Bibliometric Study of Systemic Risk in Banking Sector

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Article Info	ABSTRACT
	This bibliometric study provides a detailed analysis of the literature on systemic risk in the banking sector, focusing on publications from 2015 to 2025. Using data sourced exclusively from Scopus, this study maps the intellectual landscape of systemic risk research, identifying the main contributors, thematic trends, and research collaborations across different countries. The analysis reveals a significant increase in research activity over the decade, with a notable emphasis on the integration of technologies like artificial intelligence and the increasing influence of fintech on systemic risk management. The study highlights the importance of global collaboration in addressing the challenges posed by systemic risks, which are inherently transnational in nature. Key research gaps identified include the need for further exploration into the regulatory impacts of fintech and the cross-border effects of systemic risks. The findings provide valuable insights for academics, policymakers, and practitioners involved in financial regulation and risk management, emphasizing the need for an integrated approach to tackle the complexities of systemic risks in the banking sector.

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1. INTRODUCTION

The banking sector plays a crucial role in the financial stability of economies worldwide, acting as the backbone of financial intermediation and economic growth [1]. The stability of this sector is paramount, not only for the economies that rely on it but also for the individual depositors who trust it with their financial resources. However, systemic risks pose a significant threat to this stability [2]–[4]. The study of systemic risk in the banking sector has gained momentum, especially after the global financial crisis of 2008, which highlighted the interconnectedness of financial institutions and the cascading effects of their failures [5]. Recent advancements in digital technologies and the globalization of financial markets have introduced new dynamics and vulnerabilities, making the banking sector more interconnected and susceptible to systemic shocks [6]. Furthermore, the increasing complexity of financial products and services contributes to the opacity of risks and dependencies within the system. This complexity necessitates a more sophisticated approach to understanding and mitigating systemic risk [7].

Systemic risk refers to the potential for a disturbance at a firm or market level that significantly impairs the functioning of the entire financial system to a point where economic growth and welfare are materially affected [8]. In the banking sector, systemic risks often arise due to interconnectedness

and the interdependencies among financial institutions and other entities within the economy [9]. One seminal work by [10] discusses how interbank market connections can become channels for the propagation of shocks, leading to widespread financial distress. Furthermore, the literature highlights several sources of systemic risk in banking, including synchronized external shocks, contagion due to interconnectedness, and the common exposure to shifts in market sentiment or regulatory changes [11]. These sources illustrate the complexity of systemic risk and the multifaceted approach required to manage it effectively [12]–[14].

Bibliometric analyses have emerged as a powerful tool in scientific research, providing a quantitative approach to the study of literature and its evolution over time. By analyzing a large volume of academic literature on a specific topic, researchers can identify major trends, patterns, and gaps in the existing body of knowledge [15]. In the context of banking and finance, bibliometric studies have been instrumental in mapping the intellectual landscape and tracing the development of key concepts and methodologies [16]. Despite the critical importance of systemic risk management in banking, there remains a lack of comprehensive bibliometric studies that consolidate the research done in this area. Such studies are essential for understanding the breadth and depth of the research conducted, the evolution of themes and focus areas over time, and the identification of influential authors and works in the field. Given this context, the need for a bibliometric study on systemic risk in the banking sector is evident. Such a study would not only enhance our understanding of the academic discourse surrounding systemic risk but also provide valuable insights into the evolution of risk management strategies in response to changing market conditions and technological advancements.

Despite the significant impact of systemic risk on global financial stability, there remains a gap in comprehensive bibliometric analyses that synthesize the wide array of research in this field. The existing literature is scattered across various domains, including economics, finance, and risk management, making it challenging for researchers and policymakers to get a holistic view of the research landscape. This study aims to address this gap by conducting a detailed bibliometric analysis of the literature on systemic risk in the banking sector. The objective of this study is to conduct a bibliometric analysis of the research on systemic risk in the banking sector.

