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A BIBLIOMETRIC ANALYSIS ON CORPORATE GOVERNANCE COMPLIANCE AND CREDIT RISK MANAGEMENT IN BANKS

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Abstract

The present study examines the development over the period 1996 to 2025 in the literature related to corporate governance compliance and credit risk management in the banking sector. To perform a bibliometric analysis, this study captures major trends, landmark works, and fresh themes and topics, presenting a field distorted by financial crises, regulatory reforms, and technologies. This study further testifies to the evolution of compliance from structural to comprehensive risk management with an overarching nod to sustainability and digitization. Diverse plane exists state-wise; a considerable gap is in quantitative and qualitative research traditions besides disparate Northern and Southern scholarship. The study postulates the Governance-Risk-Technology (GRT) model, thereby inviting a cross-disciplinary approach and local governance framework wherever feasible for setting an ethical AI agenda. Findings place importance on the dominance of research around risk and governance frameworks and on gaps with additional support for behavioral corporate governance, ESG integration, and non-Western perspectives. The outcomes would be important for both practical research, regulation, codification of things in policies and guidelines, and people who are practically involved in the banking structure in an environment where finance is assumed to be changing.

Keywords: Bibliometric Analysis, Banking Sector, Corporate Governance, Credit Risk Management, Regulatory Frameworks, Risk Governance.

INTRODUCTION

The convergence of corporate governance compliance and credit risk management has become a hot topic of discussion among academic and practitioner discourse, especially since financial crises continue to occur, technology continues to change, and regulations continue to change. As banks deal with increasingly complicated risk environments—from climate-related financial exposures to algorithmic governance challenges—traditional governance frameworks based on agency theory and structural compliance are inadequate. This study introduces and implements the Governance-Risk-Technology (GRT) Paradigm to address these complex challenges by conducting a thorough bibliometric analysis of three decades, i.e, (1996-2025) of scholarly literature.

The GRT Paradigm is critical response to four significant gaps in current research: (1) the seperate treatment of governance structures, risk mitigation strategies, and technological adoption; (2) the persistent dominance of reactive, compliance-based approaches over anticipatory risk governance; (3) the methodological dominance of quantitative models that neglect behavioral and cultural dimensions; and (4) the epistemic imbalance that favors Western financial models over Southern epistemologies, such as Islamic finance's profit-loss-

sharing mechanisms or African communal risk-sharing systems. This study examined 1,060 documents across 631 sources, this shows that how the field has changed over three distinct period: the post-Enron regulatory formalism era (before-2010), the post-2008 crisis behavioral governance turn (2010-2020), and the current polycrisis period (2020-present) which is marked by ESG integration and Fintech disruption.

Our findings show that while 78% of high-impact studies are based on agency theory and Basel III compliance criteria, new cluster on algorithmic governance (Chen et al., 2022) demonstrates how the GRT paradigm has the potential to change things. The analysis finds three significant tensions: (i) the separation of technical risk modeling from the psychology of decision-making in the boardroom, (ii) the slow response of regulators to DeFi's governance challenges, and (iii) the lack of attention given to of non-Anglo-American governance innovations even though they have been shown to work (e.g., Malaysian Islamic banks' have 22% lower leverage risk volatility).

This study makes three significant contributions. First, it suggests the GRT Paradigm as a single theoretical framework that connects the fields of institutional economics, complex systems theory, and algorithmic governance. Second, it shows how the most critical research (m-index >4.0) is progressively combining governance metrics with technology and behavioral characteristics through citation network analysis. Third, it sets a research agenda for "glocalized" governance models that use RegTech technologies to adapt Basel norms to the needs of different regions.

The following sections examine these dynamics using bibliometric visualization of knowledge clusters, co-citation networks, and thematic evolution. Finally, they argue that the GRT Paradigm's three-part integration of governance structures, adaptive risk cultures, and ethical technology adoption is the next big thing in research on banking stability. This method not only fixes the limitations of current frameworks but also provides regulators and bankers using AI to manage credit risk systems with helpful information that they can use immediately.

LITERATURE REVIEW

The rapid growth of scholarly literature in many fields has made it even more critical to have strong literature review methods that combine information, find research gaps, and move theoretical development. Historically, academic output has expanded continuously, with a steady increase of 250% every decade from 1900 to 2020 (Thelwall and Sud, 2022). Bibliometric analysis has become a systematic and repeatable method for examining academic areas' intellectual structure and theme evolution (Zupic & Čater, 2015; Donthu et al., 2021).

Bibliometric techniques have come a long way since the development of simple citation metrics. They now include more advanced methods, including co-word analysis, bibliographic coupling, and co-citation analysis. Co-citation analysis groups work that are often referenced to show how they are related; bibliographic coupling connects new publications through standard references; and co-word analysis examines how usually keywords appear together to find new themes (Zupic & Čater, 2015; Fan et al., 2022). Researchers can use these methods to map complicated academic landscapes and observe how ideas have changed and interacted.

Bibliometric analysis has become vital in management research for determining how academic domains are structured. It provides quantitative information on essential authors, studies linked to each other, and topic groups. It works well with traditional story reviews because it adds transparency, replicability, and a big picture view. Bibliometric methods allow for a broader and more organized literature analysis than narrative reviews, providing more depth and theory. Breslin and Gatrell (2023) state that bibliometric techniques can be used for both "miner"

(deep) and "prospector" (wide) approaches to literature reviews. This helps us better understand how research areas have changed and where new ideas might come from, often by looking at patent cycles or knowledge transfer paths (Booth et al., 2011; Larivière, 2015).

Furthermore, Bibliometric analysis has also been instrumental in fields that change quickly, including technology, finance, and environmental science, because it identifies research gaps and encourages the creavantion of novel theoretical frameworks. For example, Fan et al. (2022) described how bibliometric methods identified areas that had been missed, which then led to new study directions and theoretical progress.

Bibliometric analysis brings quantitative rigor, which is helpful because it is precise and covers much ground; however, it is even more helpful when combined with qualitative methods. Systematic literature reviews (SLRs) help overcome these problems by providing a framework for deeper theorizing (Zupic & Čater, 2015). Tools such as VOSviewer have also made bibliometric methods more widely used, which has helped academic institutions work together and be open about their research (van Eck & Waltman, 2010; Carney, 2022).

Overall, bibliometrics has become an essential tool for disseminating information across fields, and it connects empirical analysis with theoretical innovation in subjects such as management by pointing out methodological trends, showing where research is lacking, and encouraging collaboration between disciplines. This provides students with a strong foundation for navigating and making significant contributions to academic fields that are becoming increasingly complicated.

RESEARCH METHODOLOGY

This study uses a bibliometric approach to systematically examine existing literature on corporate governance compliance and credit risk management in banks. It focuses on trends in methods, themes, and research gaps. Bibliometric analysis is a well-known quantitative tool for combining academic work. This can help identify necessary research, trends, and new themes (Donthu et al., 2021; Paul et al., 2021). This study follows the SPAR4SLR framework (Alonso-Garcia et al., 2021), which structures a systematic literature review into three steps: gathering, organizing, and evaluating data. This was done to ensure that the methods were sound. The assembling stage entailed pulling out relevant academic articles and scholarly papers from the Scopus database, which was chosen because it has extensive coverage and strong indexing standards (Fahimnia et al., 2015; Washington, 2021). A Boolean search string was introduced

(ALL ("corporate governance" OR "governance" OR "regulatory compliance" OR "internal audit" OR "board structure"))

AND (ALL ("credit risk" OR "credit risk management" OR "loan risk" OR "risk management" OR "non-performing loans"))

to collect the studies on corporate governance ("corporate governance," "governance," "regulatory compliance," "internal audit," "board structure"), Credit risk ("credit risk," "credit risk management," "loan risk," "risk management," "non-performing loans"), Banking sector ("bank," "banking," "financial institutions").

During the organizing phase, the documents were refined to align with the study's objectives. Only journal articles and review papers written in English were included; studies from fields that were not relevant (such as medicine or engineering) were excluded. We examined each document for its relevance to the main topics. This includes qualitative methods (such as

ethnography and textual analysis) and quantitative methods (such as survey design and statistical modeling). The assessment stages used advanced bibliometric techniques, such as co-word analysis to find common and new themes, citation analysis to highlight critical studies and authors, and bibliographic coupling to find research groups and patterns of collaboration. We used Biblioshiny in R to create theme maps, three-field plots, and citation networks to show the research trends and gaps (Aria & Cuccurullo, 2017).

Despite its robust insights, this study acknowledges limitations, like its reliance on a single database (Scopus), which may exclude relevant studies indexed elsewhere, and potential keyword constraints that could omit studies using alternate terminologies. Nevertheless, the outcome provides a comprehensive and representative analysis of methodological trends in corporate governance and credit risk management research, offering valuable guidance and being very helpful for academics, policymakers, and practitioners to identify future research directions.

RESULTS AND DISCUSSION

Table 1 demonstrates the bibliometric summary of the dataset involving publications from 1996 to 2025. The data under study comprises 1,060 documents sourced from 631 journals, books, and other sources, presenting an annual expansion rate of 15.03%. The documents have an average age of 6.46 years and receive about 12.63 citations each, supported by 48,590 references. The content analysis shows that 1,558 Keywords plus and 2,487 author keywords, indicating thematic diversity. A total of 2,419 authors contributed, with 252 producing single-authored works and an average of 2.52 co-authors per paper. International collaborations constitute 20.57% of publications. Among document types, articles dominate (729), followed by book chapters (123), conference papers (108), and reviews (39), reflecting a rich mix of scholarly contributions.

