## Mapping the Risk Management Landscape: A Bibliometric and Practitioner-Validated Thematic Analysis

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#### **ABSTRACT**

This study offered an integrated bibliometric and thematic analysis to map the intellectual and practical landscape of risk disclosure research. Drawing from literature in Scopus and Web of Science, the study applied co-citation, keyword co-occurrence, and content analysis to explore trends, citation dynamics, emerging themes, author networks, and regional research distributions. Seven major thematic clusters were identified: (1) board characteristics and risk disclosure readability, (2) regulation, climate risk disclosure, and firm value, (3) cybersecurity risk and integrated reporting, (4) institutional investors and enterprise risk management (ERM), (5) financial instruments, compliance, and value relevance, (6) risk disclosure, firm performance, and cost of capital, and (7) ownership structure and corporate governance. To enrich the analysis, insights from two practitioners—an enterprise risk officer and a compliance manager from IDX-listed firms were incorporated through semi-structured interviews. Their perspectives validated key bibliometric themes and added practical depth. The results highlighted evolving priorities in risk disclosure, shifting from regulatory compliance toward value-relevant, stakeholder-driven narratives. This study offers critical implications for researchers, practitioners, and regulators seeking to enhance transparency, accountability, and decision-making in corporate risk communication.

Keywords: Bibliometric Analysis, Risk Disclosure, Collaboration Networks

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### INTRODUCTION

Effective risk disclosure (RD) plays a pivotal role in fostering transparency and accountability within financial markets and corporate sectors. Its significance stems from the fact that it publicizes current and future risks that businesses face that may affect their going concern as business entities (Elamer et al., 2020). An improved and increased RD also help in reducing information asymmetries, risk perception among investors, and finally minimizing cost of capital (Ibrahim & Aboud, 2023a; Nahar et al., 2016). Since it is a crucial material for safeguarding stakeholder interests, disclosure of risk information could be classified as one of the most important financial reporting issues (Ibrahim et al., 2022a). This underscores the need for continued research in this area. To further enhance the risk reporting environment, review studies on RD are essential as they offer valuable insights into key themes, trends, and gaps in this field. These insights aid in developing more effective RD practices that are transparent, comprehensive, and aligned with the evolving risk landscape.

Several scholarly reviews have examined RD studies. For instance, Khandelwal et al. (2022) reviewed the performance parameters of risk disclosure studies globally from 2000 to 2019. Their findings highlighted the most productive and influential authors, the most cited countries, and the highly prolific institutions. Mbithi et al. (2022) systematically reviewed the risk disclosure literature between 2004 and 2021. Their research identified two prevalent conceptualizations of RD quality, categorized as pre-modern and modern perspectives. Furthermore, the study revealed a lack of standardized criteria for evaluating and measuring RD quality. Baan Wahh et al. (2020) focused on 127 empirical papers published in international peer-reviewed academic journals from 1998 to 2018. They found that RD research largely adopted content analysis, utilized agency theory, and concentrated in developed economies. On the other hand, Tahat et al. (2019) utilized Google Scholar to review Financial Instruments-related RD papers published from 1998 to 2018. They highlighted critical gaps and limitations in the existing body of research on risk reporting. Table 1 provides a comprehensive overview of review studies on RD literature, focusing on all types of risk.

This study, therefore, expanded and complemented recent reviews on RD. By integrating data from both Scopus and Web of Science (WoS), the current study offered a more comprehensive and holistic overview of the field. This approach captured a wider range of publications and citations, providing a broader perspective on the research landscape. It identified key themes, trends, and influential works in the field of RD, thanks to the extensive data available from both databases. This can offer valuable insights for researchers, practitioners, and policymakers.

The remainder of the article presents the existing literature, methodology, results, discussion, future research directions, and conclusion.

Table 1: Prior Review Studies on All-Type RD

| Study                      | Туре  | Focus/themes   |
|----------------------------|---|--|
| Priatnasari et al. (2023)  | Bibliometric (Google<br>Scholar, 1991- 2021)                                | RD Performance analysis  |
| Mbithi et al. (2022)       | SLR (59 papers, 2004-2021,ABS-ranked)                                       | Risk concept/meaning<br>RD measurement   |
| Khandelwal et al. (2022)   | Bibliometric (WoS and Scopus, 2000-2019)                                    | Performance analysis of RD literature  |
| Ibrahim et al.<br>(2022)   | SLR (104 papers, 1999–<br>2019, AJG2018 Journal<br>Quality guide rank 1-4*) | RD practices & characteristics<br>determinants & consequences<br>disclosure on weaknesses of internal<br>control |
| Baan Wahh et al.<br>(2020) | SLR (127 papers,<br>1998–2018)  | (dis)similarities between developed and emerging economies   |
| Current study              | Bibliometrics (WoS and Scopus)  | thematic insights across disciplines and intersections with other research fields                                |

#### LITERATURE REVIEW

## **Risk Definition and Importance of Disclosure**

Risk has evolved from a pre-modern view—focused solely on potential losses (Horcher, 2005)—to a modern perspective that includes both negative and positive outcomes (Linsley & Shrives, 2006; Mokhtar & Mellett, 2013). This duality has sparked debate in academic and professional circles. Some define risk as outcome variability around a target (Elshandidy, 2011), while others argue that emphasizing its negative aspect better reflects research focus (Ibrahim & Hussainey, 2019).