2. METHOD

This bibliometric study on systemic risk in the banking sector utilizes a focused and methodical approach to analyze scholarly literature exclusively from the Scopus database. The literature search targeted articles published between 2015 and 2025, reflecting the most recent decade of research in this field. Keywords such as "systemic risk" and "banking sector" were used to refine the search, ensuring that the retrieved data was highly relevant to the study's objectives. Once the articles were collected, they underwent a meticulous screening process to ensure that only peer-reviewed and pertinent studies were included in the analysis. The selected articles were then analyzed using VOSviewer software, which is renowned for its capability to handle large bibliometric data sets effectively. This software facilitated the creation of visualization maps that illustrate the connections between various research studies through co-citation and co-authorship networks. These networks provided insights into the collaboration patterns and the intellectual structure of the field [17]. Key bibliometric indicators, such as publication counts, citation analysis, and h-index, were calculated to evaluate the influence and impact of the research within the academic community.

3.   RESULTS AND DISCUSSION

3.1   *Results*
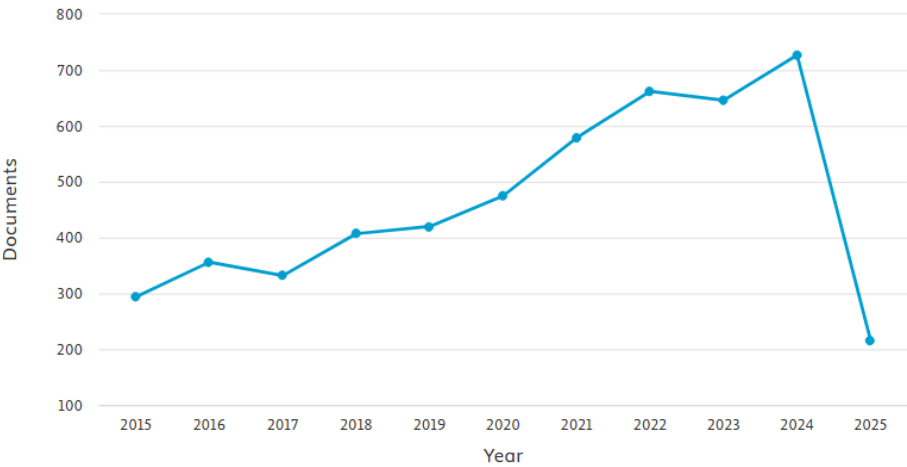
a.   **Descriptive Analysis**

Figure 1. Yearly Publication
Source: Data Analysis, 2025

The graph tracks the annual publication count of documents on systemic risk in the banking sector from 2015 to 2025, showing a discernible pattern of increasing academic interest and output over most of the period covered. Starting from approximately 300 documents in 2015, there is a steady annual increase, suggesting a heightened focus on systemic risk, possibly driven by ongoing financial developments, regulatory changes, and a more intricate global financial system. This trend peaks in 2024 with close to 700 publications, reflecting a significant peak of research activity. The sharp decline in 2025, with publications falling to around 200, is noteworthy but requires context. Given that the current year is 2025 and we are only partway through it, this drop most likely represents incomplete data rather than a genuine decrease in academic output. As the year progresses, it is expected that the number of publications will increase to better reflect the continuing interest and research focus on systemic risk within the banking sector.
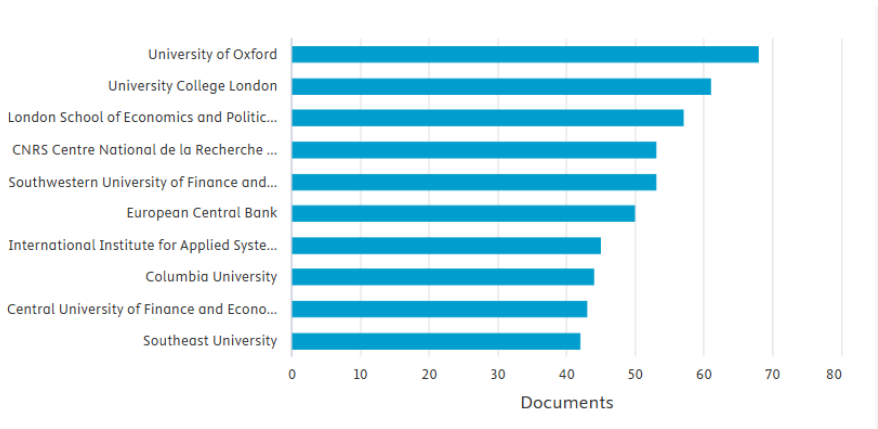