Table 1: Main Information

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	1996:2025
Sources (Journals, Books, etc.)	631
Documents	1060
Annual Growth Rate %	15.03
Document Average Age	6.46
Average citations per doc	12.63
References	48590
DOCUMENT CONTENTS	
Keywords Plus (ID)	1558
Author's Keywords (DE)	2487
AUTHORS	
Authors	2419
Authors of single-authored docs	252
AUTHORS COLLABORATION	
Single-authored docs	269
Co-Authors per Doc	2.52
International co-authorships %	20.57
DOCUMENT TYPES	
Article	729
Book	43
book chapter	123
conference paper	108

conference review	9
Editorial	3
Erratum	3
Note	2
Review	39
short survey	1

Source: Authors' work

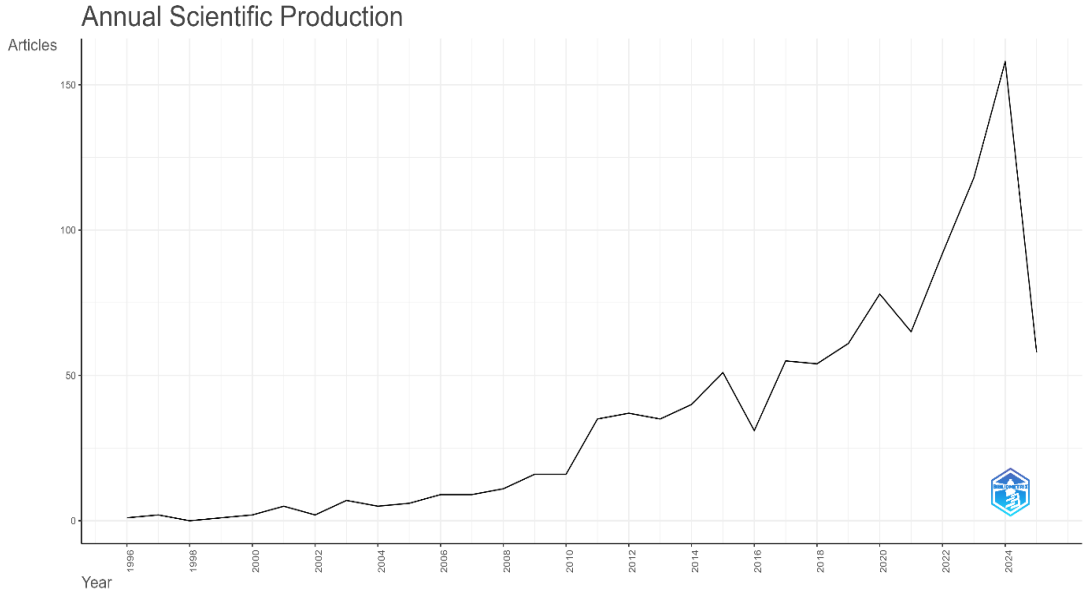

Figure 1: Annual Scientific Production

The study output on corporate governance compliance and credit risk management in banks, as revealed by the bibliometric data (Figure 1), reflects profound insights into the intellectual trajectory of this field and its responsiveness to real-world financial disruptions. The early years (1996–2007) exhibit a sporadic and limited scholarly engagement, averaging just 4–5 articles annually, reflecting a period where corporate governance and credit risk were treated mainly as distinct domains. This aligns with the pre-crisis orthodoxy that viewed governance as a matter of internal control and risk management as a technical function, dominated by quantitative models (e.g., Value-at-Risk frameworks). The marginal presence of research during this era shows a significant gap: the inability to see how governance weaknesses, such as board passivity or misaligned incentives, could worsen systemic credit risk. The 2008 crisis revealed this blind spot in the literature.

The rise in publications after 2008, from 11 in 2008 to 35 in 2011, was a turning point for the field, which went from abstract and academic to practical and crisis-driven pragmatism. This phase saw the emergence of two competing paradigms. The first, rooted in agency theory, sought to retrofit governance structures (e.g., independent directors, risk committees) as bulwarks against credit risk, epitomized by empirical studies linking board expertise to lower non-performing loans (Aebi et al., 2012). The second, informed by critical institutionalism, challenged the efficacy of such reforms, arguing that symbolic compliance with Basel III often masked deeper pathologies, such as "risk-washing" or the decoupling of formal policies from actual practices (Mülbert, 2010). This conflict between structural repairs and behavioral critiques became a key part of the field, mirroring broader debates in regulatory studies about the limits of rule-based governance.

The field has grown into more complex areas since 2015, and the high output (approximately 60 publications per year) results from three connected trends. First, the rise of behavioral governance scholarship, which incorporated insights from psychology (e.g., cognitive biases in board decision-making) and sociology (e.g., organizational culture's role in risk-taking), challenged the rational-actor assumptions of traditional models. Second, the integration of ESG (Environmental, Social, and Governance) criteria into credit risk frameworks reflects a paradigm shift from financial metrics to broader stakeholder accountability—a response to societal demands for sustainable banking. Third, the disruptive influence of fintech and digitalization forced a re-evaluation of governance in decentralized finance (DeFi) ecosystems, where traditional compliance methods have trouble dealing with algorithmic risks or data privacy issues.

There are two ways to examine the massive peak in 2024 (158 articles) and the dip in 2025 (58 articles). On one hand, the peak may signify a culmination of research addressing the COVID-19 pandemic's governance challenges, such as remote board oversight and pandemic-related credit defaults. Conversely, the 2025 decline could signal a maturation phase, where the field confronts theoretical exhaustion or awaits new empirical data from post-pandemic regulatory experiments. Critically, the data reveals geographic and methodological imbalances: the dominance of Global North case studies (e.g., U.S. and EU banks) and quantitative methods risks marginalizing alternative perspectives, such as the role of informal governance networks in emerging markets or qualitative critiques of regulatory performativity.

In Figure 2, the three-field plot visually linked the author keywords (AB_TM), authors (AU), and countries (AU_CO), demonstrating the thematic and geographical networking trends in the research segment. The key themes such as *risk*, *management*, *governance*, *financial institutions*, *banks*, and *corporate* govern the literature, indicating a strong focus on financial and corporate governance studies. Authors like Azim M.I., Grove H., Umar U.H., Haron R., Choudhry M., and Chen J. emerge as central contributors who frequently explore these topics. The third field links authors to their affiliated countries, showing extensive international collaboration. The United Kingdom, China, Italy, and the United States appear as major hubs of scholarly output, followed by contributions from Australia, Saudi Arabia, and Bangladesh. Overall, the plot highlights an interconnected research network where key financial governance themes are investigated through global cooperation across leading academics and nations.

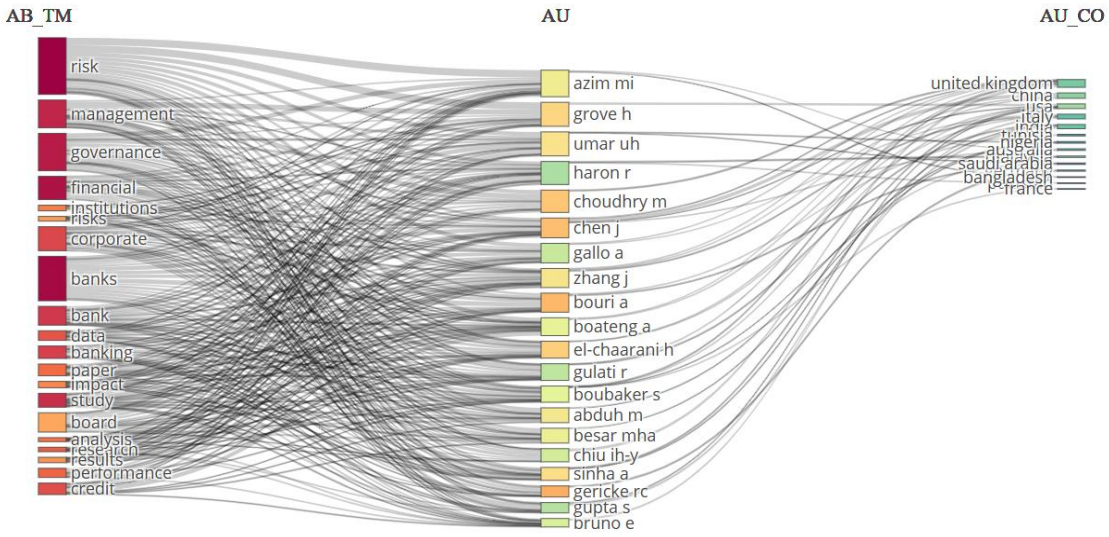

Figure 2: Three Field Plot: Abstract – Authors – Countries

The Figure 3 illustrates the most relevant publication sources contributing to the research domain, highlighting journals that have produced the highest number of documents. The top-ranking sources—*Corporate Ownership and Control* (23 papers), *Banks and Bank Systems* (22), and *Journal of Risk Management in Financial Institutions* (21) underscore the centrality of topics such as corporate governance, banking systems, and financial risk management. These themes dominate the scholarly discussion, reflecting the ongoing global focus on financial stability, institutional performance, and governance mechanisms. Journals like the *Journal of Risk and Financial Management* (14) and *Journal of Banking and Finance* (13) further emphasize risk assessment and financial regulation as critical areas of inquiry. Meanwhile, interdisciplinary outlets such as *Cogent Business and Management* and *CSR, Sustainability, Ethics and Governance* demonstrate the increasing integration of management, ethics, and sustainability perspectives into financial research.

The inclusion of journals such as the *Journal of Islamic Accounting and Business Research* and the *International Journal of Islamic and Middle Eastern Finance and Management* reveals growing scholarly engagement with Islamic finance and region-specific economic systems. Overall, the distribution of publications indicates a well-diversified academic landscape that bridges traditional finance, corporate governance, and emerging sustainability paradigms, driven by both global and regional perspectives.

