or Perish (PoP) application. The identification, screening, and selection processes resulted in a final sample of 71 articles that met the inclusion criteria. These articles were published between 2018 and 2026 and addressed various aspects related to risk management, financial resilience, business resilience, digital transformation, and MSME sustainability.

Table 2 presents the distribution of articles by publication year. The results indicate that research on MSME risk management and financial resilience has developed dynamically over the observation period. The number of publications remained relatively limited during the early years but increased substantially beginning in 2023. The highest publication output was recorded in 2025, with 19 articles representing approximately 26.76% of the total sample.

The increase in publication output during the 2023–2025 period reflects growing academic interest in MSME resilience in response to various global challenges, including economic uncertainty, technological disruption, supply chain disturbances, and changing market behavior. This trend suggests that risk management and financial resilience are no longer viewed merely as operational concerns but have evolved into strategic factors that determine business sustainability and long-term competitiveness.

Furthermore, increasing attention to digital transformation, artificial intelligence (AI), business sustainability, and organizational resilience has broadened the scope of research in this field. These findings indicate that studies on MSME risk management and financial resilience remain highly relevant and are expected to continue expanding in the coming years. The upward trajectory of publications also highlights the growing recognition that resilience is a multidimensional construct encompassing financial, technological, operational, and strategic dimensions.

Citation Analysis and Influential Articles

Citation analysis was conducted to identify the publications that have exerted the greatest influence on the development of research concerning MSME risk management and financial resilience. Citation counts reflect the level of academic recognition received by a publication and its contribution to shaping the intellectual development of a particular research field.

The results reveal that several articles have achieved substantially higher citation counts than others. The most highly cited article was Rethinking Organizational Resilience and Strategic Renewal in SMEs, with 608 citations, followed by Firm Innovation and Supply Chain Resilience: A Dynamic Capability Perspective with 526 citations, and AI-Driven Risk Management for Enhancing Supply Chain Agility with 458 citations. **Table 3. Most Highly Cited Articles**

These findings demonstrate that organizational resilience, supply chain resilience, business innovation, and the application of artificial intelligence represent the most influential themes within the scholarly community. Notably, the most highly cited articles extend beyond financial considerations and emphasize the importance of organizational adaptability in navigating uncertain and rapidly changing business environments.

The results further indicate that the concept of MSME resilience has evolved toward a more holistic perspective. Resilience is no longer understood solely as the financial capacity to withstand crises; rather, it encompasses an organization's ability to adapt, innovate, learn, and leverage technological advancements in response to environmental changes. This shift reflects a broader transformation in resilience research, where technological capability, innovation capacity, and strategic flexibility are increasingly viewed as critical determinants of long-term organizational sustainability.

Moreover, the prominence of AI-related and supply chain resilience studies among the most cited publications suggests that future research is likely to focus on the integration of digital technologies with risk management practices. As MSMEs operate in increasingly volatile and interconnected markets, the ability to utilize data-driven decision-making, predictive analytics, and intelligent risk management systems is expected to become a key component of organizational resilience and financial sustainability.

Author and Publication Source Analysis

Author analysis was conducted to identify the intellectual contributors involved in the development of research on SME resilience, risk management, and financial resilience. Based on the 71 documents included in this study, the findings indicate that this research field remains in a developmental stage and is characterized by relatively dispersed author contributions. No single author dominates the publication landscape, suggesting that research on MSME resilience has evolved through multidisciplinary contributions from various academic communities.

Although author productivity appears relatively evenly distributed, citation analysis reveals the existence of several highly influential publications that have significantly shaped the development of the field. The article Rethinking Organizational Resilience and Strategic Renewal in SMEs (2019), authored by Herbane, emerged as the most influential publication, accumulating 608 citations. This substantial citation count highlights the continuing importance of organizational resilience as a fundamental theoretical framework for understanding how MSMEs cope with business uncertainty and external disruptions.

In addition, the study conducted by Sabahi & Parast (2020) which examined the relationship between firm innovation and supply chain resilience, received 526 citations. This finding suggests that the research focus has shifted beyond the traditional notion of survival capability toward understanding how innovation and dynamic capability development contribute to organizational resilience in the face of environmental changes. In other words, resilience is increasingly conceptualized as an adaptive capability that enables firms to remain competitive amid disruption.

Recent developments also reveal the emergence of new research themes related to digital transformation and artificial intelligence. Several highly cited publications from 2024 focus on the application of artificial intelligence, data-driven risk management, and digital supply chain resilience within MSMEs. This trend indicates a transition from traditional resilience perspectives toward technology-oriented approaches that are more relevant to contemporary business challenges.

At the same time, research concerning entrepreneurial orientation, financial literacy, risk management, and business sustainability has gained increasing academic attention. This development is reflected in the growing number of studies linking resilience to decision-making capabilities, access to resources, and organizational adaptive capacity. These findings suggest that MSME resilience is influenced not only by external environmental conditions but also by the quality of internal resources and organizational capabilities.

Overall, the author analysis demonstrates that research on MSME resilience has evolved through contributions from scholars representing diverse disciplinary backgrounds. The prominence of studies focusing on organizational resilience, risk management, innovation, and digital transformation indicates that this field has developed into a multidimensional area of inquiry that is increasingly relevant in uncertain and rapidly changing business environments.