Figure 2. Publication by Affiliation
Source: Data Analysis, 2025

The graph represents the distribution of documents on systemic risk in the banking sector which is categorized by the affiliations of the contributing authors or institutions. The University of Oxford leads with the highest number of publications, close to 80 documents, indicating a strong research focus and leadership in this area. This is followed by University College London and the London School of Economics and Political Science (LSE), each contributing significantly with approximately 70 and 65 documents respectively, showcasing the UK's strong emphasis on financial risk research. The CNRS (Centre National de la Recherche Scientifique) in France and the Southwestern University of Finance and Economics in China also show notable contributions, reflecting the global interest and the interdisciplinary nature of systemic risk research. Other institutions like the European Central Bank, International Institute for Applied Systems Analysis, Columbia University, and several universities in China demonstrate considerable engagement with the topic, each producing a significant body of work.
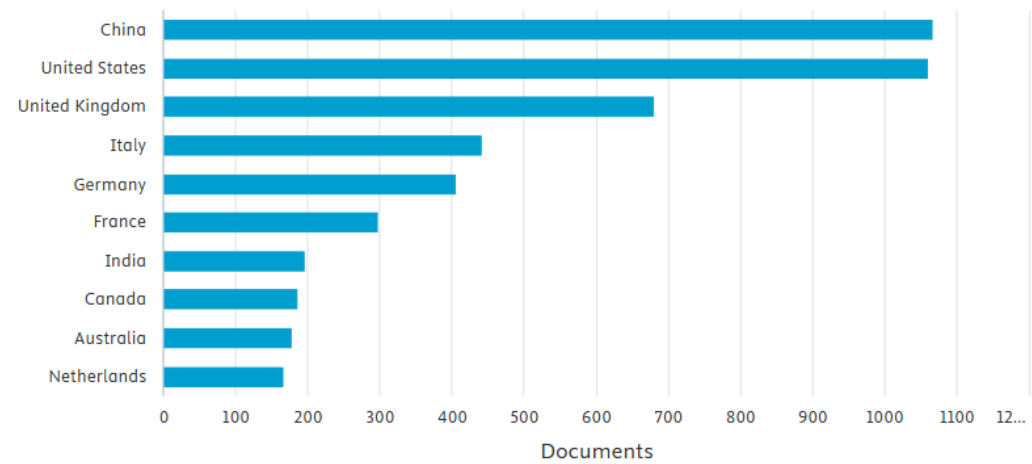
Figure 3. Publication by Country
Source: Data Analysis, 2025

The graph illustrates the number of documents on systemic risk in the banking sector, distributed by the countries where the contributing institutions are based. China leads with over 1100 documents, indicating a robust focus and significant research output in this area, which could reflect the country's large financial sector and growing global influence in banking and finance. The United States follows, with just under 1000 documents, underscoring its continued prominence in global financial research and interest in systemic risk. The United Kingdom also shows a strong contribution with around 850 documents, consistent with its status as a major financial hub. Other notable contributions come from Italy, Germany, and France, each with substantial academic output that illustrates a strong European interest in the financial stability of banking systems. Further contributions from India, Canada, Australia, and the Netherlands highlight the global recognition of systemic risk as a critical concern in the banking sector,

necessitating a broad and diverse research base to address the complexities of this issue across different economic contexts.