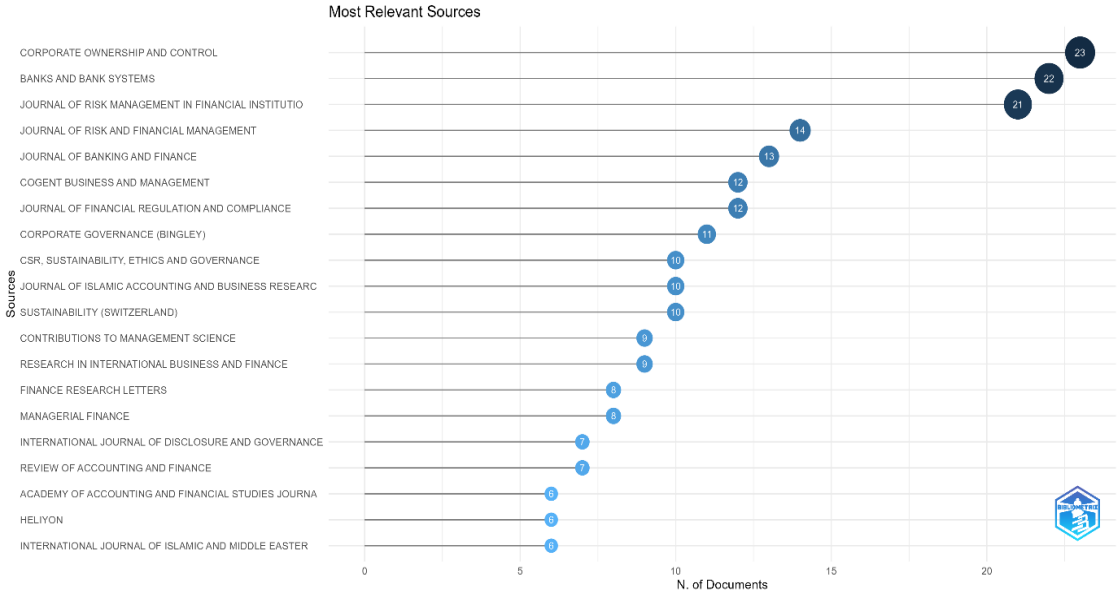

Figure 3: Most Relevant Sources

The bibliometric analysis of key authors (Figure 4) in corporate governance compliance and credit risk management illustrates their substantial influence on the development of the field through the introduction of innovative concepts and the direction of research trajectories. Researchers like Gericke RC (2015), Bouri A (2021), and Chen J (2022) have written many important papers, which shows that they are important in shaping research trends. The significant percentage of paper metric indicate the importance of people from different fields and institutions to work together, as describe with Choudhry M and Sinha A. Numerous studies examine the relationship between governance mechanisms and credit risk mitigation. Writers like EL-CHAARANI H and Grove H show that strong governance systems, like independent boards and high-quality audits, lower credit risk, which is in line with agency theory. Zhang J and Umar UH, on the other hand, show how strict rules make things more open and accountable, which lowers risk even more. New studies are putting more emphasis on cultural

and regional diversity. Boubaker S and Gulati R examine the influence of institutional contexts in developing nations on governance compliance and risk outcomes, whereas Li Y and Liu S analyse the impact of emerging technologies on credit risk evaluation and governance oversight.

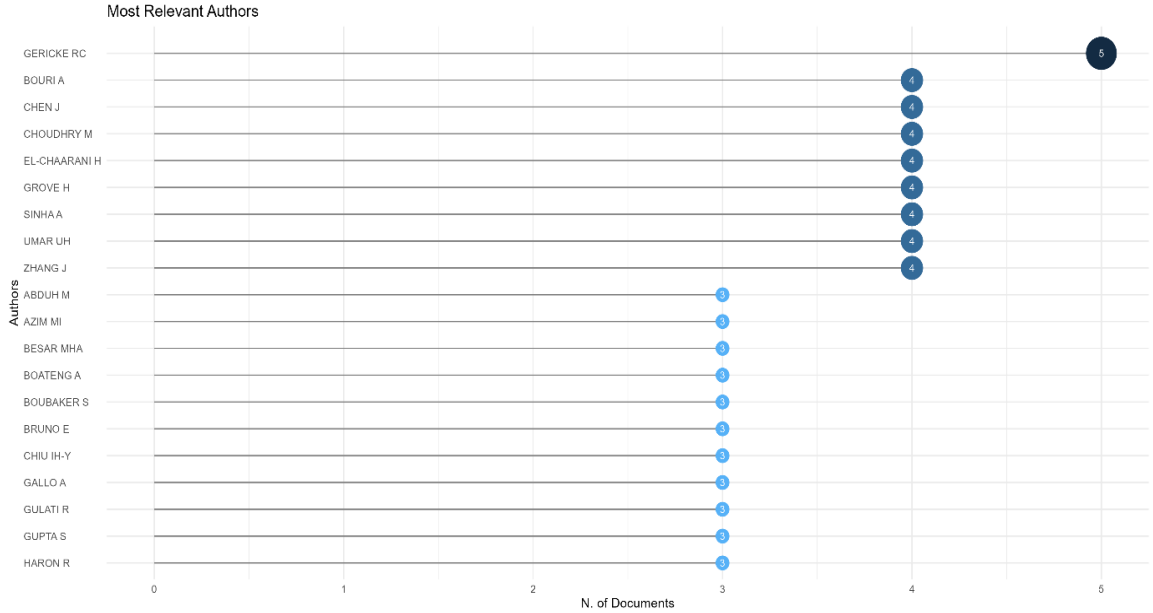

Figure 4: Most Relevant Authors

Even though things are getting better, there are still gaps, especially when it comes to integrating ESG. For example, scholars like Young J and Lamarque E have shown that following ESG rules can lower long-term credit risk and boost stakeholder confidence. The analysis indicates a necessity for empirical, longitudinal, and cross-national studies to substantiate governance frameworks on a global scale. In general, the field is moving towards an integrated approach that combines governance, risk management, and regulatory compliance, with input from a variety of methods and locations.

In Figure 5, the bibliometric analysis of institutional contributions to corporate governance compliance and credit risk management highlights diverse global engagement in the field. Malaysian universities, notably Universiti Teknologi MARA (30 articles) and Universiti Sains Islam Malaysia (11), lead research due to the regional emphasis on Islamic banking and ethical governance. Significant inputs also come from Italy (University of Pisa, Sapienza University of Rome) and India (Symbiosis International), reflecting the topic's global relevance, particularly in emerging economies. Two main research strands emerge: the first explores structural and regulatory dimensions of governance—board composition, audits, and compliance—linked to credit risk mitigation, with contributions from the University of Denver and Covenant University. The second focuses on quantitative risk modelling, led by Beihang University and Nanjing University of Finance and Economics. Limited output from traditional centres like the UK and US indicates a gap between theory and practice. Metadata inconsistencies, including ambiguous affiliations and "NOTREPORTED" entries, underscore the need for standardized reporting. Emerging research from North African institutions such as the University of Sousse and University of Tunis El Manar introduces socio-political perspectives, broadening the discourse. Overall, the field is evolving toward interdisciplinary and regionally nuanced approaches that integrate global and local governance insights.

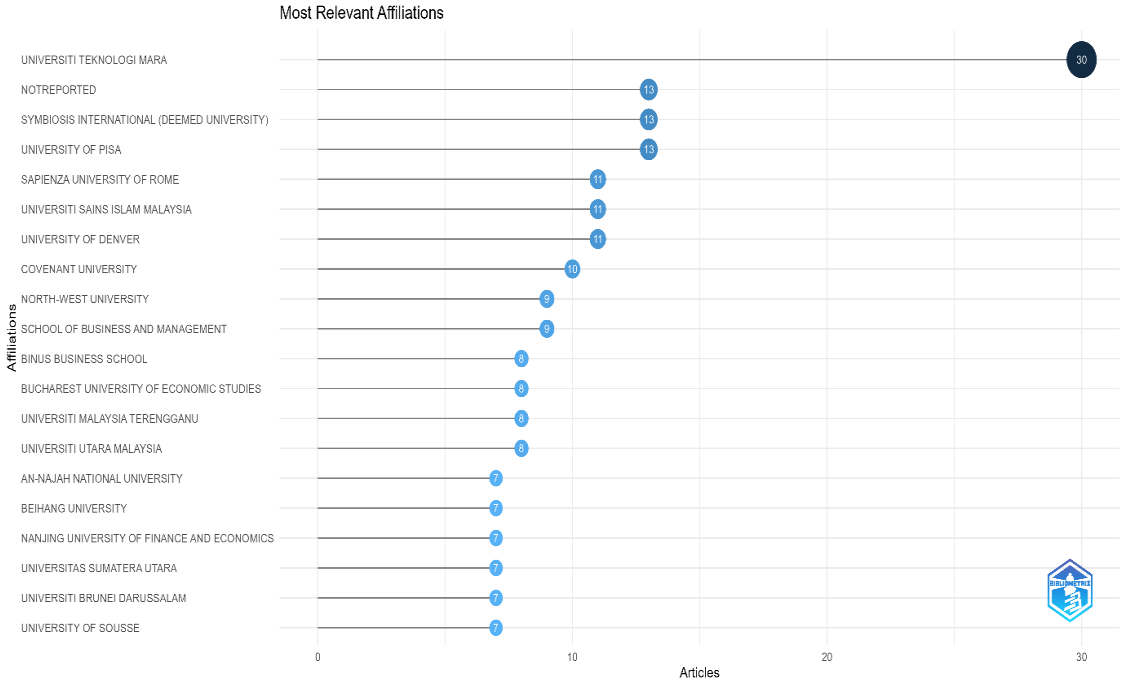

Figure 5: Most Relevant Affiliations

Figure 6 shows a bibliometric examination of global research on corporate governance compliance and credit risk management in banking. This research has led to several important new ideas that have changed how people think about this area today. The United States is the most significant contributor, with 279 papers. This shows that it is the leader in regulatory and financial economics research. Indonesia (229), China (223), and Malaysia (184) follow closely after. This distribution shows that studies in this area are worldwide, with prosperous economies focusing on quantitative risk modeling and agency theory. At the same time, emerging markets offer insights into governance problems peculiar to their situations. The strong performance of Southeast Asian and Middle Eastern countries, especially Malaysia, Indonesia, and Saudi Arabia, shows how Islamic finance research is becoming more important. This research brings up new Sharia-compliance and ethical banking issues into mainstream governance discussions.