Risk disclosure (RD) plays a crucial role in reducing information asymmetry and supporting informed decisions for investors, analysts, and stakeholders (Abraham et al., 2012; Miihkinen, 2013). Its relevance is amplified by corporate governance reforms (Lajili & Zeghal, 2005) and becomes even more critical during crises like financial downturns, pandemics, or wars (Gonidakis et al., 2020; Ibrahim & Aboud, 2023).

### **Current Development of Risk Disclosure**

Corporate risk disclosure has evolved significantly in recent years, driven by regulatory changes, stakeholder demands, and the need for transparency in the face of global challenges. From the regulatory point of view, Isiaka (2021) observed that since 2005, the US SEC had required large companies to include risk factors in their annual 10-K reports. However, concerns about the ambiguity and redundancy of these disclosures had led the SEC to advocate for clearer, more specific risk information. In Europe, the transition from the Non-Financial Reporting Directive (NFRD) to the Corporate Sustainability Reporting Directive (CSRD) signified an increasing focus on comprehensive risk disclosure, especially within the realms of sustainability and non-financial reporting (Rejón-López et al., 2023). In the meantime, while the debate over mandatory versus voluntary disclosure continues (Arena et al., 2021), thematic risk disclosure such as COVID-19 risk disclosure (Roberts et al., 2022), financial risk disclosure (Khandelwal et al., 2021), operational risk disclosure (Mihaela et al., 2019), and cybersecurity risk disclosure (Kiesow Cortez & Dekker, 2022), is gaining traction. Industry-specific risk disclosure such as in automotive industries (Vychytilova et al., 2020), energy sector (Düsterhöft et al., 2023), metals and mining sector (Thai & Birt, 2019), is also becoming more prevalent.

### RESEARCH METHODOLOGY

The study employed a bibliometric analysis and systematic review to evaluate the articles on risk disclosure in Asia. The approaches for bibliometric analysis are classified into two categories: performance analysis and scientific mapping. Performance analysis considers the contributions of research elements. It aims to evaluate research productivity and influence. Whereas science mapping focuses on the linkages between research

constituents. Its objective is to identify knowledge clusters, such as key themes and research groups, within a specific field. (Donthu et al., 2021; Mukherjee et al., 2022).

This study integrated data from the Web of Science as well as Scopus database, creating a solid framework for evaluating prior research on risk disclosure. Scopus, a comprehensive and internationally renowned bibliographic database, gives access to a vast database of scholarly literature across several fields. Web of Science is known for its comprehensive coverage of high-impact journals and its rigorous selection criteria, which ensure the inclusion of quality publications (Birkle et al., 2020; Singh et al., 2021).

Our study focused on publications from peer-reviewed journals in Business Management and Accounting, Economics, Econometrics and Finance, and Social Sciences. This targeted strategy guaranteed a focused and relevant dataset for investigating the current knowledge base on risk disclosure in these critical fields. Building on the work of Lim et al. (2024), Table 2 illustrates the alignment technique between the PRISMA protocol and the SPAR-4 protocol used to determine the number of journal articles for the investigation. The terms in the search query represent risk disclosure in business field: ("corporate\*" OR "company\*" OR" firm\*") AND (risk\* disclosure\*"OR "risk\* reporting\*" OR "risk\* communication\*").

Table 2: Alignment between PRISMA and SPAR-4 Protocol

| Phase(s)       | Consideration   | Example  |
|----------------|-----------------|--|
| Assembling /   | Search focus    | Company risk disclosure  |
| Identification | Search string   | corporate* OR firm* OR company* AND "risk* disclosure*" OR "risk* reporting" |
|                | Search period   | Up to December 8, 2024   |
|                | Search database | Scopus and Web of Science  |
|                | Search field    | Article field, abstract, keywords  |
|                | Search results  | 670 documents in Scopus; 630 documents in Web of Science                     |

| Phase(s)              | Consideration           | Example   |
|-----------------------|-------------------------|---|
| Arranging /           | Document type           | Include Article   |
| Screening and         | Language                | Include English   |
| Eligibility           | Publication stage       | Include "final" in Scopus; exclude "Early Access" in Web of Science   |
|                       | Source type             | Include "Journal" in Scopus; exclude "Non-<br>Journals" in Web of Science   |
|                       | Subject areas           | Include "Business, Management and Accounting" and "Economics, Econometrics and Finance" in Scopus; include "Business Economics" in Web of Science |
|                       | Filtered Results        | 448 documents in Scopus; 442 documents in Web of Science  |
|                       | Consolidated<br>Results | 547 documents after combining and cleaning<br>Scopus and Web of Science datasets (342<br>duplicates removed)                                      |
| Assessing / Inclusion | Analysis Method         | Bibliometric analysis (performance analysis & science mapping)  |
|                       | Agenda proposal method  | Trend analysis and gap spotting   |

As in Table 3, this study summarised **seven major thematic clusters** through co-citation and keyword co-occurrence analyses. Nevertheless, these primary themes needed validation through interviews to strengthen the findings.