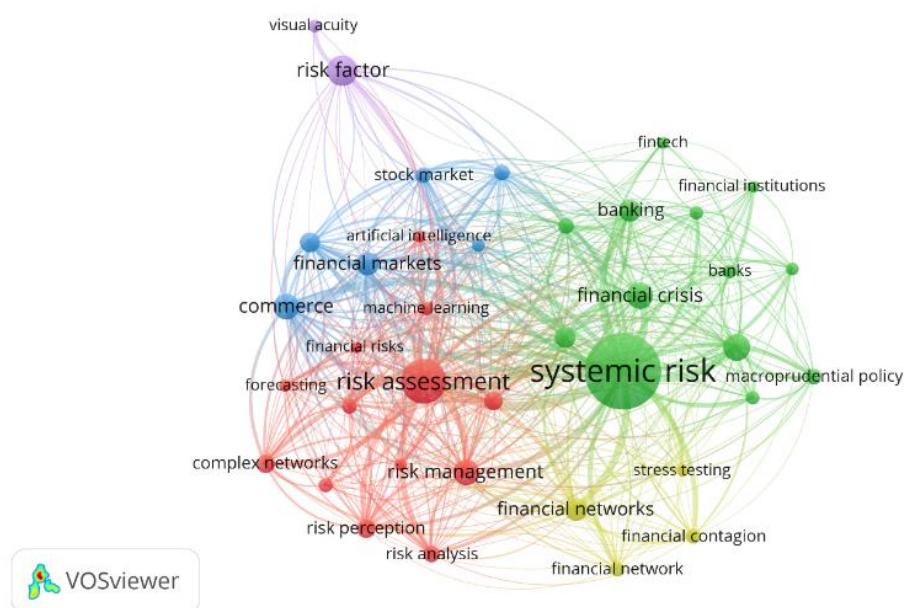**b. Keyword Co-Occurrence Network Visualization**

Figure 4. Network Visualization
Source: Data Analysis, 2025

The network visualization provides a compelling graphical representation of the key terms associated with systemic risk in the banking sector, depicting the interconnections and thematic clusters that have emerged in the academic literature. At the center of the map, "systemic risk" appears as a prominent node, underscoring its central importance in the discourse. This central positioning indicates that systemic risk acts as a nexus for various research streams within the field of banking and finance. Surrounding the central node, several closely related terms such as "financial crisis," "banks," "financial institutions," and "banking" form a dense cluster in green, indicating a strong thematic focus on the institutions directly involved in and affected by systemic risk. This cluster suggests that much of the research in systemic risk is directly related to the operational and regulatory aspects of

banks and other financial entities. The presence of "macroprudential policy" and "stress testing" within this cluster highlights the regulatory and preventative measures discussed in the literature, focusing on strategies to mitigate such risks.

Another notable cluster in blue includes terms like "financial markets," "stock market," and "artificial intelligence," linking technological advances and market dynamics with systemic risk. The integration of "artificial intelligence" and "machine learning" into this cluster points to a growing trend of employing advanced analytical tools to predict and manage financial risks. This suggests an interdisciplinary approach that combines finance with technology and data analysis to enhance risk assessment capabilities. In red, a cluster featuring "risk management," "risk assessment," and "financial networks" reflects the analytical and network-based

