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A Structured Literature Review of Empirical Research on Risk Disclosure in Non-Financial Firms

Journal:	*Meditari Accountancy Research*
Manuscript ID	MEDAR-03-2025-2963
Manuscript Type:	Research Paper
Keywords:	risk disclosure, risk information, risk reporting, structured literature review

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Abstract

Purpose - This paper aims to review and critique the empirical research on risk disclosure (RD) in non-financial firms, develop insights into the state of this research field, and identify a future research agenda.

Design/methodology/approach - The structured literature review (SLR) method is adopted to analyze 167 empirical articles published from 2000 to 2024 in journals available in Scopus and Web of Science. Timeframe, location, research method, question, and outcome are the criteria for classifying the selected studies.

Findings - Empirical research has extensively examined RD features, determinants, and economic consequences. However, the research methods are relatively homogeneous, relying mainly on quantitative analysis. Additionally, most studies focus on general RD information, with limited exploration of specific RD types. Furthermore, existing studies primarily concentrate on risk information disclosed in corporate annual reports, with little attention given to whether firms use other channels for RD. Future research could systematically explore specific types of RD and further investigate the practices and characteristics of alternative disclosure channels, thereby gaining a more comprehensive and in-depth understanding of RD practices and their implications.

Originality/value - Recent literature reviews have examined specific RD factors, focused on RD in the banking sector and particular regions, or defined a narrow scope. With its worldwide reach of overall corporate RD research in the non-financial sector, this SLR complements and adds to prior reviews. Through a comprehensive and rigorous analysis, this study synthesizes key themes and outcomes in the field, identifies research gaps, and reveals potential directions for future research.

Keywords: Risk disclosure, Risk information, Risk reporting, Structured literature review

Paper type Literature review

1. Introduction

Risk Disclosure (RD) is essential for companies to communicate their potential risk information and coping strategies to stakeholders. Indeed, RD is key to improving corporate transparency, reducing information asymmetry, enhancing investor confidence, and promoting market stability (Campbell et al., 2014). To standardize and guide the practice of RD, many countries have issued regulations and gradually improved the framework and requirements of RD. The United States (US) introduced corporate RD through the Securities Act of 1933 and the Securities Exchange Act of 1934, mandating publicly listed companies to report material information relevant to investors' decisions, including risk factors. The European Union (EU) first required companies to disclose business-related risk information in their annual financial reports through the Fourth Company Law Directive (78/660/EEC) in 1978. Meanwhile, in the 1980s, the US introduced the Management's Discussion and Analysis (MD&A) section, requiring companies to describe significant risks that may affect future operations, further refining RD requirements in annual reports. At the beginning of the 21st century, corporate RD entered a new reinforcement phase. The 2002 Sarbanes-Oxley Act in the US strengthened RD related to financial reporting, requiring company management to assess and disclose the effectiveness of internal controls. During the same period, other countries also began establishing RD frameworks. Through the 2000 SEBI Guidelines, India required listed companies to disclose significant risk factors in their annual reports for the first time. South Africa explicitly required companies to disclose governance and risk management information through the 2002 King Report II. China's 2005 revision of the Securities Law also gradually improved RD requirements. With the growing global emphasis on sustainable development, the scope of corporate RD has further expanded, with environmental, social, and governance (ESG) risks becoming a key focus. The Securities and Exchange Commission (SEC) in the US issued the 2010 Climate Change Disclosure Guidance, incorporating climate risks into disclosure requirements for the first time. The EU adopted the 2014 Non-Financial Reporting Directive (NFRD), expanding disclosure requirements for large firms to cover environmental protection, social responsibility, and governance risks. Subsequently, other countries have actively promoted the transparency and standardization of ESG RD through regulatory updates and guidelines. Australia strengthened

climate-related RD in the 2019 Australian Securities Exchange rule updates. Through its 2021 revision of the Measures for the Administration of Information Disclosure by Listed Companies, China refined ESG RD requirements, particularly concerning environmental and social responsibility risks. The same year, Canada issued the Climate Change-Related Disclosure Guidelines, while Jordan advanced ESG disclosure transparency with the Amman Stock Exchange Sustainability Disclosure Guidelines. Overall, corporate RD regulations across countries have transitioned from focusing on financial risks to encompassing comprehensive disclosures, including ESG-related risks.