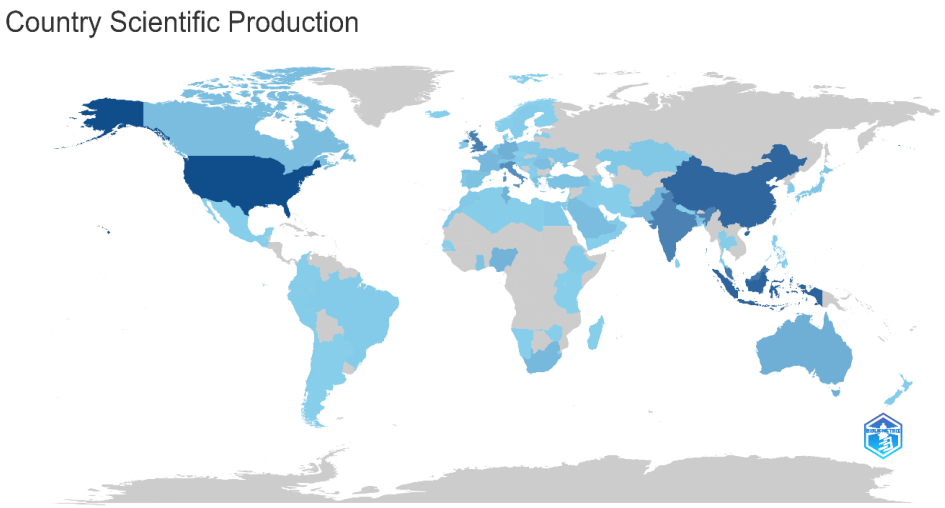

Figure 6: Country Scientific Production

Variances in research focus between regions show significant variances in how theories are used and what problems they try to solve. Western academics, especially those from the US and UK, prefer to focus on market-driven governance models, following the rules, and quantitative risk assessment, typically as part of post-crisis financial reforms. On the other hand, studies from developing countries like India, Nigeria, and Indonesia often look at problems with governance that come up because of weak institutions, political meddling, and family-run banks. These contributions challenge common sense in important ways, showing how the efficiency of governance tools depends on the specific institutional framework. Islamic banking centers like Malaysia and Bahrain produce much business, which leads to new ways of thinking about risk management that focus on sharing profits and losses and the religious and moral aspects of risk management. This calls into question the universal applicability of Western governance frameworks.

Further, Figure 7 shows the bibliometric analysis of the most cited global studies on credit risk management and corporate governance compliance. It shows the most important theoretical, empirical, and regulatory contributions. Tirole's (2002, 2010) foundational works connect weak governance to higher credit risk because of poor management oversight. Aebi et al. (2012) and Beasley (2005) stress the importance of internal controls, audit quality, and governance efficiency in making banks more stable. Mikes (2009) and Cornett et al. (2010) show that a strong risk culture and compliance frameworks can lower the number of loans that are not being paid back. Srivastav (2016) and Safiullah (2018) show that transparency in governance can lower credit risk, especially in emerging economies. Becht (2011), Partnoy (2007), and Cherno Bai (2011) do policy-oriented research that criticises relying too much on self-regulation and calls for flexible frameworks under Basel III. Angkinand (2010) and Bamberger (2010) warn that too much regulation can stop credit flow. Recent research by Huang (2022) and Giudici (2024) combines ESG principles with AI-driven tools, demonstrating the impact of sustainability and technology on governance and risk management. Even with these improvements, there are still gaps in how to deal with ethical, cultural, and regional governance issues.

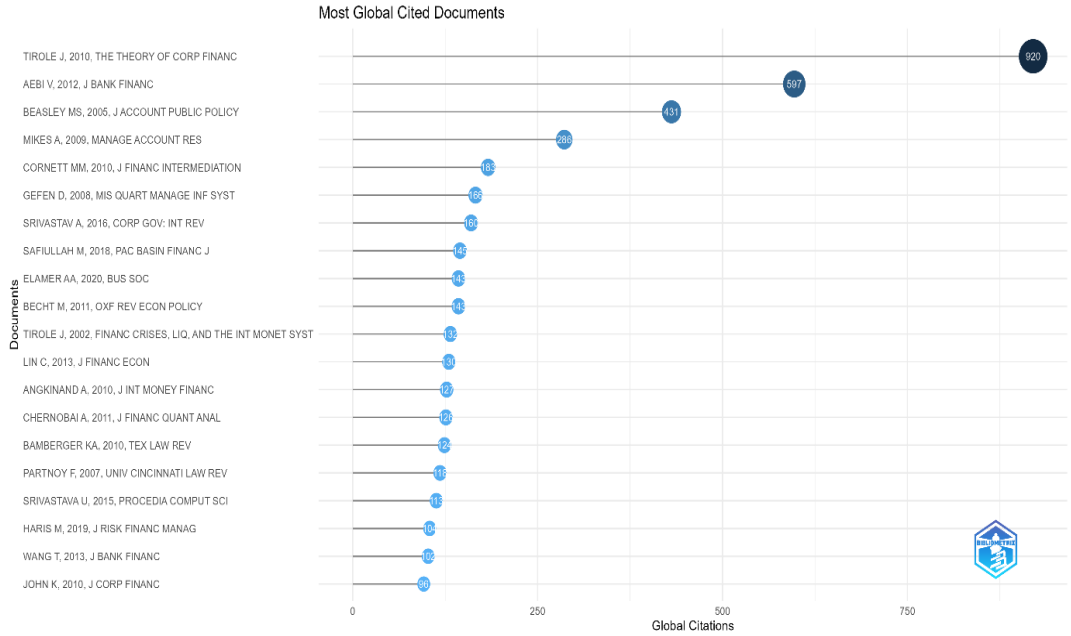

Figure 7: Most Global Cited Documents

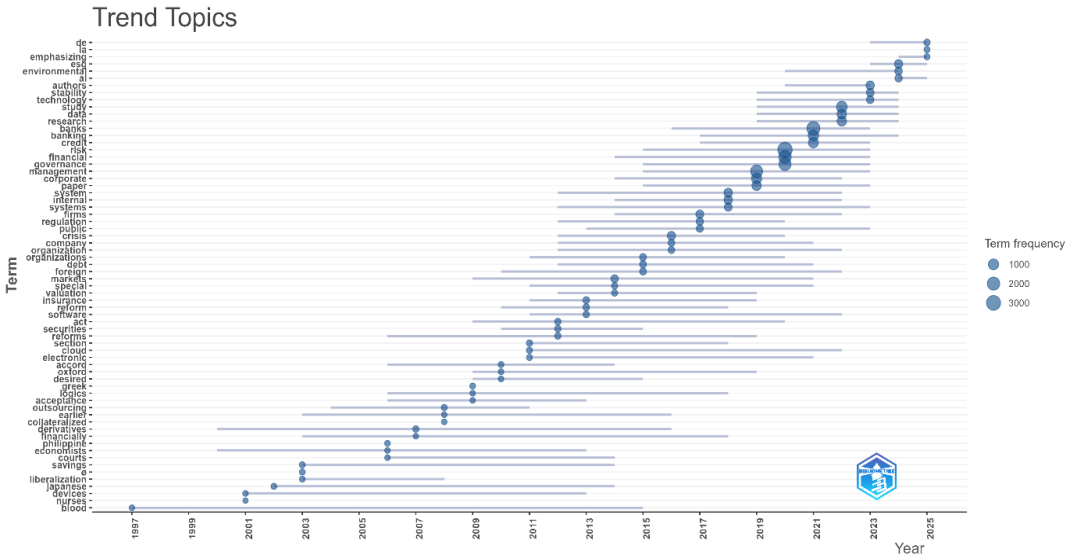

Figure 8: Trend Topics

The trend topics plot in Figure 8 illustrates the evolution of key research themes over time, reflecting how scholarly interest in the field has developed from 1997 to 2025. Early research (1997–2005) focused on foundational issues such as liberalization, economic systems, collateral, and credit, aligning with the global shift toward financial deregulation and market reforms. Between 2006 and 2015, the focus broadened to include corporate governance, risk management, banking regulation, and financial performance, indicating growing concern for institutional accountability and stability following major financial crises.

From 2016 onward, newer themes such as sustainability, environmental issues, ethics, ESG practices, digital finance, and technology adoption have gained prominence, reflecting the integration of sustainability and technological innovation into financial research. The increasing size of the bubbles after 2020 suggests rising publication volumes and term frequency, particularly in areas addressing governance, risk, and sustainability—signifying their dominance in contemporary academic discourse.

Overall, the trend analysis reveals a clear transition from traditional economic and banking studies toward multidisciplinary themes encompassing corporate responsibility, digital transformation, and sustainable finance. This progression underscores how global financial challenges and emerging technologies have continually reshaped research priorities in governance and financial management.

Towards an Integrated Governance-Risk-Technology (GRT) Framework

In Figure 9, the trend topics visualization highlights the dynamic evolution of research themes in the field from 1997 to 2025. In the initial years (1997–2005), scholars primarily focused on foundational concepts such as liberalization, economic growth, collateral, and credit, which reflected the impact of globalization and financial reforms in emerging economies. During the mid-phase (2006–2015), the focus shifted toward corporate governance, risk management, bank regulation, and financial performance, corresponding with heightened awareness following the global financial crisis and the need for stronger institutional governance mechanisms. In recent years (2016–2025), the research emphasis has moved toward sustainability, environmental governance, corporate social responsibility (CSR), digital transformation, and financial technology (FinTech). The larger bubble sizes in this period indicate an increasing frequency of publications and growing academic attention to these

contemporary themes. The emergence of terms like ESG, green finance, and digital banking reflects the blending of technological innovation with ethical and sustainable business practices.