Publication source analysis was conducted to identify the journals serving as the primary outlets for disseminating knowledge on MSME resilience and risk management. The results indicate that the selected studies are distributed across a wide range of international journals covering management, entrepreneurship, supply chain management, sustainability, and risk management. This distribution demonstrates that MSME resilience constitutes a multidisciplinary issue that attracts attention from various academic communities.

This characteristic reflects the strong connection between MSME resilience and several strategic issues, including business sustainability, risk management, entrepreneurship, supply chain management, and digital transformation. Consequently, researchers investigating this topic tend to publish in journals that align with their specific theoretical and methodological perspectives. For example, studies emphasizing sustainability issues are commonly published in corporate sustainability journals, whereas research focusing on operational disruptions and crises is often published in risk management and business continuity journals.

The quality of the literature is further evidenced by the presence of internationally recognized journals that frequently serve as publication venues for influential studies. Several highly cited articles were published in journals with strong reputations in management and entrepreneurship research. This finding indicates that MSME resilience has attracted considerable attention within the global academic community and is recognized as an important area for future scholarly development.

The diversity of publication outlets also reflects the evolution of resilience research from an initial focus on organizational resilience toward broader themes encompassing financial literacy, innovation, artificial intelligence, cybersecurity, sustainability, and supply chain resilience. Thus, the variety of publication sources demonstrates that MSME resilience has developed into a dynamic field of study that continuously adapts to emerging economic and technological challenges.

Overall, the publication source analysis reveals that research on MSME resilience possesses a strongly multidisciplinary character, with publications distributed relatively evenly across a variety of international journals. This condition suggests that the topic continues to offer substantial opportunities for future development and remains an important area of interest within the literature on management, entrepreneurship, and risk management.

Keyword Co-Occurrence Analysis Using VOSviewer

Keyword co-occurrence analysis was conducted to identify the research themes most frequently appearing together within the literature on SME resilience. This analysis facilitates the examination of the conceptual structure of the research field, the relationships among research topics, and the evolution of scholarly attention over time. Based on the VOSviewer visualization results, a total of 15 keywords met the minimum occurrence threshold and were grouped into several interconnected research clusters.

The bibliometric mapping was performed using VOSviewer version 1.6.20. Keyword co-occurrence analysis employed the full counting method with association strength normalization. The minimum occurrence threshold was set at three occurrences per keyword. Clustering was generated using the default VOSviewer resolution settings to identify thematic groups within the literature.

Network Visualization

As illustrated in Figure 2, the keywords “resilience” and “SMEs” represent the largest nodes within the network. Larger node sizes indicate higher frequencies of occurrence in the literature, while thicker connecting lines represent stronger relationships between keywords. The central position of these two keywords within the network suggests that they serve as the core themes linking various research topics within the field.

The dominance of “resilience” and “SMEs” confirms that the primary focus of the literature remains centered on understanding how small and medium-sized enterprises respond to uncertainty, disruption, and environmental change. Their strong connections with multiple surrounding keywords indicate that resilience research has expanded beyond a single theoretical perspective and increasingly incorporates themes such as risk management, innovation, sustainability, digital transformation, entrepreneurial capability, and organizational adaptation.

Furthermore, the network structure demonstrates a high degree of interconnectedness among research themes, suggesting that MSME resilience is not examined as an isolated concept but rather as a multidimensional phenomenon influenced by financial, organizational, technological, and strategic factors. This finding reinforces the argument that resilience has evolved into an integrative framework for understanding long-term business sustainability in increasingly complex and volatile environments. Figure 2. Network Visualization with VOSviewer.

The cluster analysis revealed the emergence of five major research themes within the SME resilience literature. The first cluster (green) is centered on the keywords resilience, SMEs, SMEs resilience, entrepreneurial resilience, and SMEs A. This cluster represents studies focusing on the adaptive capacity and resilience of MSMEs in responding to changes in the business environment. The strong relationship between resilience and entrepreneurial resilience suggests that a substantial body of research emphasizes the role of entrepreneurial characteristics and capabilities in strengthening business resilience.

The second cluster (red) consists of the keywords organizational resilience, SME, firm, and SME resilience. This cluster reflects a perspective that examines resilience at the organizational level. Research within this group primarily focuses on how firms develop internal capabilities, strategic resources, and organizational competencies to sustain business continuity under conditions of uncertainty. The prominence of organizational resilience within this cluster indicates that resilience is increasingly viewed as a strategic organizational capability rather than merely a reactive response to crises.

The third cluster (purple) is dominated by the keywords risk management and chain resilience. This cluster highlights the importance of risk management as one of the fundamental pillars of MSME resilience. The strong linkage between these keywords indicates that many studies investigate how risk identification, mitigation, and management practices contribute to strengthening supply chain resilience and overall organizational resilience. This finding suggests that resilience is closely associated with a firm's ability to proactively manage uncertainty and potential disruptions.

The fourth cluster (blue) comprises the keywords crisis and COVID. The emergence of this cluster reflects the significant academic attention devoted to understanding the impact of the COVID-19 pandemic on MSME sustainability. Many studies within this theme examine how small and medium-sized enterprises responded to crisis conditions, maintained business operations, and developed recovery strategies during and after the pandemic. The prominence of this cluster demonstrates the role of COVID-19 as a catalyst for resilience-related research in recent years.