As the attention of regulators, accounting standard setters, and practitioners on RD continues to grow, the number of empirical studies in the related field is rising. A few literature reviews have been published in the last decade to synthesize RD research, almost all focusing on specific RD factors, regions, or sectors of activity. Khlif and Hussainey (2016) reviewed only studies on the impact of firm characteristics on RD, Elshandidy et al. (2018) focused solely on the archival empirical evidence regarding the motivations for and/or informativeness of risk reporting, while Khandelwal et al. (2019) only consider financial risk reporting practices. Wong et al. (2020) developed a comparison between research on RD determinants in developed and emerging countries, while Mbithi et al. (2022) and Mies (2024) reviewed only studies on RD quality and bank's RD, respectively. We complement Mies (2024) by focusing on the RD of non-financial firms. The most comprehensive review of RD to date is by Ibrahim et al. (2022); however, its limited article selection, which concentrates on journals listed in the Academic Journal Guide and stops in 2019, may restrict a complete representation of RD research. We address that gap by analyzing RD research published globally between 2000 and 2024 in Scopus- and Web of Science-indexed journals within the accounting, business, and management fields, thus expanding prior reviews in both geographic and temporal scope.

Compared to previous review articles, this study makes three further contributions. First, this study considers that, due to its unique characteristics, the financial industry is subject to risk regulation requirements different from those of general industries. To enhance the specificity of the research findings, this study focuses on literature related to the non-financial sector. Second, previous review studies have incorporated a limited number of papers due to

their selection criteria based on topics, research methods, regions, or journal rankings, which may compromise the comprehensiveness of the research. This study includes a broader range of relevant literature with 167 empirical papers that provide all kinds of empirical evidence on corporate RD, offering a comprehensive overview of research developments in this field. Third, while prior reviews were mainly systematic or bibliometric, we adopted a structured literature review (SLR) approach to systematically examine the extant research on RD. This approach follows formal processes to ensure rigor and provide a granular and structured integration and presentation of existing research questions and outcomes, thus offering more explicit guidance for future academic research as well as bringing practical implications (Leventis et al., 2024; Massaro et al., 2016).

The subsequent sections of this research are organized as follows. Section 2 explains the methodology, while Section 3 presents the findings from the SLR covering 167 studies. Section 4 describes the literature gaps and provides new directions for future research, and Section 5 presents the conclusions.

2. Structured literature review methodology

Structured literature review (SLR) is a systematic, transparent, and reproducible approach to literature reviews that first originated in the field of medicine (Tranfield et al., 2003) and has been widely used in accounting (Dumay et al., 2016; D'Arcy and Tarca, 2018; Awuah et al., 2024; Florio, 2024). SLR provides a comprehensive and standardized compendium and summary of research results on a specific topic by developing an explicit search strategy, strict screening criteria, and a systematic analysis process (Leventis et al., 2024). Compared with traditional literature review, SLR brings significant advantages: first, the process is standardized to provide a comprehensive and objective overview of the existing literature and ensure the robustness and reliability of the analysis; second, the execution of each step is documented through the literature review protocol, which ensures that the process is transparent, and the results are verifiable and reproducible (Massaro et al., 2016). Following the methodology of previous SLRs, we developed this study according to the following procedures: 1) Literature review protocol; 2) Research questions; 3) Literature search; 4) Article impact; 5) Analytical framework; 6) Reliability and validity; 7) Coding; 8) Insights;

and 9) Future research paths.

2.1. Literature review protocol

Referring to previous studies, we developed a protocol for reviewing articles based on the review questions, whose graphical representation is available in Fig. 1.

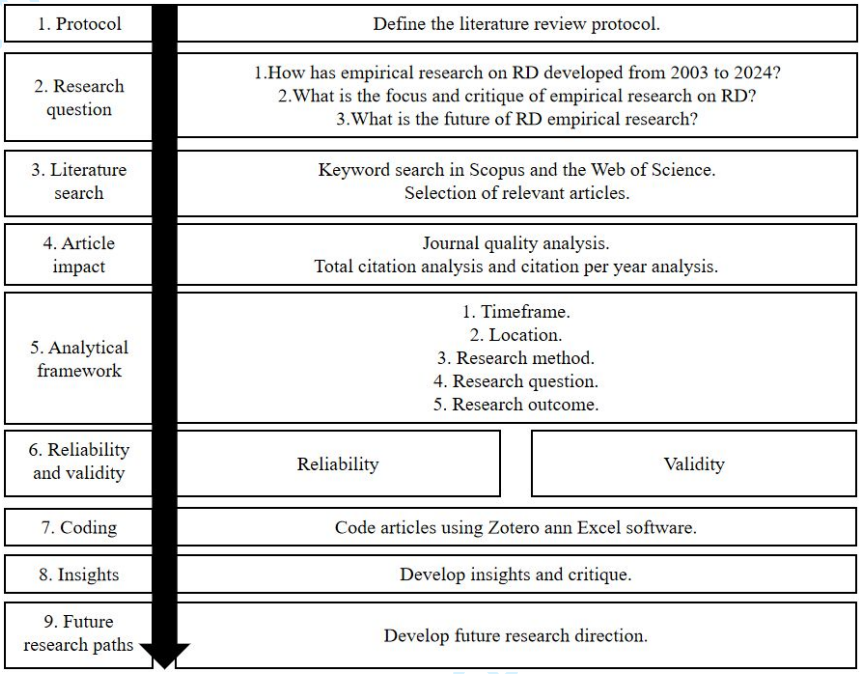

Fig. 1. The structured literature review process.