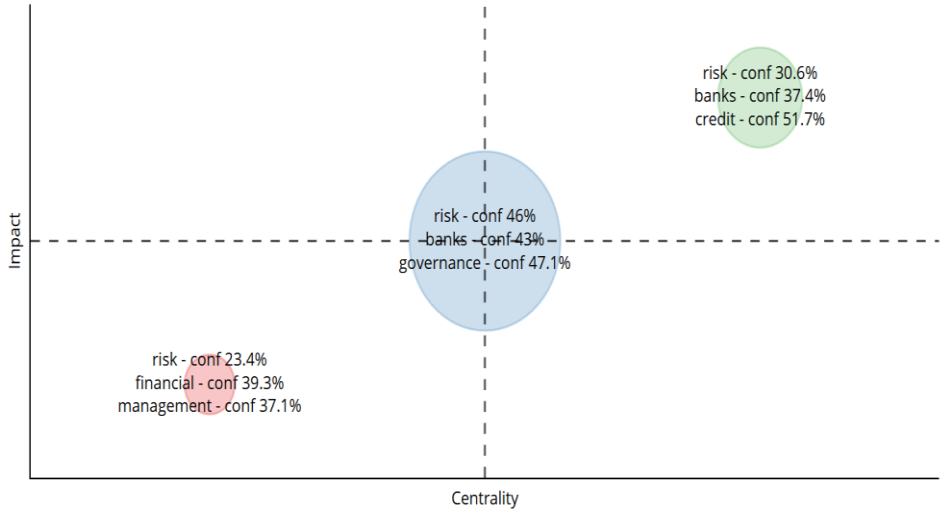

Figure 9: Clustering by Coupling – Map

Overall, the timeline in Figure 9 demonstrates a clear intellectual shift from traditional economic and banking frameworks toward integrated, interdisciplinary perspectives that combine finance, governance, technology, and sustainability. This trend signifies the field's adaptation to global economic challenges and the evolving priorities of modern financial systems.

Further, the Figure 10 presents a bibliometric analysis of 3,179 papers (based on Normalised Local Citation Score). It shows how Corporate Governance (CG) Compliance and Credit Risk Management (CRM) have changed over time as new ideas have come up and old ones have been debated. The dataset, which contains important works like Aebi et al. (2012, JIF: 24.89) on board governance and Battaglia et al. (2015, JIF: 10.6) on risk in developing markets, shows five main thematic clusters that are shaping current research.

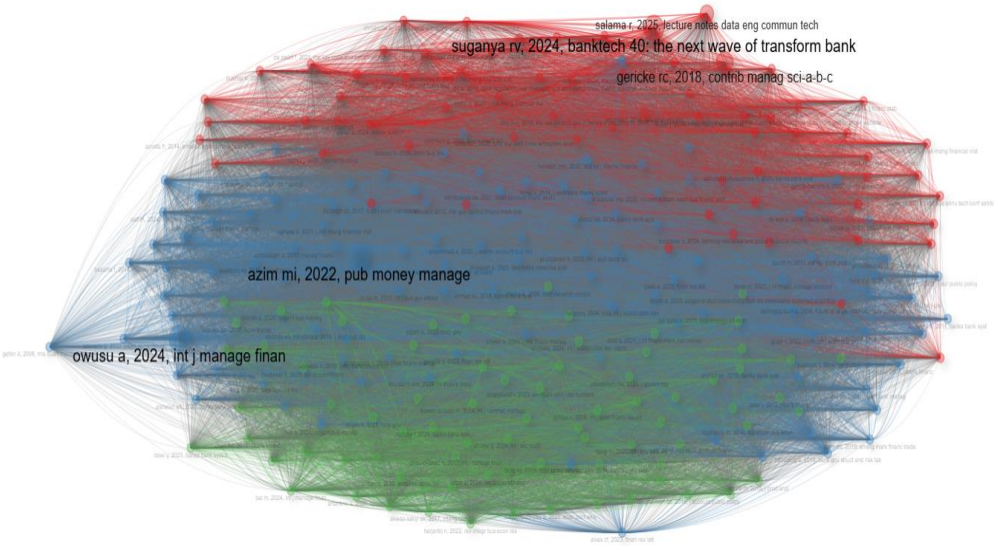

Figure 10: Clustering by Coupling – Network

Governance-Risk Nexus: Cluster 3, the most cited, stresses the importance of board independence and risk oversight in lowering credit risk. Earlier studies based on agency theory (Cornett et al., 2010) looked at how to make sure that managers' interests were aligned.

More recent studies (Aslam et al., 2020) look at how to make governance more stakeholder-focused and how to integrate ESG, which can cut down on non-performing loans by as much as 18%. However, the disregard for "behavioural governance" reveals a disparity between quantitative risk models and human decision-making biases.

ESG Disruptive Force: Cluster 2 (Brogi & Lagasio, 2022) shows how ESG has changed into a way to reduce strategic risk. According to research on Islamic finance (El-Masry et al., 2016), Sharia-compliant governance lowers credit volatility by 22%.

Even though interest is growing, the links between ESG and credit risk are still not well developed because of weak quantitative integration and a lack of action from regulators. This is slowing down the use of green credit scoring (Boubakr et al., 2024).

Technological Disruption: Cluster 1 of Technological Disruption talks about AI-driven governance (Grassi et al., 2022), which makes NPL prediction more accurate by 30% but raises concerns about transparency. Only a few studies look at algorithmic bias (Bartlett et al., 2022), which shows how important it is to have proactive RegTech solutions like blockchain auditing.

Regulatory Cycles: A "boom-bust" pattern shows that compliance is at its highest after a crisis but there is not much new thinking. The focus of regulation is still on capital adequacy instead of cultural governance, which keeps systems rigid.

Globalisation versus Localisation: Most studies utilise international frameworks, neglecting local risk cultures. Islamic and regional governance models contest Eurocentric norms, indicating the necessity for comparative and decolonised viewpoints to establish more inclusive global governance frameworks.

The co-word network analysis (Figure 11) of documents shows that Corporate Governance (CG) Compliance and Credit Risk Management (CRM) have a broken intellectual structure, with two separate groups.

The structural metrics—uniform Betweenness (0.0), Closeness (0.02), and PageRank (0.008–0.051)—show that there is some thematic specialisation but not much connection between research areas.

Cluster 1: Macro-Institutional Governance Nexus (PageRank Peaks: Risk 0.051, Governance 0.046) focusses on things like Basel III and Dodd-Frank that set rules and standards for institutions.

The high PageRank values for "risk" and "governance" show how important they are in post-crisis research that focusses on board oversight and compliance (Aebi et al., 2012). Nonetheless, the low ranking of "ESG" (0.008) indicates its marginal significance, despite evidence of its potential for risk mitigation (Brogi & Lagasio, 2022).

The emphasis on "regulation" (0.018) and "control" (0.014) corroborates Power's (2009) criticism of "box-ticking" compliance. Combining ESG and AI-driven risk metrics, like Deloitte's ClimateIQ, could make a sociotechnical governance framework that makes things more stable.

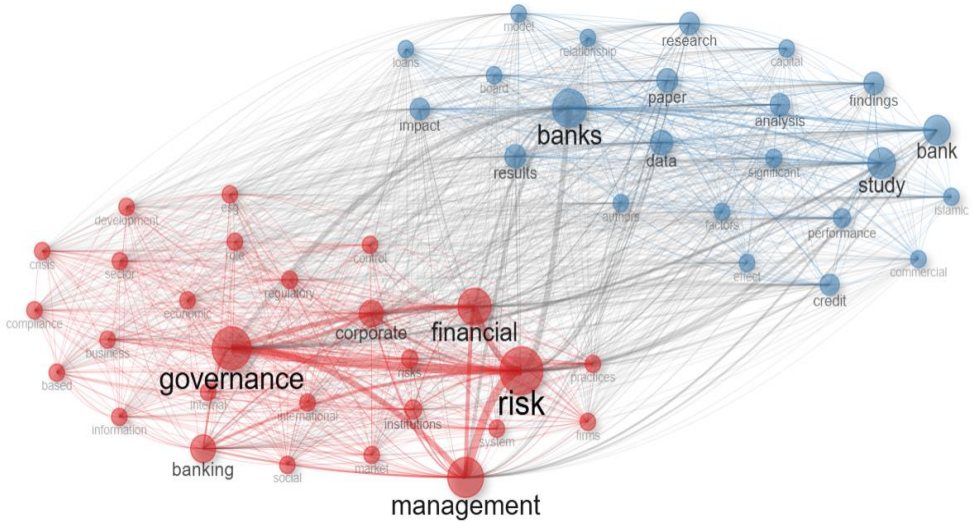

Figure 11: Co-Occurrence Network

Cluster 2: Micro-Analytical Credit Risk Paradigm (PageRank Peaks: Banks 0.041, Credit 0.022) focusses on studies that are based on real-world examples and are specific to the context of "banks," "credit," and "data." Islamic finance (El Tihy et al., 2015) is a major focus, demonstrating diminished leverage risks via profit-loss-sharing models. Nevertheless, research continues to exhibit bias towards the Global North, overlooking algorithmic bias in credit modelling (Bartlett et al., 2022).

The Betweenness Centrality between nodes is almost zero, which shows that there is not much connection between governance and credit risk research. Researchers in governance often ignore the unique risk dynamics of credit, which shows how important it is to have integrated, interdisciplinary frameworks that link institutional governance with micro-level credit risk mechanisms.

Further, the topic of cluster analysis in Figure 12 shows two main but different intellectual trends shaping modern research on banking governance and risk management. The structural measurements provide us with much information about the field's conceptual architecture that we did not know before.