approaches to understanding systemic risk. The emphasis on "complex networks" and "financial contagion" within this cluster indicates a focus on the interconnected nature of financial systems and how risks can propagate through these networks, causing widespread implications. The presence of emerging terms like "fintech" in the outer regions of the map signals the adaptation of the financial sector to new technologies and the potential systemic risks introduced by these innovations. The placement of these terms suggests that while they are relevant, they represent newer areas of focus that may not yet be as densely integrated into the main body of systemic risk research.
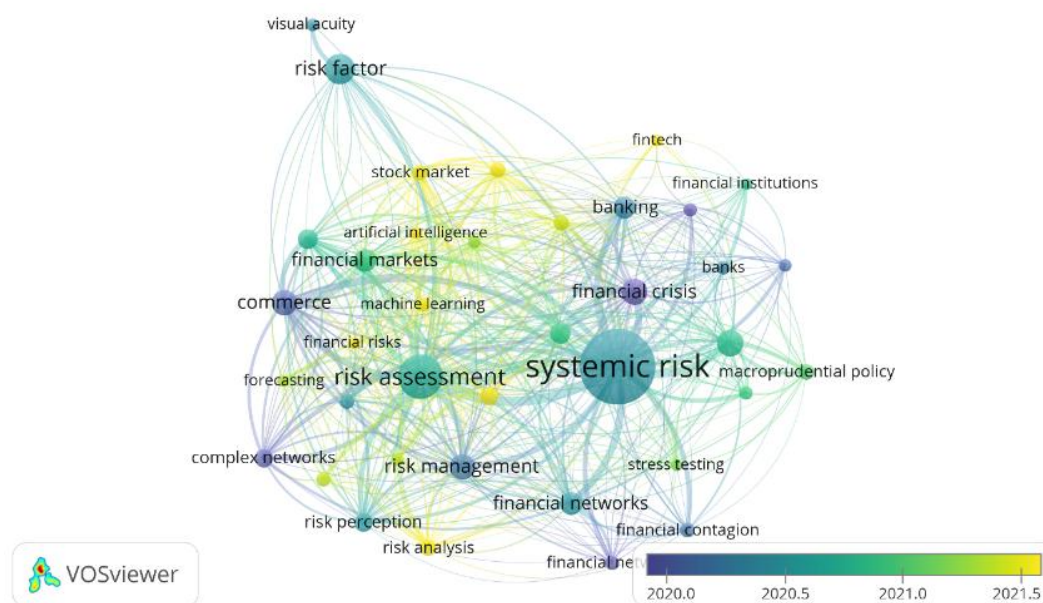

Figure 5. Overlay Visualization
Source: Data Analysis, 2025

The visualization here provides a temporal analysis of key research themes related to systemic risk in the banking sector, using data from VOSviewer. The overlay of time (indicated by the color gradient from yellow to blue) reveals how different topics have evolved from early 2020 to late 2021. At the core of the network, "systemic risk" is centrally positioned, indicating its ongoing relevance throughout the studied period. Surrounding nodes like "financial crisis," "macroprudential policy," and "stress testing" remain closely associated with systemic risk, suggesting that these areas have consistently been central to discussions in the field. The transition from yellow to blue across the nodes indicates the shift in focus of research over time. Early in 2020, themes such as "artificial intelligence," "machine learning," and "financial markets" are highlighted in yellow, suggesting a strong initial focus on how emerging technologies impact financial risk assessment and management. As time progresses towards late 2021, the focus shifts towards more traditional banking terms like "banking," "financial institutions," and "banks," which are colored in deeper blue tones. This shift could reflect a re-emphasizing of core banking functions and their role in systemic risk, perhaps in response to evolving market conditions or regulatory

changes influenced by ongoing financial challenges. Furthermore, the graph highlights emerging or less saturated areas such as "fintech" and "financial networks," which are located on the periphery and marked by intermediate colors, indicating their relevance throughout the period but not as central as other themes.

