

RISK MANAGEMENT INTERCONNECTION WITH BUSINESS RESILIENCE: A BIBLIOMETRIC ANALYSIS

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Abstract

This study highlights the thematic structures, collaborative patterns by integrating the fields of risk management and business resilience by the means of bibliometric analysis. By following the PRISMA guidelines analysis of this study was conducted on 428 documents selected from the Scopus data base published between the time lines of 1999-2025. The data is analyzed on VoSViewer which contain the co authorship analysis on institution as well as for individual level, keyword co-occurrence and collaborative networks on country level. The results reveals the 7 dominant research clusters which consist risk management, industry 4.0, dynamic capabilities, digital transformation and technology based adaptive frameworks to enhance business resilience. Both developed and developing countries have shown massive interest in participation on this topic. The findings of this research guide managers and policymakers to make a integrated model of proactive risk management and resilience to make long term sustainable environment for firm's even in sever uncertainty. This study also plays's the role of a bridge to identify the research gap that how risk management and business resilience are worked as an integrated framework to offer a solid practical as well as theoretical foundation for future research and formation of effective organizational strategy.

1. Introduction:

In the recent worldwide scenario, firms are facing highly volatile, complex market conditions and different types of risks which are emerging from these dynamics i.e: geopolitical risk, cyber-attacks, and climate risk etc. Cyber-attacks often disrupt the sequence of supply chain which is responsible to trigger the regulatory instability. On the other hand climate change which is not only responsible for creating operational uncertainties and inefficiencies due to disruption of production process but also creating supply chain disruption due to heavy setbacks in energy, manufacturing and as well as in agriculture sector. While on the other hand geopolitical risks are responsible for creating uncertainties like trade wars, political conflicts and diplomatic instability among both i.e: developing and developed nations which are leading towards the financial instability and

failure in long term strategic planning. These threats often overlap and amplify one another, creating systemic vulnerabilities that challenge traditional management models. As a result, risk management and business resilience have evolved from independent disciplines into interdependent capabilities essential for organizational survival and sustainability (Aven, 2016; Linkov & Trump, 2019). So Risk management aims to highlight, assess, and reduce the potential risk before they come into existence, while on the other side business resilience underscore the capacity of firm's to adopt, absorb, and their recovery from disruptions (Yasser, & Asghar, 2024). A continuous cycle is formed by the integration of these practices i.e: effective and efficient risk management systems reduce risk exposure and resilience ensures the continuity of business even in a complex situation (Hasan Al-Obaidy, Jawad

Al-Dulaimi, & Jasim Al-Tamimi, 2025). The economic implications of failing to integrate these functions are severe. According to the latest study any future global pandemic will create the losses of up to USD 13.6 trillion which create effect for five years, which are representing the 15% of global GDP (Lloyd's of London, 2024). Similarly, McKinsey & Company (2024) underscore that in past 3 years Global supply chain management have experienced major disruptions in business environment and only 21% feel fully prepared to manage any crises in future.

These findings highlight the urgent requirement for firms to provide strength to both proactive and adaptive mechanisms to remain competitive and sustainable in highly volatile business environments (Akbar, Asghar, & Arshad, 2025). Empirical studies further underscore the growing practical and academic importance of resilience based risk management system.

A global survey done by the Protiviti & NC State ERM Initiative (2023) highlights that 64% of executive's level staff ranked the "operational resilience" in top 5 strategic priorities for the upcoming ten years. Regardless of this recognition, many firms are continuing to address risk management and business resilience as separate fields, which are resulting in scattered policies and unsatisfactory performance (Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017). Academically, research on both streams i.e: risk management and business resilience has been grown rapidly in the past 20 years. A bibliometric study by Yunita, Salim, & Indrawati (2024) found a 5 time increase in publications on the stream of "business resilience" between the era of 2010 and 2023, with its strong integrative linkages with management science, operations, and sustainability. Similarly, Guan, Merigó, Löfstedt, & Wardman (2024) highlights that studies on "risk management" have increasingly integrated with business resilience-related constructs such as redundancy, robustness and adaptability. This intersection underscores an emerging understanding that risk mitigation and resilience-building are not only consecutive processes but correlated dimensions of strategic management (Rafiq et al., 2024). Despite the growing body of existing knowledge, the literature remains disconnected, with partial synthesis of how risk management and business resilience co-develop as

the integrated research themes. Previous bibliometric analyses have examined each field separately, which leaves an important gap in understanding between their interconnection, intellectual structure, and emerging trends (Linnenluecke, 2017; Bhamra, Dani, & Burnard, 2011). Addressing this gap is crucial for advancing both context i.e: academically and practically as organizations are increasingly seek evidence-based integrated frameworks that merge the proactive and reactive capabilities to highlight the level of uncertainty (Asghar, & Nabeel, 2025). Therefore, this study aims to conduct a comprehensive bibliometric analysis to explore the intersection between the fields of risk management and business resilience to fulfill the following objectives:

1. To systematically analyze and evaluate the bibliometric trends in risk management and business resilience from 1999–2025.
2. To identify principal research themes, authors, and collaborative networks that joins risk management and business resilience.
3. To forecast emerging research trends in the field of risk management and business resilience.