Table 3: Primary Thematic Clusters Identified Through Bibliometric Mapping

| Theme<br>No. | Theme Title   | Key Ideas   |
|--------------|---|---|
| 1            | Board Characteristics and Risk Disclosure Readability     | Board diversity, gender, audit committee roles, readability of disclosures                          |
| 2            | Regulation, Climate Risk<br>Disclosure, and Firm Value    | Compliance with climate-related policies (e.g., CSRD, NFRD), effects on firm value                  |
| 3            | Cybersecurity Risk and Integrated Reporting               | Reporting on cybersecurity risks in integrated annual reports                                       |
| 4            | Institutional Investors and ERM                           | Influence of large investors on risk disclosure strategies and enterprise risk management practices |
| 5            | Financial Instruments, Compliance, and Value Relevance    | IFRS 7, derivatives risk, disclosure alignment with regulatory frameworks                           |
| 6            | Risk Disclosure, Firm<br>Performance, and Cost of Capital | How disclosure reduces information asymmetry and influences cost of capital                         |
| 7            | Ownership Structure and Corporate Governance              | Impact of controlling versus dispersed ownership on risk disclosure quality                         |

### **Primary Data Validation**

To strengthen the bibliometric insights and address reviewers' recommendations, this study also incorporated semi-structured expert interviews with practitioners engaged in risk disclosure and governance oversight. One such key informant is:

Mr. R, a former Senior Vice President of Enterprise Risk and Compliance at one of Indonesia's famous banks, holds over 15 years of experience in risk governance, including in areas of risk communication, ESG disclosure alignment, and enterprise risk management (ERM). He also serves as a committee advisor on integrated reporting for BUMN-linked financial institutions. Mr. R was selected based on his exposure to internal governance policy design, regulatory engagement (OJK compliance), and institutional investor liaison, aligning directly with Themes 1 (Board Characteristics), 4 (Institutional Investors & ERM), and 6 (RD and Cost of Capital).

To further validate the thematic clusters identified in the bibliometric analysis, another semi-structured interview was conducted with Ms. N, Risk Compliance Manager at WK Tbk an IDX-listed construction and infrastructure company. She is a certified risk professional with over 12 years of experience in financial reporting, enterprise risk management, and integrated reporting for both financial and non-financial disclosures. Her role bridges accounting compliance with risk-based sustainability disclosures, and she regularly contributes to regulatory consultations coordinated by OJK and IAI. Ms. N was selected based on her experience in handling climate-related reporting, cybersecurity risk, and IFRS-based compliance disclosures. Her practical insights help validate Themes 2 (Regulation and Climate Risk), 3 (Cybersecurity Risk and Integrated Reporting), 5 (Financial Instruments and Value Relevance), and 7 (Ownership Structure and Corporate Governance).

#### FINDINGS AND DISCUSSION

#### **Publication Trends**

Publication and citation trend of research in a specific field can be generated through Biblioshiny (Aria & Cuccurullo, 2017). However, since the graphical outputs from Biblioshiny did not provide actual numbers of the analysis, it was recommended to create new charts from excel as the solution for the issue (Lim et al., 2024). Figure 1a and 1b below highlight the publication trends and citation impact in the field of risk disclosure from 1994 to 2024.

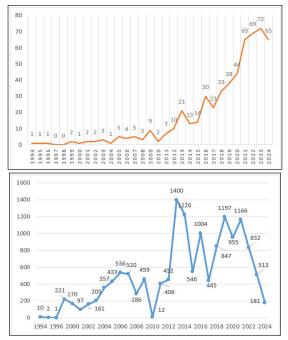


Figure 1a: Total Article Produced in the Field; 1b: Total Citations per Year

The Tables provide chronological summaries of articles produced in the field of risk disclosure and their total citations from 1994 to 2024. Initially, the number of publications and citations was low. Significant citation peaks occurred in 1999, 2013, and 2014. From 2013 onwards, there was a notable increase in both articles and citations, with 2023 having the highest number of publications (72). Despite the recent rise in publications,

the total citations in 2024 showed a decline to 181. This trend underscored the growing academic interest and impact of risk disclosure research over the past three decades.