The fifth cluster (yellow) includes the keywords risk, influence, and MSMEs. This cluster represents studies investigating the various determinants influencing MSME resilience, including business risks, external environmental conditions, and firm-specific characteristics. The existence of this cluster indicates that resilience is not merely considered an outcome but is increasingly examined as a phenomenon shaped by multiple interacting factors and contextual conditions.

Overall, the network visualization demonstrates that research on MSME resilience has evolved around three overarching themes: organizational resilience, risk management, and crisis resilience. These themes are strongly interconnected and collectively form the intellectual foundation of the literature analyzed in this study. The close relationships among the clusters further indicate that resilience research has developed into a multidisciplinary field that integrates organizational, strategic, financial, and operational perspectives.

Research Topic Evolution Analysis (Overlay Visualization)

Figure 3 presents the overlay visualization illustrating the evolution of research topics based on the average publication year of the associated keywords. In this visualization, blue-colored keywords represent topics that were explored during the earlier stages of the literature, whereas green and yellow-colored keywords indicate relatively newer and emerging research themes.

The overlay visualization provides valuable insights into the temporal development of the field by revealing shifts in scholarly attention over time. Through this analysis, it becomes possible to identify which themes have served as the foundational topics of MSME resilience research and which themes have recently emerged as promising areas for future investigation. Consequently, the overlay map offers a dynamic perspective on how the intellectual focus of MSME resilience research has evolved in response to changing economic, technological, and societal challenges. Figure 3. Overlay Visualization with VOSviewer.

The overlay visualization results indicate that the keywords risk, SMEs resilience, and SME resilience represent some of the earliest research topics within the field, with average publication years concentrated around 2022. This finding suggests that the initial stage of research primarily focused on developing a fundamental understanding of MSME resilience and its relationship with business risk. During this period, scholarly attention was largely directed toward conceptualizing resilience and identifying the factors that enable small and medium-sized enterprises to withstand uncertainty and external disruptions.

In subsequent years, the research focus gradually shifted toward the keywords resilience, SMEs, risk management, and chain resilience, which are represented by greenish-blue colors in the visualization. This transition indicates that the literature evolved beyond the identification of risks and increasingly explored risk management mechanisms, resilience-building strategies, and organizational capabilities that support long-term sustainability. As a result, resilience began to be viewed not merely as an outcome but as a strategic process involving proactive risk management and organizational adaptation.

Meanwhile, the keywords COVID, crisis, influence, and MSMEs are displayed in brighter yellow shades, indicating that these topics have emerged more recently. This pattern reflects growing scholarly interest in the impact of global crises and the various factors influencing the ability of MSMEs to survive and adapt under conditions of economic uncertainty. The emergence of these themes is closely associated with the unprecedented challenges posed by the COVID-19 pandemic and the broader disruptions affecting global business environments.

Interestingly, organizational resilience also appears among the more recent research themes. This finding suggests that the literature has shifted from a predominantly reactive perspective on crisis management toward a more strategic approach emphasizing the development of organizational capabilities to anticipate, adapt to, and recover from disruptions. The increasing prominence of organizational resilience indicates a growing recognition that sustainable business performance depends not only on financial resources but also on the ability to build flexible and adaptive organizational structures.

Based on the overlay visualization, it can be concluded that the current direction of research is moving toward the integration of risk management, organizational resilience, and responses to global crises. This evolution demonstrates that MSME resilience is increasingly understood as a strategic capability encompassing adaptation, innovation, learning, and long-term business sustainability. The findings further suggest that future research is likely to continue exploring the interplay between organizational capabilities, technological transformation, and resilience-building strategies in uncertain business environments.

Thematic Literature Analysis

The thematic analysis was conducted to identify the major themes emerging from the literature on Micro, Small, and Medium Enterprise (MSME) resilience in relation to risk management. The identification of themes was based on the results of the keyword co-occurrence analysis performed using VOSviewer, which generated five principal clusters: MSME resilience, organizational resilience, risk management and supply chain resilience, crisis and COVID-19, and factors influencing MSME resilience. In addition, the thematic interpretation was strengthened by the overlay visualization analysis, which revealed how research priorities have evolved over time.

Overall, the findings indicate that research on MSME resilience has expanded considerably over the past several years. Initially, studies primarily focused on resilience as the ability of firms to survive risks and uncertainty. However, as the global business environment has become increasingly complex, scholarly attention has shifted toward a more comprehensive understanding of how organizations develop adaptive capabilities, strategically manage risks, and leverage technology and innovation to enhance business sustainability.

This finding is consistent with the literature review conducted by Miklian & Hoelscher (2022), who argue that research on SME resilience has evolved from a narrow focus on responses to external shocks toward a broader examination of how organizations anticipate, adapt to, and transform themselves following crises. Consequently, resilience is increasingly conceptualized as a dynamic organizational capability that enables firms not only to withstand disruptions but also to emerge stronger and more competitive in the aftermath of adversity.