However the data set for the purpose of analysis in this paper include the academic research papers output from the period of 1999 to 2025 which include 428 publications with the huge range of different journals specialized in the topic of risk management, crises management, organization operational as well as financial resilience. This research identifies 8 themes or clusters with in these clusters there are 947 connections of keywords the total strength of these relationships are 1805 which concludes that the risk management and business resilience is highly interconnected. So the research on the topic of risk management and business resilience have a significant expansion but remains disconnected from various domains as well as from themes also there is a gap in intellectual foundations, collaborative networks and trending themes which bibliometric analysis may fulfill. The ongoing uncertainties which are showing their linkage with these variables in literature i.e: geopolitical risk, pandemics and climate threats also become important for future academic inquiry and its practical implementation.

2. Theoretical Foundation of Risk Management and Business Resilience:

This study is based on the foundation of Dynamic Capabilities Theory which suggests that firms have to develop its internal and external competencies on regular basis to respond effectively and efficiently towards the rapid changes in environment (Teece, Pisano, & Shuen, 1997). According to this context risk management serve as a dynamic capability to sense and mitigate the impact of potential risk (Williams, Gruber, Sutcliffe, Shepherd, & Zhao, 2017). This theory is further supported by Resource Based View (RBV) theory (Barney, 1991) which highlights that firms which have valuable, rare, inimitable and non-substitute able resources i.e.: (VRIN) are able to achieve competitive advantage rather than its competitors. So efficient risk management practices and resilient business operational system are considered valuable strategic resources which provide a competitive advantage to firm in business environment. Furthermore another theory which also act like a pillar to this theoretical foundation is Contingency theory which underscores that alignment of organizational strategies and environmental conditions is more suitable and effective rather than any other approach (Asghar, Akbar, & Arshad, 2025). So according to the present environment the success of risk management practices for enhancing business resilience is depend upon how well the firms adapt risk strategies according to the level of uncertainties in business environment (Shaheen, Azadegan, Hooker & Lucianetti, 2019). Collectively all these theories suggest that risk management is a proactive technique to make a business resilient. By viewing the risk management as dynamic resource firm can ensure their long term sustainability in market even in a complex environment (Abbas et al., 2025). Risk management is commonly known systematic process which involves the identification, estimation and alleviation of the risk which can create the negative impact on firm's resources, strategic objectives and operations (Oehmen, Günther, Herrmann, Schulte, & Willumsen, 2020; Song, Munyinda, & Adu Sarfo, 2025). The modern business landscapes are facing the following types of risks emerging from different type of sources i.e. facing failures in operations,

regulatory changes, financial instability and technological disruptions are responsible for making the risk management as an integral part of firms for the purpose of strategic planning of risk to create their sustainable value in market (Adegoke & Akinola, 2025; Genovard, Muñoz, Petchamé, & Solanellas, 2025). Another variable which is highly linked with risk management is business resilience. Business resilience refers the capacity of firms to adapt, anticipate, and the process of responding to the disturbance while maintaining essential functions of firm for their trans-formative recovery (Yunita et al., 2024). Today in the world of modern business era it is necessary to discover the interconnections between the risk management and business resilience because combination of different business strategies allows the firms to act more effectively and efficiently to foresee, sustain and their recovery from multidimensional disturbance from the high uncertain environments (Santamaria-Ariza, Sousa, Matos, & Faber, 2023)

Recently a research study represent a business continuity-based framework where risk management is acting as a proactive tool which provide support in resilience, by helping the firms not only to identify and mitigate the level of uncertainty and intensity of risks but also the maintenance and continuity of business functions during disruptive events (Asghar et al., 2025). The findings of this study concludes that the transformation of risk assessment into resilient business processes which are ensuring long term reliability is crucial for the performance of operational activities and business continuity among crises (Hasan Al-Obaidy, Jawad Al-Dulaimi, & Jasim Al-Tamimi, 2025). Another study by Alam, Hasan, Masroor, Nabi, & Islam, (2025) further explores the combined impact of creating resilience and managing reputation risk, which concludes that firms with strong reputation are generally able to be more adaptive and recover more quickly from the internal as well as from the external challenges (Nazir, Zunhuwan, & Asghar, 2025). This study present a argue that stakeholder trust established by the means of sound risk management which results in enhancing the resilience capacity and making reputation an important component of firm's defense mechanisms for the purpose of long term

sustainability in market (Zamrudi 2023). Another study which add a quantitative dimension aspect to literature by using mathematical and data driven contracting approaches in supply chains this research concludes how integration of efficient risk analysis with resilience objectives leads towards more flexible, effective and responsive supply chains, which results ultimately in improving crisis management and recovery metrics (Mohammadi, Pirmoradian, Shokrollahi, & Pirmoradian, 2025). On the base of the previous argument another technological study of Ahmadi, Hesaraki, & Morsch (2025), which spotlight how capabilities of digital supply chain are not only one of the major source of improving the risk detection but it is also promoting the fast and resilient responses to operational shocks to the business (Akram et al., 2023). Furthermore another study by Kuzmina, Maditinos, Norena-Chavez, Grima, & Kadłubek (2023) which highlights the integration of risk management with ESG principles as a important aspect to grow and flourished business resilience in a highly competitive business environment. This research supports the argument that those firms which are integrating ESG with risk strategies are better prepared to deal with environmental as well as the social disruptions, furthermore it is playing the role of bridge to fulfill the gap between operational risk management and strategic resilience (Arshad et al., 2025).