# Key Readings in the Field as Informed by Highly Cited Publications

Table 3 shows the papers that garnered the most citations. Campbell et al. (2014) published the most frequently cited paper, highlighting that firms with higher risk disclose more comprehensive risk features, thereby influencing systematic and idiosyncratic risk, information asymmetry, and firm value. Linsley & Shrives (2006) published the second most cited article, which set standards for voluntary risk disclosure and highlighted the need for detailed regulatory guidelines in non-financial risk management. Kravet & Muslu (2013) concluded that more risk disclosures heighten investor uncertainty, except when they are unique to the company's industry peers, suggesting standard risk statements have less effect. Short-term ownership boosts financial risk reporting, long-term ownership reduces it; executive and independent directors enhance risk reporting, while dependent nonexecutive directors do not; UK firms with US listings disclose more, and regulation may suppress firm-specific details. Long-term institutional ownership decreases risk reporting, while short-term ownership increases financial risk reporting. Executive and independent directors significantly influenced risk reporting, whereas dependent non-executive directors did not. UK firms with US stock exchange listings disclosed more risk information, and regulatory practices may suppress firm-specific disclosures (Abraham & Cox, 2007).

**Table 4: Highly Cited Risk Disclosure Research** 

| Rank | Author(s) & Year  | Title   | Journal                             | TC  |
|------|---|---|-------------------------------------|-----|
| 1    | Campbell, J. L., Chen, H.,<br>Dhaliwal, D. S., Lu, H. M.,<br>& Steele, L. B. (2014) | The information content of mandatory risk factor disclosures in corporate filings | Review of<br>Accounting<br>Studies  | 444 |
| 2    | Linsley, P. M., & Shrives, P. J. (2006)   | Risk reporting: A study of risk disclosures in the annual reports of UK companies | The British<br>Accounting<br>Review | 420 |

| Rank | Author(s) & Year   | Title  | Journal   | TC  |
|------|--|--|---|-----|
| 3    | Beretta, S., & Bozzolan, S. (2004)                                   | A framework for the analysis of firm risk communication  | The International Journal of Accounting             | 357 |
| 4    | Kravet, T., & Muslu, V.<br>(2013)                                    | Textual risk disclosures and investors' risk perceptions   | Review of<br>Accounting<br>Studies                  | 335 |
| 5    | Abraham, S., & Cox, P. (2007)  | Analysing the determinants of narrative risk information in UK FTSE 100 annual reports.  | The British<br>Accounting<br>Review                 | 327 |
| 6    | Bao, Y., & Datta, A. (2014)  | Simultaneously discovering and quantifying risk types from textual risk disclosures  | Management<br>Science                               | 286 |
| 7    | Steiger, R., Scott, D.,<br>Abegg, B., Pons, M., &<br>Aall, C. (2019) | A critical review of climate change risk for ski tourism   | Current<br>Issues in<br>Tourism                     | 286 |
| 8    | Ntim, C. G., Lindop, S., & Thomas, D. A. (2013)                      | Corporate governance<br>and risk reporting in South<br>Africa: A study of corporate<br>risk disclosures in the pre-<br>and post-2007/2008 global<br>financial crisis periods | International<br>Review of<br>Financial<br>Analysis | 273 |
| 9    | Elzahar, H., & Hussainey,<br>K. (2012)                               | Determinants of narrative risk disclosures in UK interim reports   | The Journal<br>of Risk<br>Finance                   | 217 |
| 10   | Peters, G. F., & Romi, A.<br>M. (2014)                               | Does the voluntary<br>adoption of corporate<br>governance mechanisms<br>improve environmental risk<br>disclosures? Evidence from<br>greenhouse gas emission<br>accounting    | Journal of<br>Business<br>Ethics                    | 217 |

# **Key Contributors Informed from the Most Productive Authors, Journals, Institutions, and Countries**

To assess the main contributors in the field, we utilized productivity metrics. As indicated in table 4, the *International Review of Financial Analysis* emerged as the foremost journal with 14 publications. Khalid Hussainey was recognized as the most prolific author in the field, having contributed 35 articles. Correspondingly, the University of Portsmouth was identified as the most productive institution, with 37 articles. The UK was the leading country in the field, with a total of 4,259 articles.