SME Resilience

The first cluster, represented by the green color, consists of the keywords resilience, SMEs, SMEs resilience, entrepreneurial resilience, and SMEs A. This cluster represents the dominant research theme focusing on the ability of MSMEs to survive, adapt, and recover from various business disruptions. The prominence of the keyword resilience indicates that business resilience serves as the central foundation of the literature in this field.

Early studies on MSME resilience primarily examined how small and medium-sized enterprises maintain operational continuity under conditions of uncertainty and environmental turbulence. Herbane (2019) argues that organizational resilience in MSMEs extends beyond the ability to withstand external disruptions and encompasses organizational learning and strategic renewal processes that enable firms to grow following periods of crisis. This perspective subsequently became one of the most influential theoretical foundations in resilience research and has been widely adopted by subsequent studies.

The evolution of the literature demonstrates that resilience has become increasingly associated with entrepreneurial dimensions. This trend is reflected in the strong connection between the keywords entrepreneurial resilience and SMEs resilience. Zighan et al. (2022) found that entrepreneurial orientation plays a crucial role in strengthening the adaptive capacity of MSMEs during the COVID-19 pandemic. Entrepreneurs who exhibit innovative behavior, a willingness to take calculated risks, and strategic flexibility are more likely to sustain business performance despite significant environmental pressures.

Similar findings were reported by Nautiyal & Pathak (2024), who identified entrepreneurial resilience as a critical determinant of MSME success in navigating business uncertainty. Entrepreneurial resilience not only enables business owners to cope with the psychological pressures associated with crises but also enhances their ability to identify new opportunities and develop innovations aligned with changing market demands. Consequently, resilience is increasingly viewed not merely as the capacity to survive but as the capability to thrive through continuous adaptation and strategic renewal.

Recent studies have further expanded the conceptualization of MSME resilience. Koporcic et al. (2026) argue that resilience should be understood as a multidimensional construct encompassing individual, organizational, social, and environmental dimensions. As a result, contemporary research no longer treats resilience as a single organizational characteristic but rather as a combination of interrelated capabilities that enable firms to respond effectively to different forms of disruption. This broader perspective reflects the growing complexity of resilience research and highlights its strategic significance in contemporary business environments.

Collectively, the findings within this cluster indicate a conceptual shift from viewing resilience as a reactive response to crises toward understanding it as a dynamic capability that supports long-term sustainability, innovation, and competitiveness. This transformation demonstrates that resilience has become a central strategic asset for MSMEs operating in increasingly volatile and uncertain markets.

Organizational Resilience

The second cluster, represented by the red color, consists of the keywords organizational resilience, SME, firm, and SME resilience. This cluster reflects a stream of research that conceptualizes resilience from an organizational perspective, emphasizing the capacity of firms to develop internal resources, structures, and capabilities that support business continuity.

Within contemporary management literature, organizational resilience is frequently associated with the dynamic capabilities perspective, which explains how firms integrate, build, and reconfigure resources in response to changing environmental conditions. Sánchez-García et al. (2023) demonstrate that an organization's adaptive capacity is strongly influenced by its internal structure, decision-making processes, and organizational culture that supports continuous learning and improvement. These factors collectively determine the ability of firms to respond effectively to uncertainty and disruption.

Furthermore, Agostini & Nosella (2023) emphasize the importance of intellectual capital in strengthening organizational resilience among MSMEs. Intellectual capital—including knowledge, managerial experience, business networks, and employee competencies—enables firms to identify opportunities and threats more rapidly. As a result, organizations possessing stronger intellectual capital are better positioned to respond to market changes, technological disruptions, and operational challenges.

Recent developments in the literature also suggest that organizational resilience is increasingly regarded as a strategic capability that contributes directly to competitive advantage. Eichholz et al. (2024) found that risk management orientation integrated with planning and budgeting processes significantly enhances organizational resilience. This finding implies that resilience should not be viewed solely as a defensive mechanism but rather as a strategic resource that supports long-term business success and organizational sustainability.

The overlay visualization further indicates that organizational resilience is among the most recently emerging research themes. This trend reflects a shift in scholarly attention from reactive crisis-response approaches toward proactive strategies aimed at developing sustainable organizational capabilities. Such a transition underscores the growing recognition that resilience is a long-term strategic investment rather than merely an emergency response mechanism.

Overall, the organizational resilience cluster highlights the importance of internal organizational capabilities in determining how firms respond to uncertainty. The increasing prominence of this theme suggests that future research is likely to focus on the mechanisms through which organizational resources, knowledge, and capabilities contribute to sustainable resilience and competitive performance.

Risk Management and Supply Chain Resilience

The third cluster, represented by the purple color, consists of the keywords risk management and chain resilience. This cluster demonstrates that risk management serves as one of the fundamental pillars in the development of MSME resilience. The close association between these keywords indicates that a substantial portion of the literature focuses on how organizations identify, assess, mitigate, and monitor risks in order to strengthen both organizational resilience and supply chain resilience.

Kumar & Anbanandam (2020) found that a strong risk management culture positively influences supply chain resilience by enhancing visibility, collaboration, connectivity, and flexibility across supply chain networks. These findings suggest that resilience is not solely determined by the ability to recover from disruptions but also by the capability to proactively identify vulnerabilities and prepare appropriate mitigation strategies before disruptions occur.