Furthermore while examining the SME context, another study done by Sakka, St-Pierre, Bahri, & Fadil. (2025) concludes that those cultures which have high risk awareness and formal assessment schemes of risk assessment in manufacturing SMEs have a greater adaptability and resilience according to the business environment. Another study done by Stasse, & Rouwelaar (2025) further supports the previous argument that efficient enterprise risk management practices should be updated periodically to remain effective in supporting resilient business strategies, which are emphasizing the main objectives of continuous improvement and network collaboration in a business. Together, these are the major recent studies which highlight that strong and modern risk management techniques provides both the foundation and motivation for business resilience,

which are helpful in enabling the firms to predict, absorb, and recover from diverse interconnected disruptions.

3. Methodology:

This study applies Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for bibliometric analysis (Maier et al 2020). There are 3 steps in these guidelines according to these guidelines in the 1st step there is a need to identify the articles related to the research topic so this research extracts data from SCOPUS data base related to the field of risk management and business resilience. Most of the researchers preferred scopus because it is the largest data base which contain abstract from peer-reviewed literature it is also very fast and trustworthy data base for searching literature (Zamrudi 2023). Data was downloaded on Oct 1st 2025. The 1st search query was run on scopus data base for the purpose of finding research paper for analysis which contain 1806 research documents by limiting data to the variables of risk management and business resilience form the time range of 1999 to 2025. In the 2nd and 3rd stage data is filtered by different command i.e: requires to obtain a CSV file for bibliometric analysis on VOS viewer. In 2nd query data was filtered by giving command of subject area and data is limited to area of business and economics which results in 699 documents in 3rd query data was limited to English language which results in 691 documents and in 4th query data was limited to the document type which is article which results in 428 documents. So ultimately the set of 428 research documents was obtained from scopus data base for bibliometric analysis in VOS viewer. The filtration process and commands are shown in Table 1. In first scheme this study includes the analysis of co-authorship based on countries as well as for individuals the nodes between countries present the shared authorship of research paper by countries represent in figure 4 and for individuals figure 6. In 2nd scheme analysis based upon keywords is used to analyze the recent condition of research topic as shown in figure 9 while figure 7 and 8 shows documents by subject area and by leading institutions respectively.

Table 1 Scopus data filtration process

Sr No	Query	No of Articles
1	TITLE-ABS-KEY (Risk Management) AND TITLE-ABS-KEY (Business resilience)	1,806 documents found
2	AND (LIMIT-TO (SUBJAREA , "BUSI") OR LIMIT-TO (SUBJAREA , "ECON"))	699 documents found
3	AND (LIMIT-TO (LANGUAGE , "English"))	691 documents found
4	AND (LIMIT-TO (DOCTYPE , "ar"))	428 documents found

4. Results:

Research Trend analysis:

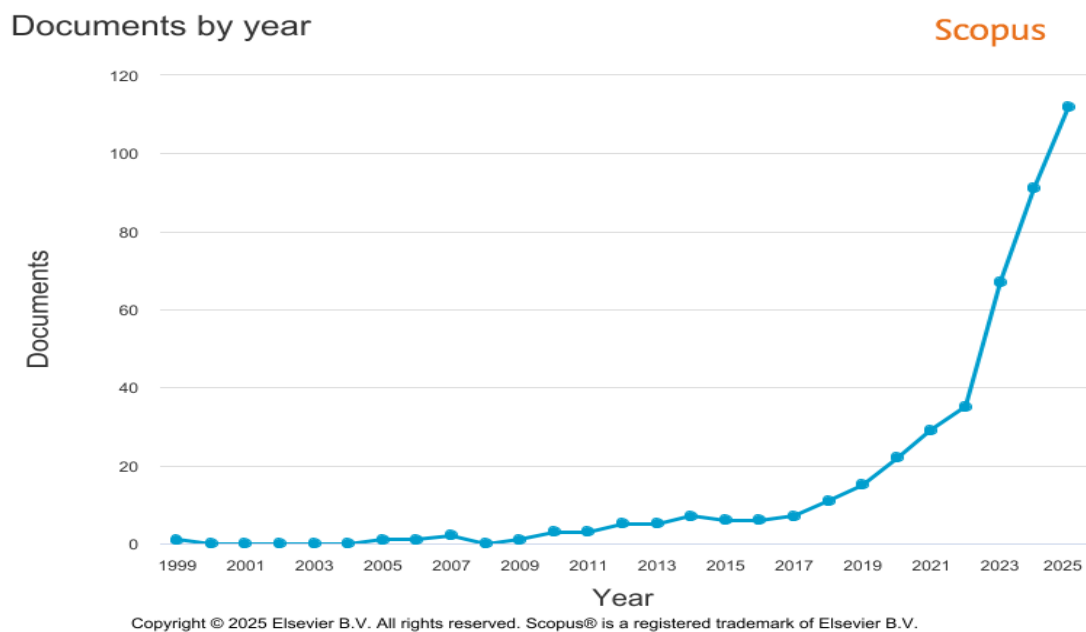


Figure 1 Combine Trends in Risk management and Business Resilience

This image shown in *figure 1* was downloaded from scopus which shows the increasing trend of publications on the topic of risk management and business resilience from the time period of 1999 to 2025. The image clearly shows that from the era of 1999 to 2015 there is a low level stable trend showing that average 10 documents per year were issued on this topic worldwide in this particular time frame which reflect the limited integration of those particular fields on that time

period. But on the other side this image is also showing the growing trend which is started from 2016 and showing the rapid acceleration from 2020 till now which is highlighting the importance of effective risk management systems to mitigate risk, uncertainties to make business more resilient for its long term sustainability in financial market even in pandemics i.e: COVID-19, financial and political usability in the era of 2023-2025 due to wars between countries.

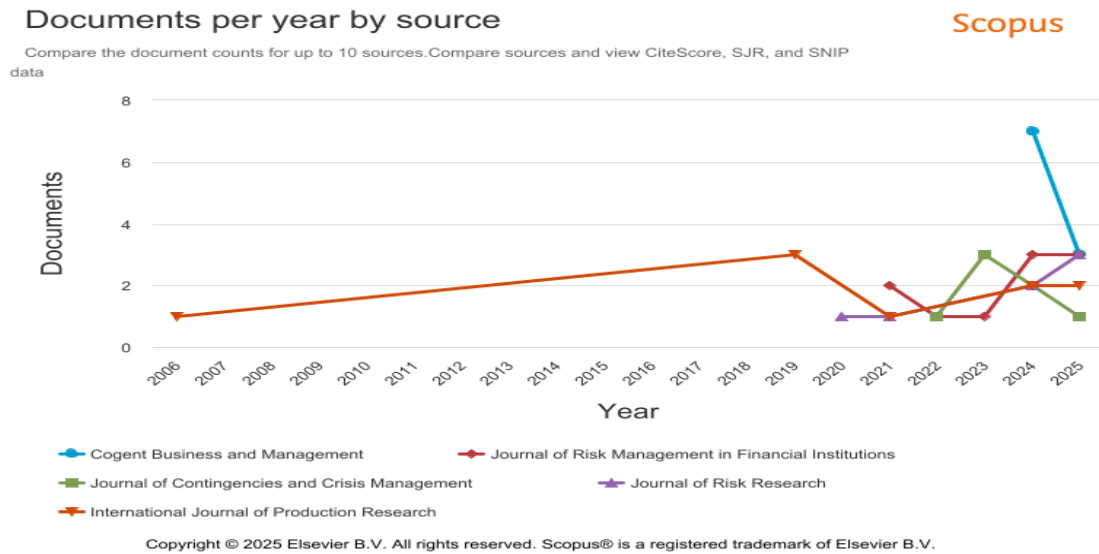


Figure 2 Publication counts in prominent journals

A comparative analysis of publications counts in prominent journals in the field of risk management and business resilience from the time period of 2006 to 2025 was shown by figure 2 downloaded from scopus. This image reflects the 5 key journals i.e: Cogent Business and Management, Journal of Risk Management in Financial Institutions, Journal of Contingencies and Crisis Management, Journal of Risk Research, and International Journal of

Production Research which represents that most of articles related to this topic were published in these journals. There is a low publication trend in this topic in 2020 but from 2021 trend of publications were increased again and maintaining this high trend from 2021 till now which reflects the high demand and adoption of this topic by key editorial boards of reputable journals.

Country-wise analysis:

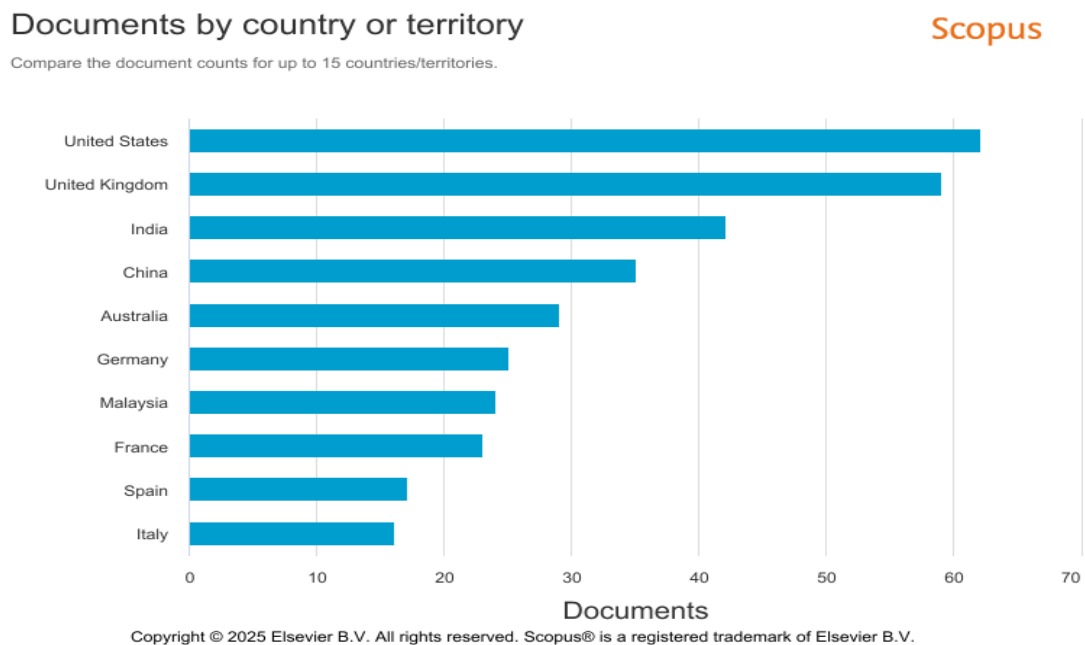


Figure 3 Prominent countries in publications with respect to relevant topic

The bar chart downloaded from scopus data base as shown in *figure 3* reveals the research output on risk management and business resilience topic it is showing that this topic is led by the United States and United Kingdom, both west countries producing the highest amount of publications, then this flow is followed by India and China, which represent that the fastest growth of emerging Asian countries in this field on the other side Australia, Germany, Malaysia, and

France also contribute substantially by showing diverse geographic engagement and solid academic activity across both advanced and developing economies as well, while Spain and Italy maintain a notable smaller, presence among these big giants So collectively it highlights the global scope and multidisciplinary relevance of the integrated fields of risk management and business resilience as key research domains.

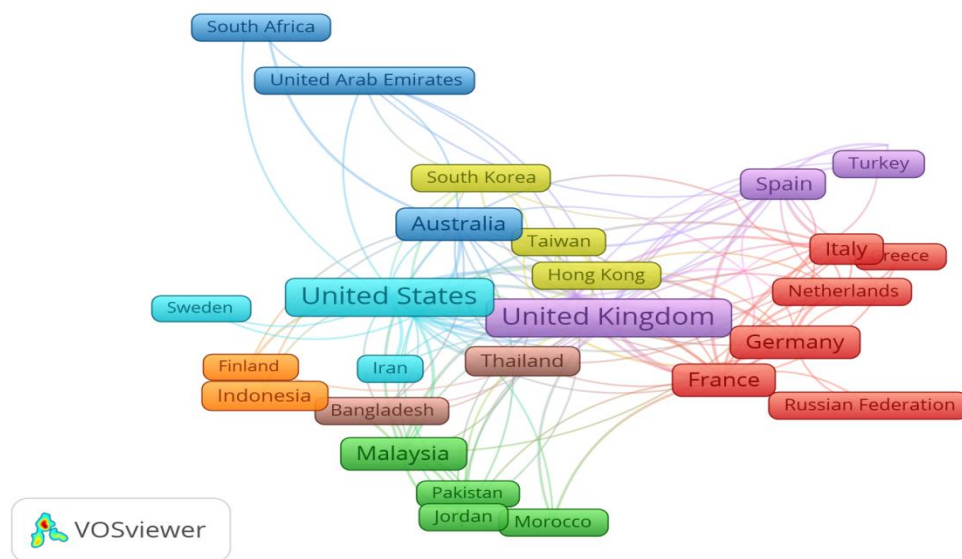


Figure 4 Co-authorship based on the countries

As shown in *Figure 4*, the co-authorship analysis based on the countries related to the topic of risk management and business resilience research shows the clear collaborative combination of clusters, with countries like China, France, Spain, and Germany forming a prominent red colour cluster characterized by strong inter-European connections and also responsible for creating the impact full scholarly outputs meanwhile, the United Kingdom shown with the purple colour cluster highlights the highest collaboration strength with Hong Kong and Taiwan, and the United States shown by blue cluster showing the publication count and its broad collaborative reach with countries such as Australia, Canada, and South Korea. The green cluster showing the active regional collaboration among the developing Asian countries with the developed ones i.e: India, Malaysia, Pakistan, Thailand, and other South Asian countries, and on the other

hand orange cluster consisting Indonesia, Finland, Mexico, and others are showing the emerging regional networks. This interconnected structure, are visualizing the in the co-authorship map, and showing the concentrated and dynamic international collaboration patterns, of leading countries with the developing ones contributing both extensive research documents and citation impact, which are ultimately reflecting the global and multidisciplinary nature of bibliometric research scope in field of risk management and business resilience. In bibliometric analysis different countries with in same colour cluster representing the frequent and strong research collaboration between those countries. Documents and citations on the other hand showing total no of publication produced and the academic importance, recognition these papers have respectively. Total link strength is the quantitative measure which reflects the the

intensity and co-authorship with other countries across different clusters. So on the basis of this

information *figure no 4* is explained by the means of information represented by the Table 2.