Table 5: Most Prolific Contributors in Risk Disclosure Research

| Journals   | Articles | Authors      | Articles | Institutions                     | Articles | Country   | Articles |
|--|----------|--------------|----------|----------------------------------|----------|-----------|----------|
| INTERNATIONAL REVIEW OF FINANCIAL ANALYSIS                           | 14       | HUSSAINEY K  | 35       | UNIV<br>PORTSMOUTH               | 37       | UNITED    | 4259     |
| INTERNATIONAL JOURNAL OF<br>ACCOUNTING AND INFORMATION<br>MANAGEMENT | 5        | ELSHANDIDY T | 5        | MANSOURA<br>UNIV                 | 21       | NSA       | 2853     |
| MANAGERIAL AUDITING JOURNAL  | 13       | ALBITAR K    | 80       | <b>UNIV OTTAWA</b>               | 18       | ITALY     | 692      |
| JOURNAL OF APPLIED ACCOUNTING<br>RESEARCH                            | 12       | AL-HADI A    | 7        | CURTIN UNIV                      | 17       | AUSTRALIA | 644      |
| ACCOUNTING REVIEW  |          | NTIM C       | _        | UNIV TEKNOL<br>MARA              | 13       | CHINA     | 527      |
| INTERNATIONAL JOURNAL OF DISCLOSURE AND GOVERNANCE                   | 10       | OLIVEIRAJ    | _        | AJMAN UNIV                       | 12       | GERMANY   | 402      |
| BRITISH ACCOUNTING REVIEW  | ∞        | SHRIVES P    | 7        | CENT UNIV<br>FINANCE AND<br>ECON | 12       | PORTUGAL  | 379      |
| CORPORATE OWNERSHIP AND CONTROL                                      | ∞        | CALDERON T   | 9        | SULTAN<br>QABOOS UNIV            | 12       | MALAYSIA  | 378      |
| JOURNAL OF ACCOUNTING IN EMERGING ECONOMIES                          | ∞        | ELMARZOUKY M | 9        | UNIV AVEIRO                      | 12       | CANADA    | 369      |
| JOURNAL OF RISK AND FINANCIAL<br>MANAGEMENT                          | ∞        | GAOL         | 9        | UNIV BRISTOL                     | 12       | SINGAPORE | 314      |
|  |          | HASSAN M     | 9        |                                  |          |           |          |
|  |          | HOSSAIN M    | 9        |                                  |          |           |          |
|  |          | LAJILI K     | 9        |                                  |          |           |          |
|  |          | LINSLEY P    | 9        |                                  |          |           |          |
|  |          | NAHAR S      | 9        |                                  |          |           |          |

## **Science Mapping**

## Co-citation Analysis

While both bibliometrix's Biblioshiny and VOSviewer supported co-citation analysis, VOSviewer currently offers a more intuitive interface compared to Biblioshiny. Additionally, VOSviewer provides a more comprehensive reference record (label) (Lim et al., 2024). By conducting a co-citation analysis of 548 research articles, 50 highly influential works were identified. These articles were cited at least 36 times each by other works within the collection. Figure 3 portrays the co-cited articles, in which the fundamental knowledge underpinning risk disclosure research was identified and grouped into three distinct clusters. Following the sensemaking approach proposed by Lim & Kumar (2024), these clusters were themed as "various measurement and determinants of risk disclosure" (co-citation cluster 1, illustrated in red), "cost and consequences of risk disclosure" (co-citation cluster 2, illustrated in green), and "incentives for risk disclosure across jurisdictions" (co-citation cluster 3, illustrated in blue).

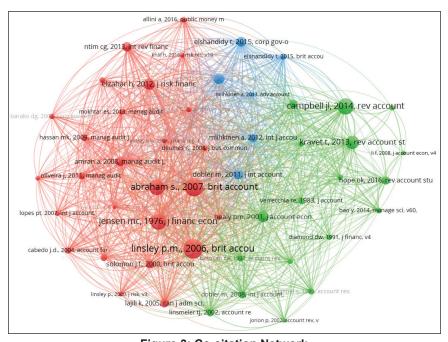


Figure 3: Co-citation Network

Articles in co-citation cluster 1 includes Abraham & Cox (2007); Beretta & Bozzolan (2004); Linsley & Shrives (2006). Cluster 2 of the cocitation analysis comprises articles such as Campbell et al. (2014; Kravet & Muslu, 2013). The third co-citation cluster includes articles such as those by Deumes & Knechel (2008); Elshandidy (2011); Elshandidy & Neri (2015); Miihkinen (2012, 2013).

## **Keyword Co-occurrence**

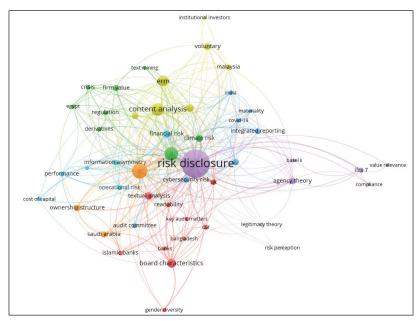


Figure 4: Keywords Co-Occurrences

Keyword co-occurrence analysis offers a comprehensive overview of the key themes within the field (Lim et al., 2024). By setting the minimum keyword occurrence threshold at five, 49 keywords met the criteria. This process identified seven primary keyword clusters. Using the sensemaking method proposed by Lim & Kumar (2024), these clusters were thematically categorized as "board characteristics and risk disclosure readability" (cluster 1), "regulation, climate risk disclosure, and firm value" (cluster 2), "cybersecurity risk and integrated reporting" (cluster 3), "institutional investors and enterprise risk management" (cluster 4), "financial instruments, risk disclosure and its value relevance" (cluster 5), "risk disclosure, firm

performance and cost of capital" (cluster 6), "ownership structure and corporate governance" (cluster 7).