This perspective is reinforced by the work of Sabahi & Parast (2020) who argue that firm innovation plays a critical role in improving the management of supply chain risks and strengthening resilience against external shocks. Their study highlights the complementary relationship between risk management and resilience. While risk management aims to reduce organizational vulnerability and exposure to uncertainty, resilience enables firms to recover more rapidly and effectively when disruptions occur.

More recent studies have increasingly integrated digital technologies and artificial intelligence into risk management frameworks. Wong et al. (2024) found that the application of artificial intelligence enhances the effectiveness of risk management practices and improves supply chain agility among MSMEs. Similarly, Dey et al. (2024) demonstrated that AI adoption contributes significantly to supply chain resilience by improving predictive capabilities and accelerating decision-making processes during periods of uncertainty.

These developments indicate that the research paradigm has evolved from traditional risk management approaches toward more strategic and technology-driven perspectives. Advances in digital technologies enable organizations to shift from reactive risk responses to predictive and adaptive risk management systems that strengthen resilience in complex and volatile environments.

Overall, this cluster reveals that risk management is increasingly viewed not merely as a mechanism for protecting organizations from threats but also as a strategic instrument for creating resilience, enhancing adaptability, and sustaining competitive advantage. The integration of risk management, supply chain resilience, and digital technologies is likely to remain one of the most important directions for future research on MSME sustainability and resilience.

Crisis and COVID-19

The fourth cluster, represented by the blue color, consists of the keywords crisis and COVID. The emergence of this cluster indicates that the COVID-19 pandemic became one of the primary catalysts driving the rapid growth of research on MSME resilience in recent years.

Prior to the pandemic, resilience research largely focused on natural disasters, supply chain disruptions, and regional economic crises. However, COVID-19 introduced an unprecedented global disruption that simultaneously affected nearly all sectors of the economy. This situation intensified academic interest in understanding how MSMEs respond to complex and prolonged crises, thereby positioning resilience as a critical area of scholarly inquiry.

Abu Hatab et al. (2021) found that the limited implementation of risk management practices caused many agrifood MSMEs to experience significant operational difficulties during the pandemic. In contrast, firms that adopted more comprehensive risk mitigation strategies demonstrated substantially higher levels of resilience. These findings reinforce the argument that effective risk management serves as a prerequisite for the development of organizational resilience.

Similarly , Zakaria et al. (2023) reported that many MSMEs adopted various adaptive strategies during the pandemic, including product diversification, service digitalization, and business model transformation. These initiatives enabled firms to maintain customer relationships and reduce the adverse effects of restrictions on economic activity. Such evidence highlights the importance of strategic flexibility and adaptive capability in sustaining business performance during periods of severe disruption.

Lestari et al. (2024) further demonstrated that technology adoption played a significant role in strengthening business resilience during the post-pandemic period. Their findings suggest that the COVID-19 crisis not only accelerated the digital transformation of MSMEs but also fundamentally altered the way organizations develop and sustain resilience over the long term. Consequently, resilience is increasingly associated with the ability to leverage digital technologies to enhance adaptability and competitiveness.

Overall, the COVID-19 cluster illustrates how a global crisis reshaped both academic discourse and managerial practice regarding resilience. The pandemic highlighted the necessity of combining risk management, innovation, and digital transformation to strengthen the long-term sustainability of MSMEs in highly uncertain environments.

Determinants of MSME Resilience

The fifth cluster, represented by the yellow color, consists of the keywords risk, influence, and MSMEs. This cluster indicates that the literature extends beyond examining resilience as a concept and increasingly focuses on identifying the factors that influence the resilience capacity of MSMEs.

One of the most frequently investigated determinants is financial literacy. Olarewaju & Msomi (2021) found that financial management capability and an understanding of business risks significantly influence the financial sustainability of MSMEs. These findings suggest that business resilience is not determined solely by external conditions but also by the firm's internal ability to manage financial resources effectively and make informed strategic decisions.

Furthermore, Alshebami & Murad (2022) demonstrated that entrepreneurial resilience moderates the relationship between financial literacy and sustainable business performance. In other words, financial literacy generates greater benefits when combined with strong entrepreneurial capabilities. This finding highlights the complementary relationship between technical financial knowledge and entrepreneurial adaptability in strengthening organizational resilience.

Another determinant widely discussed in the literature is social capital. Torres et al. (2019) found that social networks, business relationships, and trust among economic actors contribute significantly to enhancing a firm's capacity to withstand external disruptions. More recent evidence from Reniati et al. (2024) further indicates that leadership quality and social capital positively influence MSME resilience in Indonesia. These findings suggest that resilience is not solely an internal organizational phenomenon but is also shaped by the quality of external relationships and collaborative networks.

Overall, the findings indicate that MSME resilience is a multidimensional phenomenon influenced by the interaction of individual, organizational, social, financial, and technological factors. Consequently, efforts to strengthen MSME resilience require a holistic and integrated approach that simultaneously addresses these multiple dimensions.