This suggests that while fintech and the structure of financial networks are recognized as important to understanding and managing systemic risk, they may not yet be as deeply integrated into the core research themes as more traditional topics.
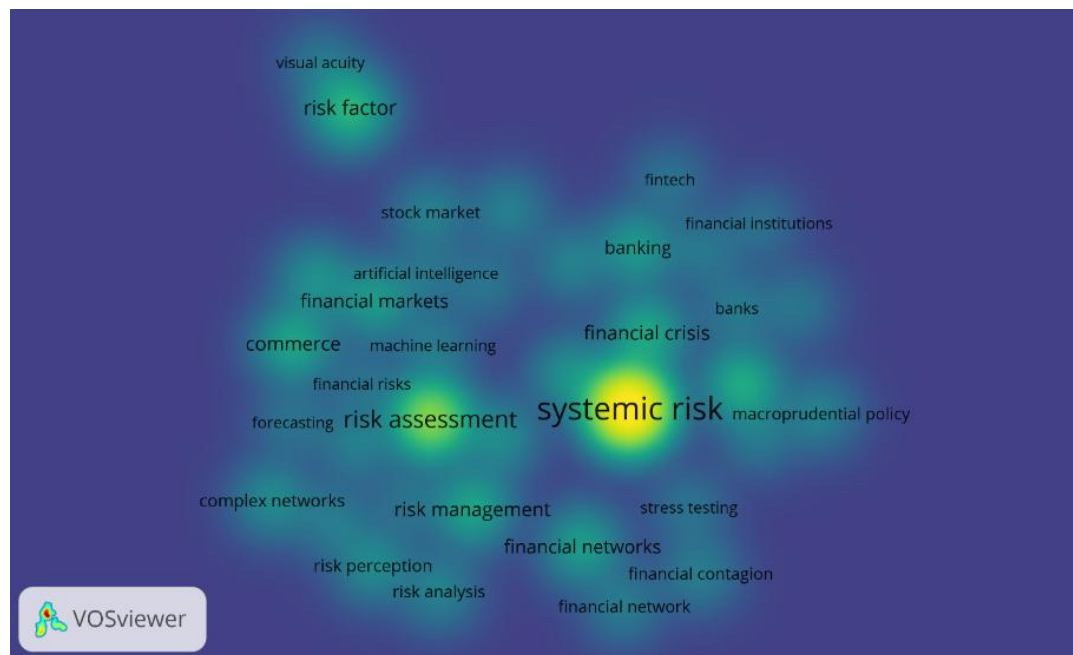

Figure 6. Density Visualization
Source: Data Analysis, 2025

This visualization presents a density view mapping the key concepts related to systemic risk in the banking sector. The intense areas of yellow and green around the term "systemic risk" at the center signify a high concentration of research focus and interconnectedness with other terms. This central clustering underscores the fundamental role of systemic risk as a core subject in the study of financial systems, with direct connections to "risk assessment," "risk management," "financial crisis," and "macroprudential policy." These connected terms indicate the diverse aspects of systemic risk, including its identification, management, and the regulatory measures used to mitigate

its impact on the banking system. Surrounding this central node, the spread into cooler blue tones indicates areas with less density but significant relevance, such as "artificial intelligence," "financial markets," and "fintech." These emerging and tech-focused areas represent newer avenues of research that are increasingly intersecting with traditional financial studies. The presence of "machine learning" and "artificial intelligence" near the core region suggests an integration of these technologies into the risk management strategies of financial institutions. Meanwhile, "fintech" and related terms on the periphery reflect ongoing innovations in banking that

affect systemic dynamics and potential vulnerabilities, pointing to future directions in systemic risk research where technology plays a pivotal role.

c. **Descriptive Analysis**

Table 1. Top Cited Literature

Title and Authors	Citation
Measuring the frequency dynamics of financial connectedness and systemic risk [18]	1063
Measuring systemic risk [19]	1031
Systemic risk and stability in financial networks [20]	1022
SRISK: A conditional capital shortfall measure of systemic risk [21]	773
Where the risks lie: A survey on systemic risk [22]	377