**Table 6: Keyword Co-Occurrences** 

| Keywords              | Occurrences                      | Average Citations  | Average Pub. Year |  |
|-----------------------|----------------------------------|--------------------|-------------------|--|
| ,                     |                                  | urrences Cluster 1 | <b>G</b>          |  |
| Bangladesh            | 6                                | 13.83              | 2021.33           |  |
| banks                 | 7                                | 22.86              | 2018.71           |  |
| board characteristics | 28                               | 23.68              | 2020.11           |  |
| CSR                   | 8                                | 20.88              | 2020.38           |  |
| gender diversity      | 6                                | 24.17              | 2020.50           |  |
| Islamic banks         | 8                                | 18.75              | 2020.63           |  |
| key audit matters     | 6                                | 30.33              | 2021.50           |  |
| readability           | 9                                | 11.22              | 2021.22           |  |
| textual analysis      | 20                               | 32.40              | 2020.95           |  |
| UK                    | 13                               | 48.77              | 2021.00           |  |
|                       | Keyword Co-occi                  | urrences Cluster 2 |                   |  |
| climate risk          | 18                               | 45.00              | 2021.50           |  |
| crisis                | 9                                | 10.44              | 2017.11           |  |
| derivatives           | 8                                | 21.13              | 2017.88           |  |
| Egypt                 | 6                                | 19.67              | 2020.17           |  |
| firm value            | 13                               | 12.92              | 2022.00           |  |
| regulation            | 9                                | 76.78              | 2014.89           |  |
| risk factors          | 67                               | 33.36              | 2018.52           |  |
| text mining           | 6                                | 22.33              | 2022.00           |  |
|                       | Keyword Co-occurrences Cluster 3 |                    |                   |  |
| audit committee       | 9                                | 19.67              | 2019.89           |  |
| covid-19              | 7                                | 12.71              | 2023.00           |  |
| cybersecurity risk    | 11                               | 18.45              | 2021.82           |  |
| India                 | 7                                | 1.43               | 2022.00           |  |
| institutional theory  | 15                               | 12.13              | 2020.87           |  |
| integrated reporting  | 11                               | 12.55              | 2022.27           |  |
| materiality           | 5                                | 11.80              | 2023.40           |  |

| Keywords                         | Occurrences                      | Average Citations  | Average Pub. Year |  |  |
|----------------------------------|----------------------------------|--------------------|-------------------|--|--|
|                                  | Keyword Co-occurrences Cluster 4 |                    |                   |  |  |
| annual report                    | 23                               | 22.00              | 2015.83           |  |  |
| content analysis                 | 59                               | 27.90              | 2018.49           |  |  |
| ERM                              | 43                               | 34.79              | 2016.14           |  |  |
| financial reporting              | 15                               | 28.00              | 2015.07           |  |  |
| institutional investors          | 5                                | 11.40              | 2021.00           |  |  |
| Malaysia                         | 10                               | 24.10              | 2015.30           |  |  |
| voluntary                        | 17                               | 37.71              | 2017.94           |  |  |
|                                  | Keyword Co-occu                  | ırrences Cluster 5 |                   |  |  |
| agency theory                    | 17                               | 20.47              | 2019.18           |  |  |
| Basel II                         | 5                                | 26.20              | 2015.80           |  |  |
| compliance                       | 5                                | 8.00               | 2018.40           |  |  |
| IFRS 7                           | 10                               | 11.50              | 2018.70           |  |  |
| risk disclosure                  | 309                              | 24.37              | 2018.94           |  |  |
| value relevance                  | 5                                | 26.00              | 2017.40           |  |  |
| Keyword Co-occurrences Cluster 6 |                                  |                    |                   |  |  |
| cost of capital                  | 7                                | 20.71              | 2016.29           |  |  |
| financial risk                   | 19                               | 12.79              | 2019.63           |  |  |
| information asymmetry            | 12                               | 12.33              | 2020.83           |  |  |
| market liquidity                 | 6                                | 17.50              | 2020.17           |  |  |
| operational risk                 | 10                               | 12.30              | 2018.10           |  |  |
| performance                      | 8                                | 10.88              | 2021.63           |  |  |
| Keyword Co-occurrences Cluster 7 |                                  |                    |                   |  |  |
| corporate governance             | 90                               | 33.69              | 2018.53           |  |  |
| ownership structure              | 15                               | 36.80              | 2018.07           |  |  |
| Saudi Arabia                     | 14                               | 13.86              | 2020.36           |  |  |

## **Next Agenda**

Formulating a next research agenda was a crucial outcome of bibliometric analysis. Utilizing trend analysis was recommended, as it not only pinpoints major themes and topics, as demonstrated through science mapping, but also traced their evolution and progression. This can be effectively accomplished using a tool like bibliometrix (Aria & Cuccurullo, 2017). When conducting the analysis, it was recommended to set the word

count to a level that avoided cluster overlap and to employ the "Leiden" clustering algorithm, as it yielded a more precise representation of well-connected communities (Lim et al., 2024).

Thematic development resulting from the bibliometrix technique is illustrated in the four quadrants map as depicted in Figure 6. This map elucidates the progression and significance of themes based on their density and centrality.