Based on the overlay visualization results, the evolution of research themes demonstrates a transition from an initial focus on risk and foundational resilience concepts toward broader discussions encompassing risk management, organizational resilience, and responses to global crises. More recently, scholarly attention has increasingly shifted toward the development of sustainable organizational capabilities through innovation, digital transformation, and advanced risk management practices. This trend suggests that MSME resilience is increasingly understood as a strategic capability that enables firms not only to survive disruptions but also to adapt, transform, and create sustainable competitive advantages.

Research Gap and Future Research Agenda

The thematic analysis demonstrates that research on MSME resilience has expanded considerably over recent years. Nevertheless, several important research gaps remain that warrant further investigation. These gaps are evident in the distribution of research themes, the evolution of keywords identified through the overlay visualization, and the concentration of existing studies on specific areas of inquiry.

First, the majority of existing studies continue to focus on the relationship between risk management and organizational resilience in the context of crises and business disruptions. Themes such as risk management, organizational resilience, supply chain resilience, and COVID-19 dominate the current literature. In contrast, research integrating digital transformation, artificial intelligence (AI), and MSME resilience remains relatively limited. Although recent studies have begun exploring the role of AI in enhancing organizational risk management capabilities (Wong et al., 2024; Dey et al., 2024), this topic remains in its early stages of development within the MSME context. This gap presents opportunities for future research investigating how digital technologies can systematically enhance adaptive capacity and long-term business resilience.

Second, the existing literature is still largely dominated by traditional risk management approaches emphasizing risk identification, mitigation, and control. Comparatively fewer studies have examined cyber resilience, digital risk management, and data-driven resilience frameworks. Given the increasing dependence of MSMEs on digital technologies, organizations are becoming more vulnerable to cybersecurity threats and digital disruptions. Future studies should therefore integrate organizational resilience with cybersecurity, digital governance, and technology-enabled risk management frameworks.

Third, most studies focus predominantly on internal organizational factors such as entrepreneurial capability, social capital, financial literacy, and organizational competencies. Research examining external influences—including digital ecosystems, government support mechanisms, interorganizational collaboration networks, and global market dynamics—remains relatively limited. Yet resilience is shaped not only by internal organizational strengths but also by the broader institutional and environmental context in which firms operate. This highlights the need for more ecosystem-oriented resilience research.

Fourth, the overlay visualization indicates that crisis, COVID, and organizational resilience are among the most recently emerging themes. This finding suggests that much of the current literature remains heavily influenced by the pandemic context. As the world moves beyond the acute phase of COVID-19, future research should reassess the applicability of existing resilience models under alternative forms of disruption, including geopolitical instability, climate change, global supply chain disruptions, inflationary pressures, and rapid digital transformation. Such efforts would contribute to a more universal and context-independent understanding of MSME resilience.

Fifth, the relationship between resilience and sustainability continues to offer significant opportunities for scholarly development. Recent studies have begun linking resilience with sustainable performance, green innovation, and long-term resource management (Awad & Martín-Rojas, 2024; Ooi

& Memon, 2025). However, the interconnections among resilience, sustainability, and competitive advantage remain insufficiently explored within the MSME literature. Given the growing importance of environmental and social sustainability in contemporary business environments, this represents a particularly promising avenue for future investigation.

Based on these identified gaps, several future research agendas can be proposed. First, future studies should examine the integration of artificial intelligence, big data analytics, and risk management systems in strengthening MSME resilience. Second, greater attention should be devoted to cyber resilience and digital resilience as responses to increasing technological dependence. Third, researchers should explore the roles of business ecosystems, collaborative networks, and public policy interventions in enhancing MSME resilience. Fourth, future research may develop comprehensive resilience frameworks that simultaneously integrate economic, social, environmental, and technological dimensions. Finally, additional empirical studies in developing countries are needed to generate a more comprehensive understanding of resilience across diverse economic, institutional, and cultural contexts.

Overall, the evolution of the literature indicates a shift from risk-response-oriented approaches toward strategic perspectives emphasizing organizational adaptation, transformation, and long-term sustainability. Consequently, future research should adopt more integrative frameworks that connect risk management, digital transformation, innovation, and sustainability as the foundational pillars of sustainable MSME resilience.

CONCLUSION

This study successfully identified that research on MSME risk management and financial resilience has exhibited a steadily increasing publication trend, particularly during the post-COVID-19 pandemic period. This trend indicates growing academic recognition of the importance of strengthening MSME resilience in addressing various forms of risk and business uncertainty.

The analysis of authors and publication sources revealed that the literature is largely dominated by studies focusing on organizational resilience, entrepreneurial resilience, and risk management as the fundamental pillars of MSME sustainability. Several highly cited publications have played a significant role in shaping the intellectual development of the field and continue to serve as key references for subsequent research.

The analysis of the intellectual structure through keyword co-occurrence, co-citation, and bibliographic coupling demonstrated that the principal research themes include resilience, organizational resilience, entrepreneurial resilience, risk management, supply chain resilience, and the impacts of crises such as COVID-19 on MSMEs. These themes are strongly interconnected and collectively form a dynamic and evolving knowledge framework within the literature.

Furthermore, the overlay visualization analysis indicated that contemporary research is increasingly moving toward the integration of risk management, organizational resilience, digital transformation, artificial intelligence, and business sustainability. This finding highlights substantial opportunities for future research aimed at developing more comprehensive resilience frameworks for MSMEs, particularly within the context of developing economies.