Source: Scopus Database, 2025
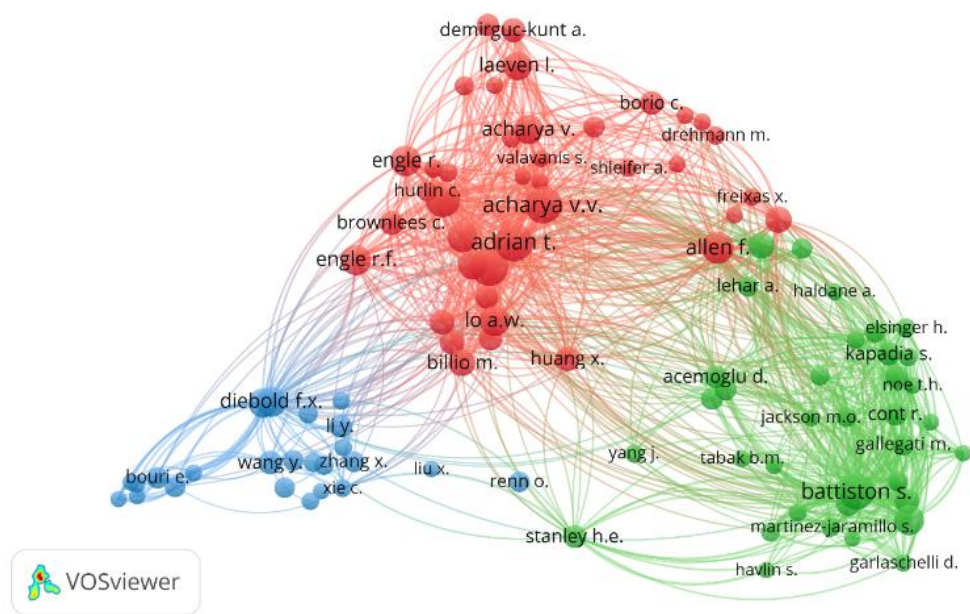
d. **Co-Authorship Network**

Figure 7. Author Visualization
Source: Data Analysis, 2025

This network visualization maps the co-authorship relationships among researchers in the field of systemic risk in the banking sector. The nodes represent individual researchers, with the size of each node indicating the volume of publications or prominence in the field, and the lines between nodes depicting co-authorship links. The graph is color-coded to differentiate clusters of researchers who frequently collaborate or whose work is closely related. The central and larger nodes, such as Acharya V., Adrian T., and Engle R.F., highlight influential scholars whose extensive contributions have significantly shaped academic discourse on systemic risk.
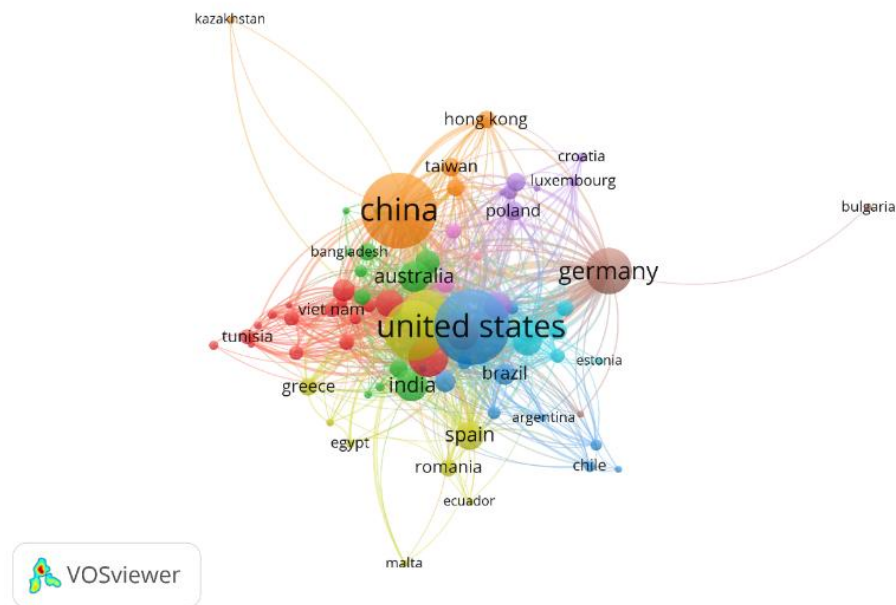
Figure 8. Country Visualization
Source: Data Analysis, 2025

This visualization portrays the global collaboration network among countries based on research related to systemic risk. Each node represents a country, with the size indicating the volume of research output or centrality in the network. The various colors designate distinct clusters or regions that tend to collaborate more closely with each other. Central players such as the United States, China, and Germany, depicted by their larger nodes, are key contributors to systemic risk research, demonstrating a high degree of international collaboration, as indicated by the numerous lines connecting them to other countries. This network highlights the global nature of financial research, reflecting diverse international partnerships and knowledge exchange across continents.