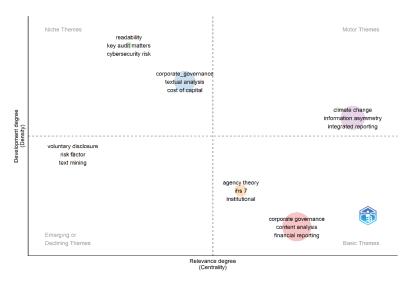


Figure 6: Bibliometrix's Thematic Development

In the lower-right quadrant, we observed two essential themes, forming the cornerstone of foundational knowledge in the field. In terms of density and centrality, the first theme signified the relation between risk disclosure and corporate governance in general, and the measurement of risk disclosure through content analysis. The second theme identified was enhanced risk disclosure related to financial instrument, explained by the Agency and Institutional theory.

In the upper-right quadrant, we recognized one motor theme, which was significant in terms of density. It was related to reduction of information asymmetry by improving climate-related disclosures through integrated reporting.

In the upper-left quadrant, two niche themes were acknowledged. The first one was about the relation between textual analysis of risk disclosure, corporate governance factors, and cost of capital. The second theme was about topics such as readability of risk disclosure, cybersecurity risk disclosure, and key audit matters.

Within the bottom-left quadrant, two emerging themes were identified. Rather than declining, these themes were anticipated to increase in centrality and density. They represent specific risk factors disclosed voluntarily, highlighting the importance of employing a text mining approach for measurement.

The thematic development analysis of risk disclosure underscored the dynamic and multifaceted nature of this field. By highlighting the interplay between corporate governance, information asymmetry, and advanced analytical methods such as text mining, this analysis provided valuable insights into the evolving landscape of risk communication. As these themes continue to grow in importance, they will pave the way for more transparent and effective risk management practices.

## **Supplementary Expert Validation**

To validate the bibliometric themes with real-world perspectives, a semi-structured interview was conducted with Mr. R, Senior Vice President of Enterprise Risk and Compliance at one of Indonesia's famous banks. Three key themes were discussed and supported.

# Theme 1: Board Characteristics and Risk Disclosure Readability

Interview Question:

In your view, how does board composition, such as diversity, independence, and audit committee roles, influence the quality or readability of your organization's risk disclosures?

#### Response:

Mr. R emphasized that "board independence and financial literacy are more critical than gender diversity when it comes

to effective risk disclosure in practice." While gender diversity is a KPI in state-owned banks, he noted that audit committee effectiveness and risk oversight capacity had stronger impacts on disclosure readability, especially when disclosures are scrutinized by both regulators and stakeholders. He added that boards with members experienced in regulatory finance and compliance tended to push for clear, reader-oriented risk narratives in annual and sustainability reports.

#### Theme 4: Institutional Investors and ERM

Interview Question:

How do institutional investors influence your risk disclosure practices or enterprise risk management strategies?

#### Response:

According to Mr. R, institutional investors are highly influential, especially those with ESG mandates. "In our latest engagement, a Singapore-based pension fund requested detailed ERM policy integration into our annual risk outlook. Their influence goes beyond ownership percentage; it shapes how we structure risk narratives to signal governance maturity." He stated that investor stewardship encouraged the bank to embed climate risk, cyber risk, and geopolitical disclosures directly within board-level ERM discussions. This was also increasingly seen in OJK's supervisory communication with banks. Additionally, another interview with Mrs A was also held.

# Theme 6: Risk Disclosure, Firm Performance, and Cost of Capital

**Interview Question:** 

In your experience, does higher quality risk disclosure correlate with improved firm performance or cost of capital advantages?

#### Response:

"Yes, but the benefit is mostly reputational unless your disclosures are rated or benchmarked externally." He cited that ESG-based risk transparency had improved international debt rating outlooks for several Indonesian banks. BRI, for example, saw a spread reduction in its sustainability-linked bond issuance after publishing its new structured climate risk framework. He cautioned, however, that the link to cost of capital was indirect, often mediated by external credibility mechanisms such as credit rating agencies, ESG scorers, or regulators.

A second practitioner interview was conducted with Ms. N, Risk Compliance Manager at WK Tbk, to explore themes not covered in the earlier interview. The discussion focused on four thematic areas.

# Theme 2: Regulation, Climate Risk Disclosure, and Firm Value Interview Question:

What is the current role of regulation in shaping climate risk disclosures in your company, and do you believe it has a measurable impact on firm value?

### Response:

Ms. N explained that although climate risk disclosure was not fully mandatory in Indonesia, there was increasing pressure from OJK and international investors to adopt CSRD-style frameworks. "We are now integrating climate risk indicators into our annual and sustainability reports, not only to comply but to future-proof our access to green financing." She shared that the firm had recently qualified for a sustainability-linked loan facility due in part to its enhanced ESG disclosures, which indirectly support valuation in investor presentations and stakeholder engagements.

## Theme 3: Cybersecurity Risk and Integrated Reporting Interview Ouestion:

How are cybersecurity risks currently addressed in your company's reporting practices, and how are they integrated into broader reporting strategies?

#### Response:

Cybersecurity risk has become a board-level issue, especially after past attempts to hack procurement data. "While we still lack a formal integrated report as per GRI or IIRC frameworks, our audit committee now requires a section on IT security vulnerabilities and risk mitigation in the operational risk section." Ms. N emphasized that while technical depth is still limited, cross-departmental coordination has improved, and disclosures are gradually becoming more standardized.