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P-ISSN; 2541-5255 E-ISSN: 2621-5306 | Page 1323

Despite its contributions, this study has several limitations. First, the number of articles included in the analysis was relatively limited and derived solely from searches conducted using specific keywords within the selected database. Second, the bibliometric analysis did not generate highly complex network structures, resulting in a stronger emphasis on thematic synthesis rather than extensive network-based interpretation.

In light of these limitations, future studies are encouraged to employ larger datasets and incorporate broader bibliographic databases, such as the Web of Science, to enhance the comprehensiveness and robustness of bibliometric findings. Future research may also develop empirical models examining the relationships among risk management, digital transformation, financial resilience, and MSME performance. Such investigations would provide deeper insights into the factors influencing business sustainability and contribute to the development of more effective resilience strategies for MSMEs operating in increasingly uncertain and dynamic environments.

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TABLE AND FIGURE

Table 1. Inclusion and Exclusion Criteria

Aspect	Inclusion Criteria	Exclusion Criteria
Research Topic	Studies discussing risk management, financial resilience, business resilience, resilience, or related topics within the MSME context	Studies unrelated to MSME risk management and resilience
Document Type	Scientific journal articles	Conference proceedings, books, book chapters, theses, dissertations, reports, and other non-journal documents
Publication Year	2018–2026	Published outside the 2018–2026 period
Language	English and Indonesian	Languages other than English and Indonesian
Data Source	Indexed in Google Scholar and accessible through Publish or Perish	Not indexed or lacking accessible bibliographic metadata
Relevance	Directly related to the research focus based on title, abstract, and keywords	Articles with low relevance or only mentioning MSMEs in general terms
Data Completeness	Complete metadata available (title, author, year, source, citations)	Incomplete metadata or records that cannot be exported in RIS format

Table 2. Distribution of Articles by Publication Year

Year	Articles Count
2018	5
2019	3
2020	6
2021	4
2022	6

2023	13
2024	14
2025	19
2026	1
Total	71

Table 3. Most Highly Cited Articles

No	Title	Citation
1	Rethinking Organizational Resilience and Strategic Renewal in SMEs	608
2	Firm Innovation and Supply Chain Resilience: A Dynamic Capability Perspective	526
3	AI-Driven Risk Management for Enhancing Supply Chain Agility	458
4	Artificial Intelligence-Driven Supply Chain Resilience in Manufacturing SMEs	376
5	SMEs and Exogenous Shocks: A Conceptual Literature Review	300

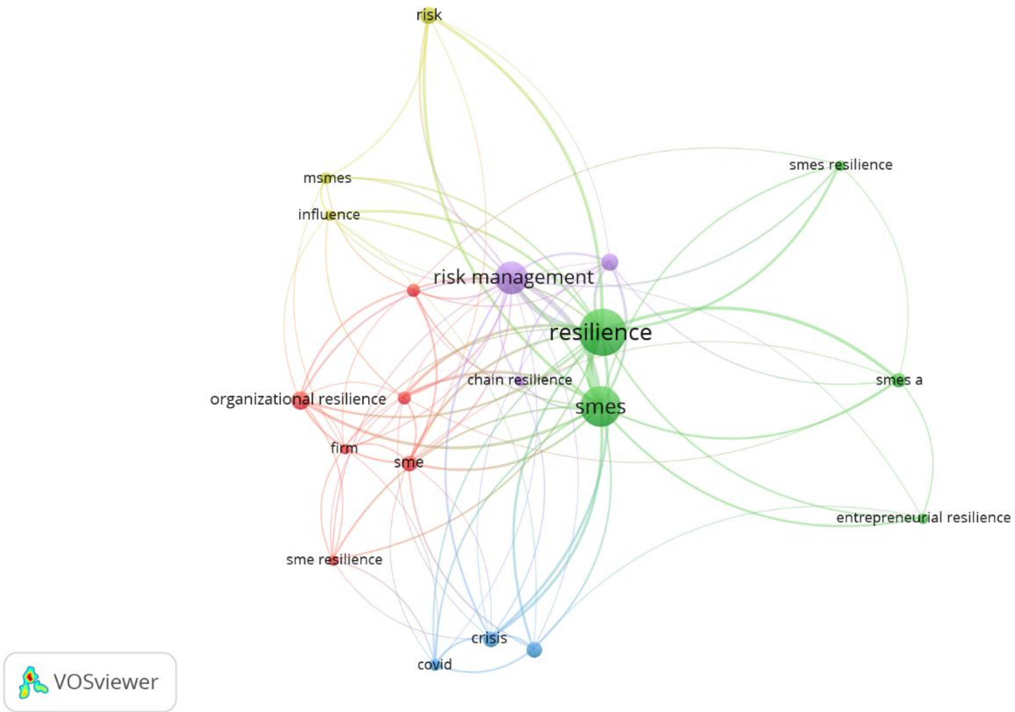

Figure 2. Network Visualization with VOSviewer
Source: Authors (2026)