3.2 Discussion

a. **Global Research Contributions and Trends**

One of the major revelations from this study is the significant contribution to systemic risk research from institutions and countries across the globe. Countries like China, the United States, and the United Kingdom have emerged as key players, which is consistent with their global financial influence and robust academic infrastructures. Notably, the increase in publications from China surpasses even those from traditional academic powerhouses like the US and UK, reflecting China's growing emphasis on financial research and its rising influence in global finance. The mapping of research themes has indicated a strong focus on traditional areas such as risk management, financial crises, and macroprudential policies. However, emerging themes such as artificial intelligence (AI) and fintech have started gaining prominence. The intersection of AI and systemic risk, for example, underscores a dynamic shift towards leveraging technology to predict and manage financial instabilities. Such trends suggest a paradigm shift in how financial risks are approached and analyzed, moving from conventional methods

to more integrated and technologically advanced techniques.

b. **Interdisciplinary Approaches and Technological Integration**

The data also revealed an increasing trend towards interdisciplinary approaches, combining insights from finance, economics, computer science, and data analytics. This convergence is particularly evident in the use of machine learning techniques for risk assessment and the analysis of complex networks to understand financial contagion. The adoption of these methodologies points to a broader trend of digital transformation in the financial sector, which is increasingly reliant on sophisticated computational tools to manage the complexities of modern financial systems. The role of fintech in systemic risk represents a dual-edged sword; while it introduces innovative financial practices and inclusion, it also poses new risks. The peripheral yet growing presence of fintech-related research in the bibliometric maps indicates that this is an area ripe for further exploration, especially in understanding how technological innovations impact financial stability.

c. **Implications of Findings on Policy and Practice**

The findings have significant implications for policymakers and financial regulators. The emphasis on macroprudential policies and stress testing within the literature highlights the critical role of regulatory frameworks in mitigating systemic risk. Moreover, the global nature of the research collaboration underscores the need for international cooperation in developing standards and practices that can effectively manage cross-border financial risks. Policymakers should consider these insights to bolster the resilience of financial

systems against systemic threats. This might involve adapting regulatory frameworks to include considerations for emerging technologies and the unique challenges posed by the digital transformation of finance.

d. **Research Gaps and Future Directions**

Despite the extensive research, gaps remain, particularly in the areas of cross-border impacts of systemic risks and the regulatory challenges posed by the global nature of modern banking. Additionally, while fintech's role in systemic risk is acknowledged, there is a paucity of in-depth studies on how specific fintech innovations affect the stability of financial systems. Future research should aim to bridge these gaps by focusing on the transnational dimensions of systemic risk and the interplay between technological innovations and financial regulations. More empirical studies are needed to assess the real-world impacts of fintech on systemic risk, which could guide both industry practices and regulatory policies.

4. CONCLUSION

This bibliometric analysis has comprehensively charted the academic terrain surrounding systemic risk in the banking sector, unveiling the key themes, influential researchers, and pivotal publications from 2015 to 2025. The study highlights the dominance of countries like China, the United States, and the United Kingdom in producing significant research outputs, reflecting their critical roles in the global financial system. A clear trend towards integrating advanced technologies such as artificial intelligence into risk management practices was identified, indicating a shift towards more sophisticated, predictive, and preventative approaches to systemic risk. Additionally, the analysis revealed robust international collaborations that underscore the necessity of global cooperation in

addressing the complexities of systemic risks that transcend national borders. Future research should focus on closing identified gaps, particularly in understanding the systemic impacts of fintech innovations and the development of regulatory frameworks that address the challenges posed by the digitization of financial services. This study not only maps the existing research landscape but also sets the stage for future investigations that will enhance our understanding and management of systemic risks in an increasingly interconnected world.

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