## Theme 5: Financial Instruments, Compliance, and Value Relevance

Interview Question:

Do you find that compliance with IFRS 7 or related financial risk standards improves the value relevance of your firm's disclosures?

## Response:

She shared that IFRS 7 had prompted more structured reporting on financial derivatives, especially foreign exchange exposures in overseas projects. "Before this, disclosures were vague or generic, but now our finance team works closely with the legal unit to ensure disclosures reflect actual risk positioning." She admitted that the value relevance of such disclosures may not be immediately recognized by the public, but they were appreciated by institutional analysts and investors familiar with project financing risks.

# Theme 7: Ownership Structure and Corporate Governance Interview Question:

How does your firm's ownership structure influence the tone and quality of risk disclosures in your view?

### Response:

"My company, where I worked, is partially state-owned, so there is a strong emphasis on transparency, even when disclosing unfavourable risks." Ms. N reflected that compared to fully private firms, government-linked companies faced dual pressure from regulators and political appointees. This drives detailed governance disclosures but can also lead to tension when discussing project delays or litigation risks. She concluded that the company's commitment to corporate governance was strong, but the depth of disclosure often depended on the personalities and risk appetite of the board members.

## **Expert Validation Discussion**

The thematic findings, validated through practitioner insights, offered several implications for risk management reporting practices. Organizations are increasingly expected to move beyond compliance-driven disclosures and adopt a more strategic, integrated approach to risk reporting. For example, the emphasis on board characteristics and readability highlights the need for clearer, more accessible narratives that resonate with stakeholders. Findings on climate and cybersecurity risks point to the growing inclusion of non-traditional risks in reporting structures, aligning with evolving stakeholder expectations. Additionally, institutional investor influence and ERM integration suggest that firms must align disclosure with governance maturity signals. The recognition of ownership structures and audit committee effectiveness further underscores the role of internal governance in shaping the tone, depth, and credibility of risk disclosures. Collectively, these insights support the development of more informed, stakeholder-responsive risk disclosure practices across sectors.

#### CONCLUSION

This study presented a comprehensive bibliometric and thematic analysis of risk disclosure literature by synthesizing data from both Scopus and Web of Science databases. Through performance analysis and science mapping, the research identified seven major thematic clusters that collectively define the intellectual and practical landscape of corporate risk disclosure. These clusters encompassed a wide spectrum of concerns, including board characteristics, institutional investors, compliance with international standards, cybersecurity risks, climate-related disclosures, and the relationship between ownership structure and governance practices.

To strengthen the relevance and applicability of the findings, the study integrated semi-structured interviews with two experienced Indonesian practitioners actively involved in risk governance. Their insights offered concrete, real-world validation for the thematic clusters derived from the bibliometric analysis. These interviews revealed practical considerations such as the importance of board independence and financial literacy, the influence of ESG-oriented investors on disclosure depth, the reputational benefits of narrative transparency, and the emerging role of cybersecurity and climate risk as core board-level concerns. The combined use of bibliometric analysis and practitioner interviews enabled a holistic understanding of the field. While the bibliometric analysis identified structural patterns in scholarly publications, the practitioner interviews revealed how these themes materialize within corporate and regulatory contexts. This dual-layered approach enhanced the study's robustness and bridges the often-observed gap between theory and practice.

The implications of this study are threefold. First, from a practical perspective, the findings underscore the need for corporations, particularly in emerging markets, to prioritize the strategic role of risk disclosure in enhancing investor confidence and competitive positioning. Firms are encouraged to move beyond compliance-driven reporting and adopt integrated, forward-looking disclosures that align with global best practices and investor expectations.

Second, from a theoretical standpoint, this study contributes to theorybuilding by reinforcing and extending the application of agency theory, stakeholder theory, and institutional theory in the context of risk disclosure. By empirically identifying thematic clusters and validating them with practitioner insights, the study provides a more integrated theoretical lens for understanding how internal governance structures, regulatory pressures, and market expectations interact to shape disclosure behavior.

Third, from a policy and regulatory perspective, the results offer actionable insights for regulators such as OJK, Bursa Efek Indonesia, and regional standard setters. The findings suggest that policy frameworks could benefit from including structured guidance on disclosing climate and cybersecurity risks within integrated reporting formats. Additionally, the study encourages regulators to incorporate readability metrics, ERM integration standards, and ownership structure factors into disclosure mandates to improve comparability and investor relevance.

In conclusion, this study not only mapped the current intellectual structure of risk disclosure research but also emphasized its practical resonance, theoretical contribution, and strategic importance for policy development. The integration of expert perspectives further enriched the bibliometric findings, offering a more grounded and context-sensitive view of how risk information is communicated in corporate settings. As risk landscapes continue to evolve, future research must respond to new regulatory developments, stakeholder demands, and technological challenges, ensuring that risk disclosure remains a relevant, transparent, and value-adding element of corporate reporting.

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