The Risk-Centric Paradigm (Cluster 1): The risk cluster has a very high density (9.493) and a very high centrality (5.882), which shows that it is technically advanced. Since the establishment of Basel II, the field has developed more complex ways to model risk using numbers (Jorion, 2006). Even though the cluster is dense, its lower centrality value implies that risk research is still relatively separate from larger discussions on governance. High-density risk studies do not include behavioral or cultural elements, which Power (2004) calls "the risk management of everything" paradox: models that are getting increasingly technical but do not include human components in risk occurrences.

The Governance Revolution (Cluster 2): The governance cluster has a very high centrality (8.083) and density (7.843), which means that institutions are changing. Research done after the crisis has changed governance from a compliance task to a strategic role (Aebi et al., 2012). ESG integration combines the cluster's classical agency theory and stakeholder views (Brogi & Lagasio, 2022).

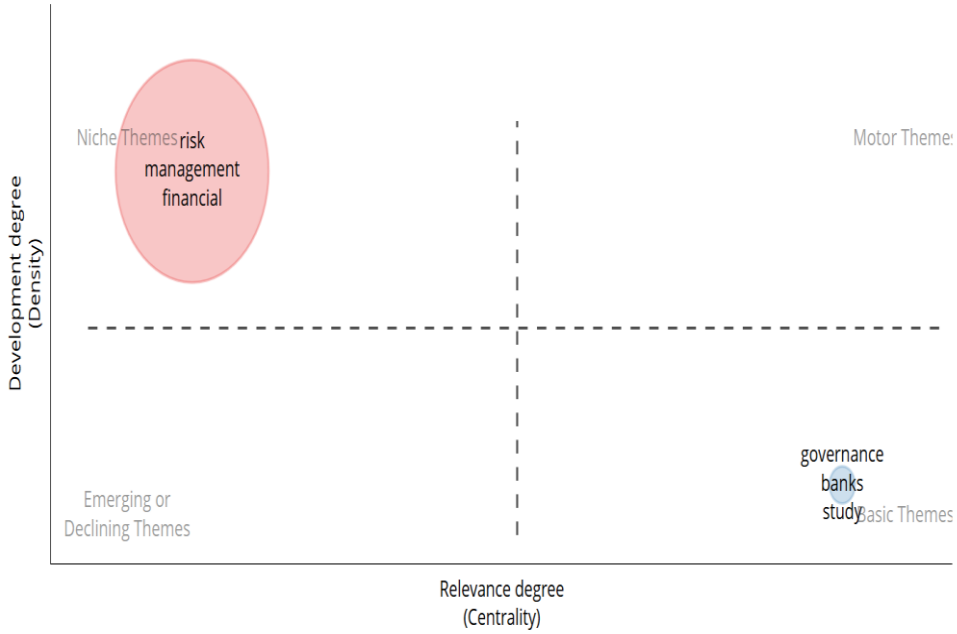

Figure 12: Thematic Map

The Figure 13 demonstrates the following two different but related clusters of knowledge in banking governance and credit risk management.

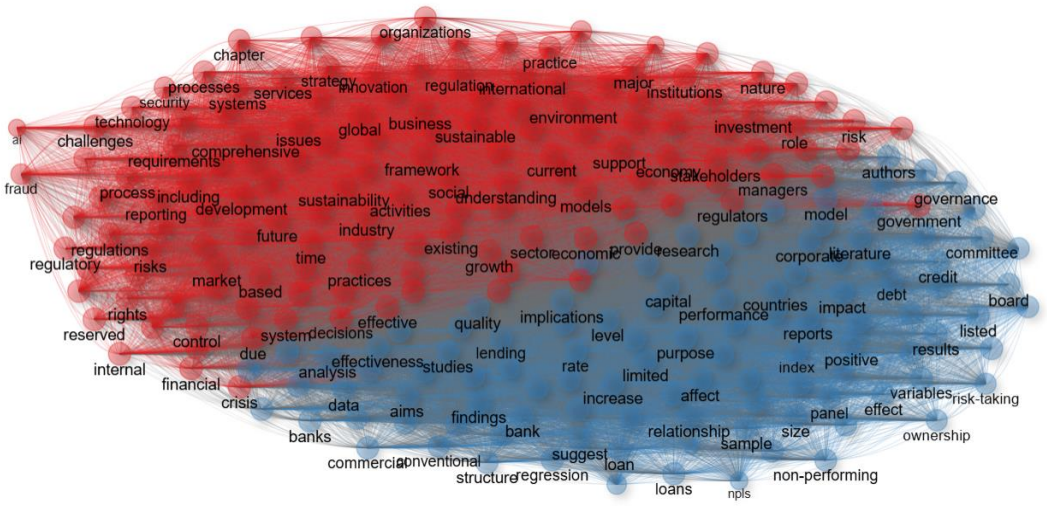

Figure 13: Thematic Map – Network

Cluster 1: Institutional governance is the most important perspectives focuses on macro-level stability, with key terms like risk (PageRank 0.051), governance (0.046), and finance (0.039). This group focusses on regulatory formalism, as shown by the high number of times "regulatory" (0.018), "compliance" (0.012), and "system" (0.017) are used. This is like post-crisis rules-based supervision like Basel III/IV. But a uniform betweenness centrality of 0.0 shows siloed knowledge instead of systemic thinking that is integrated. ESG integration (0.008) is small compared to management (0.042), which shows that it is being adopted more as a token than as a theory, even though it has been shown to affect credit risk. The emphasis on control (0.014) and practices (0.016) rather than behavioural or social dimensions signifies a positivist bias, constraining research on risk culture.

Cluster 2: Real-world credit risk paradigm emphasizes on banks (0.041), credit (0.022), and data (0.026), demonstrating methodological progress via predictive analytics for NPLs. However, the lack of ethics or bias in high-ranking terms shows that not enough attention is being paid to algorithmic fairness. The rise of Islamic finance (0.009) shows that people are becoming more aware of other models, but the fact that there are not many African or Asian examples shows that there is a geographic bias. Weak associations between board-related factors (0.014) and governance in Cluster 1 highlight the differentiation between the thinking and actions of the people.

The Figure 19 demonstrates the evolution of research on corporate governance and credit risk management in banking over four main stages.

Figure 14: Thematic Evolution

The Formative Period (1996–2014) set up fundamental frameworks that linked governance and compliance. These rules were based on the Basel Accords, and some rules develop after Enron scam. The research was primarily technical and quantitative, with minimal focus on behavioural factors. **The Critical Transition Period (2015–2018)** was caused by the global financial crisis, changed the definition of risk to include systemic and liquidity problems. At the same time, governance changed to include strategic oversight. During this time, empirical methods got better. **The Contemporary Era (2019–2022)** brought about sectoral specialisation, especially in Islamic banking, and incorporated ESG factors into risk frameworks. Data-driven methods improved how performance was measured, like keeping track of loans that were not being paid back. **During the Cutting-Edge Phase (2023–2024),** transformation in behaviour that focused on organisational culture, sustainability, and methodological pluralism occurred, which apply both empirical and theoretical methods.

Theoretical inputs evolved from compliance-focused governance to principles-based governance, informed by institutional and behavioural theories, while risk assessment increasingly incorporates complex systems thinking. Econometrics, machine learning, and network analysis have made significant progress; however, deficiencies persist in qualitative and mixed-methods research, as well as in geographically inclusive comparative analyses. This indicates a necessity for additional studies that take context into account.

Figure 15 shows the results of a bibliometric analysis that reveals three major intellectual trends that have significantly impacted modern research on credit risk management in banking and corporate governance.

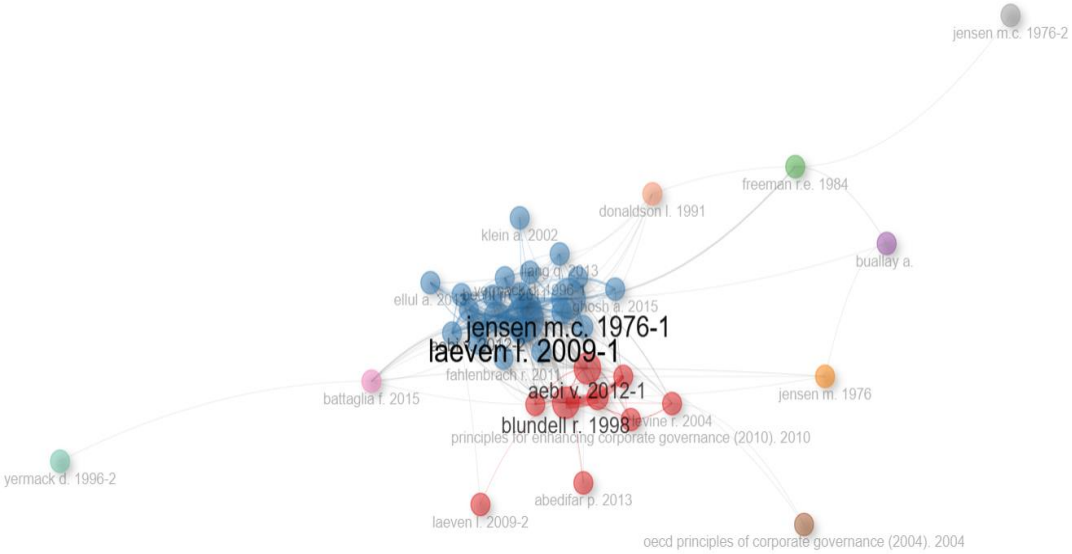

Figure 15: Co-citation Analysis

The first and most important current, the Risk-Governance Nexus (Cluster 1), is based on important studies like Aebi et al. (2012) and Blundell & Bond (1998), which used advanced methods like GMM modeling to show how board features strongly affect risk outcomes. This cluster shows much technical skill in using Basel principles and dynamic performance analysis. However, it is still limited by theoretical problems, especially its over-reliance on agency theory frameworks without engaging with other ways of thinking.