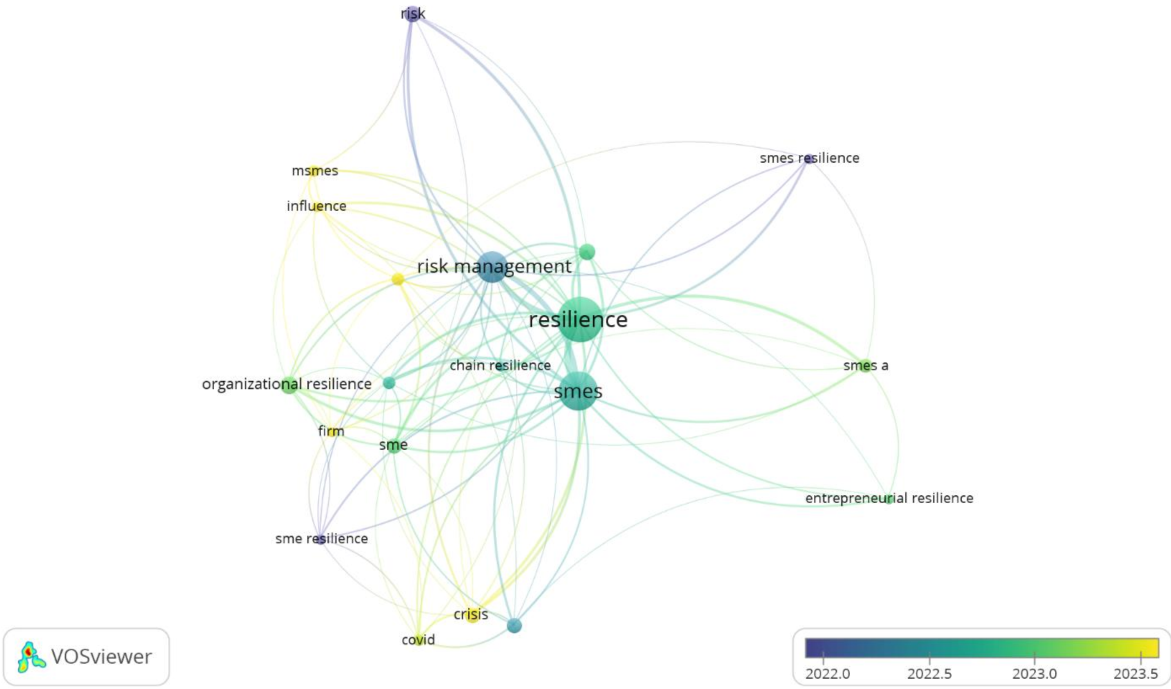

Figure 3. Overlay Visualization with VOSviewer
Source: Authors (2026)

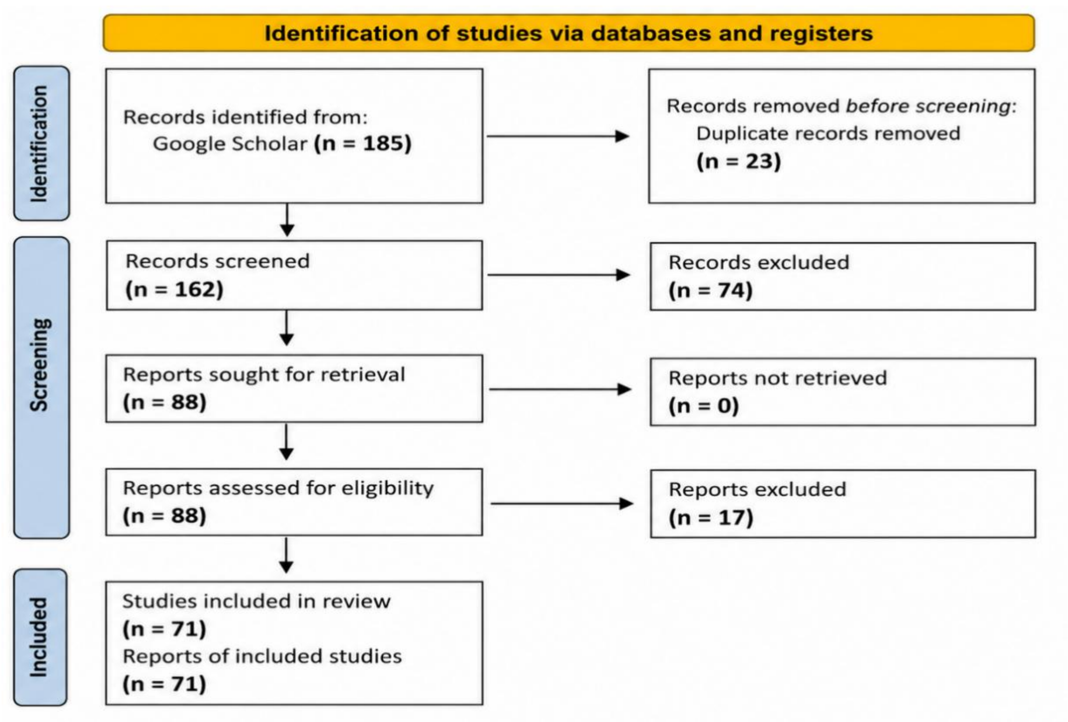

Figure 1. PRISMA 2020 Flow Diagram
Source: Adapted from Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*, n71. https://doi.org/10.1136/bmj.n71