Table 2 Detail of Co-authorship based on the countries

Country	Documents	Citation	Link Strength
Red Cluster			
China	33	751	35
France	23	3520	31
Spain	17	398	19
Germany	25	3117	16
Italy	16	515	14
Poland	10	78	14
Netherlands	10	199	12
Switzerland	8	235	9
Greece	5	83	6
Turkey	9	184	5
Austria	6	64	2
Russian Federation	9	1381	2
Slovakia	5	23	2
Romania	5	46	0
Purple Cluster			
United Kingdom	59	2602	46
Hong Kong	6	568	10
Taiwan	5	518	6
Blue Cluster			
United States	62	5800	38
Australia	28	898	27
Canada	12	312	9
South Korea	7	31	8
Saudi Arabia	7	56	7
United Arab Emirates	7	84	7
New Zealand	6	196	3
South Africa	9	36	3
Green Cluster			
India	42	781	33
Malaysia	24	265	20
Thailand	11	186	11
Jordan	7	35	8
Bangladesh	6	191	6
Morocco	7	661	6
Pakistan	5	52	6
Iran	9	648	5
Vietnam	6	14	3
Orange Cluster			
Indonesia	14	35	6
Finland	5	238	5
Mexico	6	59	4

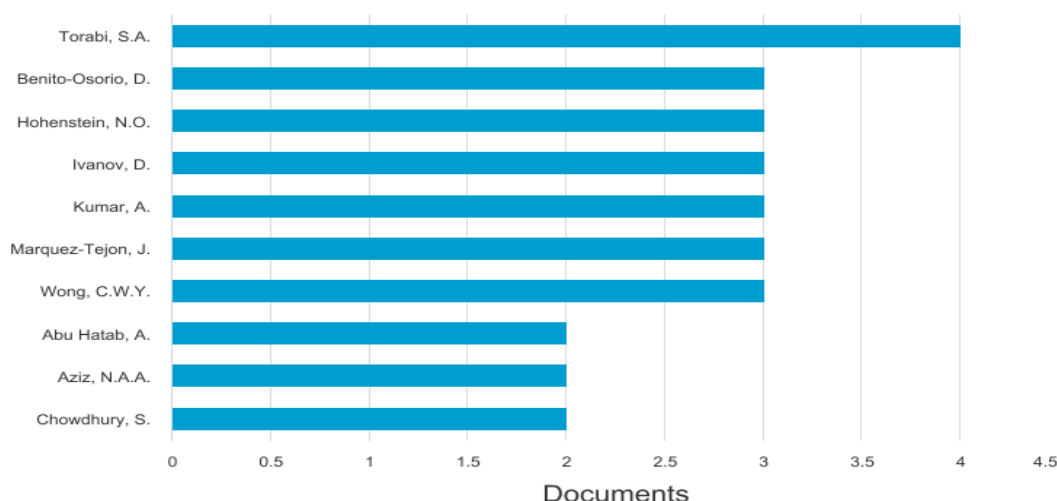
Sweden	5	103	2
Ukraine	10	32	2
Brazil	7	91	0

Author's Wise analysis:

Documents by author

Compare the document counts for up to 15 authors.

Scopus



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Figure 5 Top Authors by Number of Publications on this topic

This image downloaded by scopus which gives a detailed comparative overview of the top authors which have contributed into the field of risk management and business resilience research, ranked on the base of their number of published documents in Scopus. This bar chart showing in figure 5 represents the that S.A. Torabi has reserved a leading position with four publications, while Benito-Osorio, Hohenstein, Ivanov, Kumar, Marquez-Tejon, and Wong all of them have three publications each, and several others, such as

Abu Hatab, Aziz, and Chowdhury, reserve their place by with two documents each. This visualization shown by figure 5 highlights which scholars have most impact-full studies within this field, helping to identify leading contributors and potential collaboration of opportunities between them. Those members which have a consistent number of publications among the leading authors are showing a competitive and active research environment in this domain with respect to other one.



Figure 6 Co-authorship Map for leading authors

This figure 6 shows a co-authorship network between leading authors in the field of risk management and business resilience research, as visualized by VOSviewer on the basis of data file download by scopus. The cluster represented by red colour shows the close collaboration between Luthra, Sunil, Kumar, Anil, and Kazancoglu, yigit, showing the strong and frequent co-authorship exist between these researchers. Kazancoglu, Yigit acts like a bridge which is connecting the red cluster to the green cluster, which includes Kumar, Vikas and Singh, Rajesh Kumar p., which are representing the interdisciplinary and cross-group linkage within the field. The map contain only those authors which have minimum 2 documents on the particular field total no of authors are 1276 and only 46 are meeting the threshold these author's documents also have a huge no of citations as well shown in table 3. In

the Co-authorship analysis conducted on VOS viewer with a minimum number of two documents per author was set to ensure relevance of data and to gain clarity. This filtration helps the reader to enhance its focus on the analysis of authors who have made a continuous and impact full contributions to the research area, because on the other hand including those researcher which have only one-time contribution in this field shows that they not significantly influence this domain. Selecting authors with at least two publications are not only increasing the reliability of results but also useful to avoid excessive clustering and maintaining analytical precision as well. A full view is represented by table 3 to examine the performance, collaborative intensity, and research contributions of individual author in this domain.