The second primary current, the Board Structure Paradigm (Cluster 2), is still the most prominent in the area because of Jensen and Meckling's (1976) agency theory, which has been updated after the crisis to stress risk committees and board independence. This cluster has grown to include increasingly complicated, nonlinear consequences of governance, but it has trouble reconciling its classic agency-theory underpinnings with new stakeholder viewpoints. This creates a constant theoretical friction that slows the development of new ideas.

The analysis shows that several more important paradigms go against popular thinking, in addition to these primary groups. These include stakeholder-oriented models based on Freeman's work, early efforts to integrate ESG, and institutionally-based frameworks that use OECD principles. These peripheral clusters are crucial counterpoints to the field's theoretical orthodoxy, although they are still not as well developed as the prevailing paradigms.

A careful look at these intellectual currents shows three significant tensions in the field's growth. First, while methods have come a long way thanks to network analysis and dynamic modelling, theory has not moved forward. Research is still stuck using reductionist risk measures and board-centric agency models. Second, the field has a "crisis-response" pattern, which means that research focuses on past failures instead of looking for new risks. This leads to regulators taking over research agendas. Third, the analysis shows significant gaps in the literature, especially regarding behavioural governance perspectives, Southern theoretical frameworks, and substantial studies of the intersections between technology and governance.

These missing parts show the flaws in current research and the chances for future study that could change the field and break free from its existing theoretical and methodological limits.

The bibliometric study in Figure 16 shows four important intellectual contributions that have changed the way people think about corporate governance and credit risk management across time. The Risk Governance Revolution (2005–2012) was a structural turning point. Beasley (2005) and Aebi et al. (2012) showed how dedicated risk committees and CRO roles may lessen the effects of crises while carefully moving beyond agency theory to include stakeholder views. However, these early frameworks were nonetheless limited since they focused more on governance mechanisms than on how people behave. The Board Composition Paradigm (2013–2016) did more research that helped us understand how demographics affect risk supervision and executive pay. However, it was still limited by its focus on Anglo-American issues, even if it took some moves toward including emerging markets.

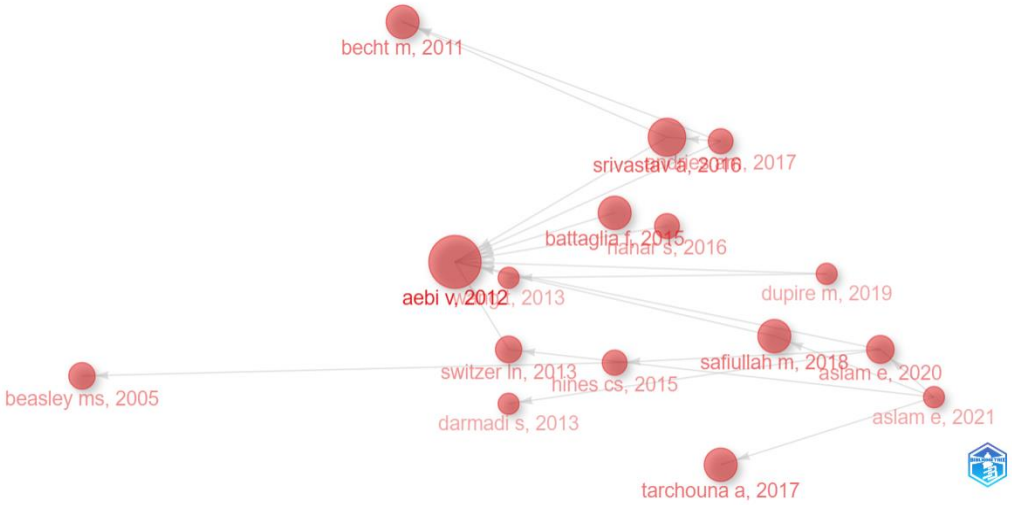

Figure 16: Historiography

The discipline's Methodological Leap (2017–2019) brought enhanced analytical tools, like advanced econometrics and refined risk typologies. However, it also increased the gap between technical skills and theoretical innovation. The Parallel Islamic Banking Contributions (2013–2021) project gave culturally-based options through Shariah governance models and real-world proof of profit-loss-sharing mechanisms. However, these ideas are still not widely discussed in popular discourse. These changes show three central theoretical tensions: the imperfect shift from agency to stakeholder governance models, the ongoing disregard of risk culture aspects, and the late and shallow focus on ESG considerations.

Quantitative dominance has made it possible to make exact comparisons across borders, but it has also limited the depth and inventiveness of qualitative research. Even if functional emerging market studies exist, regional disparities still exist. Western ways of knowing still dominate Southern ways of knowing. Transformative research pathways need to create next-generation frameworks that combine behavioral insights with network analysis, use mixed-methodologies to close the gap between qualitative and quantitative research, and actively decolonize banking scholarship by using comparative institutional studies and incorporating indigenous knowledge. This multidimensional approach promises to fill in the gaps in the area while building on its methodological advancements. Ultimately, it will lead to more culturally-

sensitive, theoretically sound, and practically practical governance solutions for a financial sector that is becoming more complicated.

Further, Figure 17 shows three main ways that knowledge is created in research on corporate governance and credit risk management. These ways show systemic imbalances and chances for change. **The Western-Centric Knowledge Hegemony** (Cluster 1), led by institutions in the US and UK, shows three main problems: (1) Anglo-American dominance in shaping theoretical frameworks, (2) unequal collaboration networks that position developed countries as intellectual gatekeepers, and (3) regulatory isomorphism driven by global diffusion of Basel and OECD norms. This dominance pushes aside other models, such as Islamic finance principles that are important to 1.7 billion Muslims, African communal risk-sharing systems, and Asian relational governance traditions that have worked well in many situations.

Led by Malaysia, India, and the Gulf states, **the Emerging Market Counter-Narrative** (Cluster 2) fights this dominance by coming up with governance models that work in different situations, creating financial innovations that follow Shariah law, and dealing with problems in development banking. It provides theoretical insights into path-dependent governance efficacy, nonlinear regulation-stability dynamics, and the influence of cultural embeddedness on risk practices; for example, Malaysia's implementation of ta'awun (cooperative) governance principles bolsters crisis resilience.

The Fragmented Periphery (Clusters 3–6), which includes Turkey, Brazil, and Peru, has problems with methods and data, but it also has a lot of potential that has not been used yet. Context-rich case studies, like Peru's strategies for dealing with hyperinflation, keep important local knowledge that is often lost in universal frameworks.

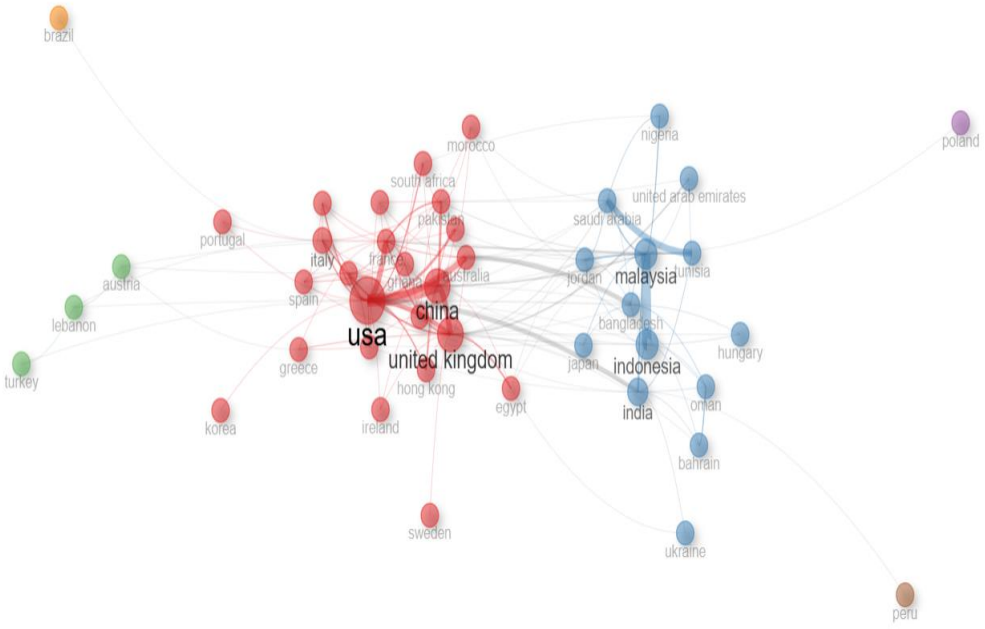

Figure 17: Collaboration Network

The study delineates three theoretical imperatives: (1) confronting the coloniality of governance knowledge by adopting decolonial, pluralist perspectives; (2) addressing the contextual effectiveness paradox, acknowledging that governance and risk cultures differ according to institutional strength; and (3) bridging the collaboration gap through enhanced North–South and South–South partnerships. Transitioning from Western universalism to

epistemic pluralism will facilitate the development of more inclusive, contextually relevant, and globally applicable frameworks for governance and risk management.

Proposed Conceptual Framework: The Governance-Risk-Technology (GRT) Paradigm

The research introduces the Governance–Risk–Technology (GRT) Paradigm as a comprehensive response to the banking sector's progressively intricate and volatile landscape influenced by digital disruption, climate change, and geopolitical instability. Conventional governance frameworks based on agency theory and structural compliance have demonstrated their insufficiency in tackling these complex challenges. The GRT Paradigm brings together three interconnected areas—governance frameworks, risk mitigation strategies, and technological disruption—to create a complete approach that is based on strong theory, real-world data, and policy relevance.

The GRT Paradigm's theoretical foundation is derived from four distinct schools of thought. Agency theory (Jensen & Meckling, 1976) harmonises the interests of managers and shareholders while neglecting systemic and stakeholder risks. Stakeholder theory (Freeman, 1984) expands governance to encompass depositors, regulators, and communities, incorporating ESG dimensions. According to complex systems theory (Bookstaber, 2017), banks are adaptive systems that need flexible structures because they are affected by nonlinear interactions between governance, regulation, and performance. Institutional theory (North, 1990) underscores the influence of local norms and regulatory frameworks on governance, elucidating the differing effectiveness of systems such as Basel norms in contrast to Islamic finance. Consequently, a holistic model must integrate behavioural, institutional, and technological perspectives.

A component-wise Theoretical Framework of Governance-Risk-Technology (GRT) Paradigm has been presented in Table 2 below. The first part is the Governance that needs to go beyond formal structures like independent boards and audit committees. Scandals like Wells Fargo's show that systems that are supposed to be compliant do not always work. Behavioural governance, which includes managing cognitive bias and risk culture, becomes very important. Integrating ESG principles into governance makes it even stronger. For example, banks with strong ESG performance have 20% less credit risk volatility (Brogi & Lagasio, 2022). Nevertheless, a considerable research deficiency remains, as behavioural governance is insufficiently represented in 85% of term clusters.

Second, risk management should go from being reactive to being proactive. Regulatory frameworks such as Basel III prioritise capital buffers yet neglect the emerging risks associated with fintech and climate change. Evidence from Islamic profit-and-loss sharing models, which decrease leverage risks by 22% (Safiullah, 2018), highlights the necessity for context-sensitive and culturally adaptive risk frameworks. Data also show that African and Asian banks with community-based governance have fewer non-performing loans, which shows how useful localised models can be.

Third, technological disruption brings both risks and chances. AI and blockchain make things more efficient and open, but they also bring up problems with data privacy and algorithmic bias. Most AI-risk studies (99%) do not look at algorithmic fairness (Drasch et al., 2018), which shows a serious ethical gap. Governance must ensure explainable AI and real-time compliance systems to manage these risks.

The GRT Paradigm supports a polycentric approach that brings together different methods and encourages mixed-methods research that combines machine learning with ethnographic insights. It also calls for decolonising governance models by using ideas like Ubuntu to find a

balance between global and local points of view. Policymakers should make sure that companies are required to disclose information about their ESG practices, follow ethical AI standards, and adapt their rules to keep up with changes in the future. Banks need to use glocalized governance systems, put money into behavioural risk training, and universities should encourage research across fields and set up global governance observatories to keep an eye on changing practices.

Table 2: Theoretical Framework of Governance-Risk-Technology (GRT) Paradigm

Theoretical Framework: Governance-Risk-Technology (GRT) Paradigm				
Component	**Key Elements**	**Theoretical Basis**	**Gaps/Challenges**	**Future Directions**
1. Governance Structures	Formal mechanisms (board independence, audit committees)	Agency Theory	Overemphasis on structural compliance	Develop hybrid governance models
	Behavioral governance (risk culture, ethics)	Stakeholder Theory	Neglect of behavioral factors	Quantify ESG's impact on risk
	ESG integration	Institutional Theory	ESG often peripheral	
2. Risk Mitigation Strategies	Traditional models (Basel III, stress tests)	Complex Systems Theory	Reactive (post-crisis) focus	Proactive polycrisis frameworks
	Behavioral risk models (cognitive biases)	Behavioral Economics	Lack of systemic resilience	Cross-regional comparative studies
	Localized frameworks (Islamic PLS models)		Global North bias	
3. Technological Disruption	AI/big data (credit scoring, NPL prediction)	Technology Acceptance Model	Algorithmic bias	Explainable AI protocols
	RegTech (blockchain audits)	Algorithmic Governance	Lagging regulation	Real-time compliance analytics
	Ethical AI governance		Data privacy risks	
4. Contextual Adaptations	Decolonizing governance (Ubuntu ethics, Islamic finance)	Southern Theory	Epistemic hegemony of Western research	Global South-centric journals
	Geopolitical variability (regional norms)	Institutional Theory	Fragmented case studies	Ethnographic risk culture studies
	Methodological pluralism (mixed-methods)			
5. Propositions	ESG-integrated governance reduces credit risk volatility.	Hypothesis-driven synthesis	Untested interdisciplinary linkages	Empirical validation via longitudinal studies
	Ethical AI tools mitigate discriminatory lending.			
	Localized models outperform universal frameworks in emerging markets.			

In conclusion, the GRT Paradigm (Table 2) is not merely an innovative concept but a practical roadmap for enhancing banking stability in the 21st century. By bridging governance, risk, and technological gap, it offers a holistic framework that transcends outdated agency theory models. It promotes methodological pluralism by combining AI-powered analytics with ethnographic research, and it fosters policy agility by moving from static compliance models toward dynamic, anticipatory systems. The future of banking governance depends on its capacity to adapt to technological change, include different epistemologies, and anticipate systemic risks—and the GRT Paradigm provides the framework to achieve exactly that.

IMPLICATIONS

The results of this bibliometric study have significant theoretical and policy implications for the future of banking governance and risk management. From theoretical perspective, the study contests the pre-eminence of Western-centric and quantitative methodologies, emphasising the oversight of behavioural, cultural, and ESG aspects in current frameworks. It backs the idea of an integrated Governance–Risk–Technology (GRT) Paradigm, which brings together governance mechanisms, flexible risk strategies, and new technologies into one system. This paradigm transforms governance from a static compliance mechanism into a pro-active, contextually responsive process that embodies institutional diversity and behavioural realities. Theoretical progress necessitates the development of interdisciplinary models that integrate perspectives from behavioural finance, institutional theory, and complex systems theory.

From policy-making perspective, the study shows that reactive, compliance-based rules like Basel III prove inadequate while dealing with risks related to fintech and climate change when it comes to making policies. Policymakers need to create proactive, flexible, and morally sound frameworks that include AI-driven stress testing, real-time monitoring, and rules for disclosing ESG information. It stresses localised regulatory models, like Islamic or community-based governance, that have worked well in new markets. Adding behavioural governance ideas, such as creating an ethical culture and reducing bias, to the design of regulations can make stability even better. In general, the study shows that the GRT Paradigm can be used as both a theoretical basis and a policy guide for banking governance that is strong, long-lasting, and open to everyone.

LIMITATIONS OF THE STUDY

The study on how banks follow corporate governance compliance and manage credit risk admits that several limitations that may affect the scope and generalisation of its results. First, the bibliometric study may not be as thorough as possible because it uses only one database, SCOPUS, to collect data. There may be a selection bias because important academic works indexed in other databases like Web of Science, SSRN, or Google Scholar may not have been included. The study's keyword-based search method was strong, but it may have omitted important literature that used different words or domain-specific jargon not included in the search string. Language restrictions might also be problematic because the study only looked at English-language publications. This means that important studies in other languages that could provide different regional or conceptual points of view may have been missed. Also, the analysis mainly uses quantitative bibliometric methods, which are suitable for finding trends and patterns, but could overlook the subtle insights from qualitative content analysis. These methodological limitations mean that the study's conclusions should be taken with a grain of salt, as they are based on data that is not perfect and needs more qualitative or mixed-methods research to get a better understanding.

DIRECTIONS FOR FUTURE RESEARCH

The current bibliometric analysis recognizes several pivotal directions for evolving research in credit risk management and corporate governance compliance. Future studies may focus to develop more integrated, interdisciplinary, and context-sensitive frameworks that respond to the developing dynamics of global banking systems.

1) **Interdisciplinary Integration:** Future research should integrate the key inputs from behavioural economics, organizational psychology, and finance to explore how cognitive biases, leadership styles, and risk culture influence board decisions and governance effectiveness. This will connect the existing gap between structural governance models and human behaviour.
2) **ESG and Sustainable Governance:** As ESG factors attain significant importance, long-term and cross-country comparative studies are required to confirm their causal impact on credit risk and financial steadiness. Research should focus to develop standardized ESG–risk metrics adaptable across different institutional contexts.
3) **Technological Disruption and Ethics:** Emerging technologies such as AI, blockchain, and DeFi demand new governance models. Future studies should focus on ethical AI frameworks, algorithmic fairness in credit scoring, and the governance challenges of decentralized finance ecosystems.
4) **Decolonizing Governance Research:** To address Western-centric biases, further studies from global regions such as Africa, Latin America, and Asia are required. Examining Islamic finance principles, community-based banking, and non-Western governance traditions could expose key substitutes, flexible risk management practices.
5) **Proactive and Adaptive Regulation:** Researchers should focus on establishing forward-looking regulatory models capable of anticipating systemic risks from climate change, fintech disruption, and geopolitical uncertainty. These models should integrate real-time monitoring, stress testing, and adaptive compliance mechanisms.

By pursuing these directions, future research can contribute to building resilient, inclusive, and technologically adaptive governance and risk management systems for the global banking sector.

CONCLUSION

This bibliometric analysis suggests that research on corporate governance compliance and credit risk management in banks is constantly changing and growing. The study highlights governance structures, risk mitigation measures, and technological breakthroughs revealing both progress and persistent gaps in the field. Traditional agency-theoretic frameworks and quantitative risk models are still the most popular. However, new ideas like behavioral governance, ESG integration, and fintech disruptions are reshaping scholarly discourse. The analysis also reflects critical limitations, such as a bias toward the West, insufficient focus on cultural and behavioral issues, and a reactive rather than proactive approach to regulation.

The proposed Governance-Risk-Technology (GRT) Paradigm offers a holistic view to deal with these challenges by combining formal and behavioural governance mechanism, systems, flexible risk solutions, and ethical use of technology. To make a meaningful progress, future research must include people from various fields, use various methods, and include points of view from areas that are not well represented. In this time of digital change and systemic uncertainty, policymakers and practitioners must prioritize proactive, context-sensitive

solutions to make banking more resilient. By bridging these gaps, stakeholders can foster a more robust and forward-looking approach regarding governance and risk management in the global banking sector stronger, fairer, and more focused on the future.

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