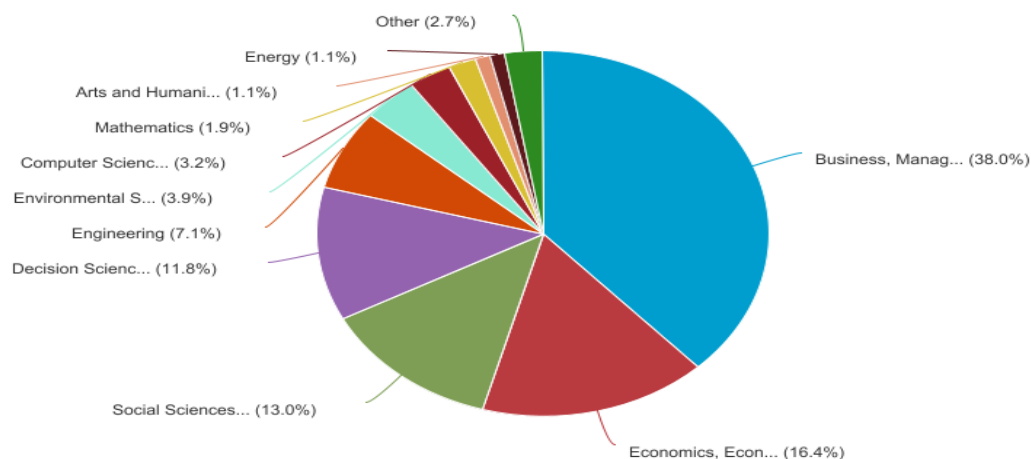
Table 3 Co-authorship Metrics of Leading Authors

Author	Documents	Citation	Link Strength
Red Cluster			
Luthra, Sunil	2	68	3
Kumar, Anil	3	169	3
Kazancoglu, Yigit	3	64	3
Green Cluster			
Kumar, Vikas	2	40	2
Singh, Rajesh Kumar p.	2	18	1

Subject Area Wise Analysis:

Documents by subject area

Scopus



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Figure 7: Documents per Subject Area

As the pie chart in figure 7 shows that majorly documents were covered by the subject area of Business, Management and Economics, Econometrics with 38% and 16.4% respectively because the subject area was limited to these areas in Scopus data base in data filtration process as shown by Table 1. The filed of Social Sciences covered the area of 13% and decision sciences covered the area of 11% which shows that it

covered a mild range of documents. The subject area of Engineering, Environmental and Computer Science covered the area of 7.1%, 3.9% and 3.2% respectively. The small contribution was recorded by the subject area of Mathematics 1.9%, Arts and Humanities 1.1%, Energy 1.1% and Other with 2.7% respectively. Table 4 represents this information with parsimony as follows:

Table 4 Subject Area Wise Documents

Subject Area	Percentage (%)
Business, Management	38.0
Economics	16.4
Social Sciences	13.0
Decision Sciences	11.8
Engineering	7.1
Environmental Sciences	3.9
Computer Science	3.2
Mathematics	1.9
Arts and Humanities	1.1
Energy	1.1
Other	2.7

Institutions wise Analysis:



Figure 8 Documents per major institution

When data is filtered out of 810 only 80 organization meet the threshold. All of these organization have at least 2 documents on this topic when threshold increased from 2 no of organization decrease. So on the basis of that

filtration and lack of link strength between these institutions the co-authorship map on base of institution appeared simple as shown in figure 8

Keywords Analysis:



Figure 9 Co-occurrence of keywords

As underscore in Figure 9, the bibliometric map shows the interconnected structure of various

research themes which were based on risk management and business resilience. The largest

cluster shows the main focus on risk management, resilience, and business continuity, which were indicating their vital role in this particular research area. As shown in Table 5, this cluster contained the highest total link strength of 230, representing its conceptual importance. The second major cluster was focuses on management of supply chain and business disruption resilience, which were reflecting the increasing attention towards maintaining the operational stability during severe crises such as the Covid-19 pandemic, which has a personal total link strength = 50 has significantly effected recent studies. Other clusters were based on the key concepts like organizational decision-making,

digital transformation, digital innovation, and dynamic capabilities, which were revealing the growing integration model of technology and its strategic adaptability in business resilience research. Overall, both *Figure 9* and Table 5 highlights that recent studies increasingly developing frameworks related to adaptation and innovation in technology to provide strength towards organizational and supply chain resilience not only for post pandemic context but also for long term sustainability of business in market under highly volatile environment. The detail of *figure 9* was shown in table 5 as follows:

Table 5 Cluster-wise Keywords with Total Link Strength

Cluster	Main Theme	Keywords (Merged & Representative)	Total Link Strength
(Purple)	Core Cluster - Risk Management & Resilience	Risk Management, Business Resilience, Organizational Resilience, Operational Resilience, Risk Analysis, Risk Factor, Risk Perception, Uncertainty, Vulnerability, Strategy, Crisis, Covid-19 (Covid-19, Covid-19 Crisis, Covid-19 Pandemic), Disaster Recovery, Disaster Management	305
(Blue)	Supply Chain Management & Disruptions	Supply Chain Management, Supply Chain Risk, Supply Chain Risks, Supply Chain Risk Management, Supply Chain Disruption(s), Disruption Management, Global Supply Chain, Operational Resilience	198
(Orange)	Organizational Decision-Making & Digital Transformation	Organizational Risk Management, Decision Making, Cybersecurity, Cyber Security, Digital Transformation, Business Environment,	94

(Red)	Strategic and Adaptive Business Approaches	Management Strategic Approach, Adaptive Management, Business Strategy, Innovation, Knowledge Management, Project Management, Entrepreneurship, Entrepreneurial Orientation	135
(Green)	Innovation, Dynamic Capabilities & Economic Growth	Innovation, Dynamic Capabilities, Economic Growth, Competitive Advantage, Manufacturing Sector, Industry 4.0, Economics	99
(Light Blue)	Tourism & Service-Sector Resilience	Tourism, Family Business, Business Development, Business Resilience	47
(Gray)	SME & Financial Resilience	Small and Medium-Sized Enterprise (SME), Finance, Profitability, Business, Business, Management & Accounting, Commercial Phenomena	95

5. Discussion

As table 5 and figure 9 shows that the first objective of this study to systematically analyze and evaluate bibliometric research trends among the concepts of risk management and business resilience was completely achieved by highlighting the continuous growth in publications on this topic after 2016 and gain a rapid boost after Covid pandemic. This rapid growth reflects the increasing resilience oriented relevant framework to manage global risk i.e: financial, climate and geopolitical risk as well (Linkov & Trump, 2019) (Ali et al., 2025). The second objective to find the authors, collaborative networks of institutions and individuals and principal research themes was achieved through the co authorship analysis of individuals and countries and keyword analysis. The 7 highlighted clusters were not only including risk management, business resilience but also included the emerging trends like digital transformation, supply chain disruptions, innovation and dynamic capabilities. The total link strength within these clusters highlights the

strong inter linkage between the sub domains which supports the argument that risk management is an effective tool to enable firm's to absorb, anticipate and recover from internal as well as external shocks (Teece et al.,1997; Wang et al.,2023).

The third objective to forecast the emerging research trends and directions was realized by the identification of growing themes such as industry 4.0, dynamic capabilities, cybersecurity and resilience in ESG driven frameworks. These emerging trends underscore the trend of integrated technological innovations and sustainability principles under risk management frameworks (Kuzmina et al.,2023). On the other side collaborative patterns among countries highlighted by figure 4 concludes that both developing and developed countries now building a collaborative network to make effective research hubs(Bangash et al., 2025). Overall this study concludes that risk management and business resilience are not separate fields anymore they are interdependent. The integrated framework of this

field ensure the long term sustainability of firm's even in a strong volatile environment (Aven 2016). So the analysis of the bibliometric research concludes that the recent upcoming issues will be based on hybrid paradigm that integrate proactive risk management with adaptive resilience building support by strategic and digital adaptability.

Limitations and Future Directions:

Despite the soundness of the analysis this study has several limitations:

The data set was limited to those publications which are written in English and indexed in Scopus only which might be responsible to exclude important publication on this topic written in different language and indexed in different data base. Bibliometric mapping covers the quantitative relationships but not able to assess the qualitative importance of theoretical and methodological contributions in this field.

Data was restricted from the era of 1999-2025 emerging studies may evolve the thematic structure beyond this data set range.

Future researches may also integrate different data bases i.e: Web of Science, Scopus and Dimensions which fulfill the concept of triangulation in research. On the other hand sector specific bibliometric analysis will also enhance the value of the future researches. Practically the findings provides the strong practical implications to managers, firm's and strategy makers. By identifying the impact full themes and collaborative networks this study offer to make risk and resilience integrated strategies to enhance firm sustainability, global partnerships, innovation and effective organizational governance structures adaptability.

Conclusion:

The study concludes that the integrated framework of risk management and business resilience is a rapidly growing research area. Through the bibliometric mapping of 428 Scopus indexed research papers this study confirmed the high degree of interconnection with the total link strength of 1805 in all clusters. The evolution of this field shows a shift from risk reactive strategies towards proactive risk resilience building which enhance the importance of collaboration, digitization and adaptive capabilities. This research is supported by the RBV, Contingency

and Dynamic capabilities theory which further enhance the strength of this argument that risk frameworks which are based on resilience are able to sustain performance of the firms more effectively and efficiently even in uncertainty. So this study not only completed the stated research objectives but also make a vital contribute to the academic literature and managerial level practices by highlighting the practical pathways to integrate risk management and business resilience as vital strategic capabilities.

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