Source: Authors own work.

2.2. Research questions

According to Massaro et al. (2016, p. 774), "*[r]esearchers use SLR to map and assess existing knowledge domains to identify future research needs*." Therefore, SLR should be guided by three research questions. The first question aims to provide context to the existing articles and show how previous research contributions have led to the current state of research in a particular area. The second question aims to critically analyze the research development in this area. The second question critically examines the development of research in this area. The third question should point out opportunities and directions for future research.

By adjusting the three research questions identified by Massaro et al. (2016) to the specific topic of this SLR, the following research questions were identified:

1. How has empirical research on RD developed from 2000 to 2024?
2. What is the focus and critique of empirical research on RD?
3. What is the future of RD empirical research?

2.3. Literature search

This review implemented the steps for the literature search (see Table 1) and introduced additional restrictions during the screening process (see Table 2). Considering their wide use and broad coverage, we analyzed the Scopus and Web of Science academic databases. The literature from 2000 to 2024 was searched in November 2024 in these databases with the keywords "risk discl*" OR "risk info*" OR "risk report*" OR "risk factor* discl*" OR "risk factor* info*" OR "risk factor* report*" in the title, abstract and/or keywords in the accounting, business, and management fields. We chose this timeframe based on the combined effects of major corporate bankruptcies at the beginning of the 21st century and the 2008 financial crisis, significantly increasing the importance of and attention to corporate RD research (Mbithi et al., 2022). This initial search returned 1212 articles: 907 from Scopus and 305 from the Web of Science. After deleting 187 articles that were duplicated, 1025 remained and were subjected to a preliminary screening to exclude studies that were not classified as articles (20), were not accessible in full text (25), or had only the title and abstract written in English (3). Subsequently, the abstracts of the remaining 977 papers were read carefully to verify that their content met the purpose of the literature review. This process excluded 696 studies, including 1 commentary; 5 literature, regulation, and historical reviews; 13 conceptual and modeling studies; and 677 articles that were outside the scope despite mentioning one or more keywords in the searched fields. We further excluded articles where the research subject was the financial sector, provided that there are significant differences between the financial and non-financial industries in terms of the content, scope, frequency, and regulatory requirements of RD, and most studies in accounting also tend to explore these two types of industries separately (Ibrahim et al., 2022). Finally, 167 articles from 2003 to 2024 were identified for inclusion in this SLR.

Table 1. Literature search process.

Queries and selection procedure	No. of articles
Query in Scopus: TITLE-ABS-KEY("risk discl*") OR TITLE-ABS-KEY ("risk info*") OR TITLE-ABS-KEY ("risk report*") OR TITLE-ABS-KEY("risk factor* discl*") OR TITLE-ABS-KEY ("risk factor* report*") OR TITLE-ABS-KEY ("risk factor* info*") AND PUBYEAR > 1999 AND PUBYEAR < 2025 AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (SUBJAREA, "BUSI")) AND (LIMIT-TO (LANGUAGE, "English"))	907
Query in Web of Science: TS= ("risk discl*" OR "risk infor*" OR "risk report*" OR "risk factor* discl*" OR "risk factor* report*" OR "risk factor* info*") AND LA=(English) AND WC= ("Business" OR "Management") AND DT= ("Article" OR "Early Access") Publication date: 2000-01-01 to 2024-11-24	305
No. of articles after merging the queries' output	***1212***
Less: Duplicated articles	-187
No. of articles after the initial search	***1025***
Less: Studies that are not classified as articles	-20
Less: Articles not accessible in full text	-25
Less: Articles not written in the English language	-3
No. of articles after preliminary screening	***977***
Less: Commentary	-1
Less: Literature, regulation, and historical reviews	-5
Less: Conceptual and modeling studies	-13
Less: Articles out of scope despite mentioning "risk discl*" OR "risk info*" OR "risk report*" "risk factor* discl*" "risk factor* report*" OR "risk factor* info*" in the searched fields	-677
Less: Articles on financial firms as a sample	-114
No. of articles reviewed in this study	***167***

Source: Authors own work.

Table 2. Article inclusion and exclusion criteria.

Criterion	Decision
Predefined keywords exist as a whole or at least as part of the title, keywords, or abstract section of the paper	Included
Written in the English language	Included
Full text available in a digital database	Included
Type of articles: articles	Included
Duplicates within the searched documents	Excluded
Articles on research topics unrelated to corporate risk disclosure	Excluded
Conceptual and modeling articles	Excluded
Articles about financial industry companies as a sample of research	Excluded

Source: Authors own work.

2.4. Article impact

2.4.1 Articles' research impact (journal quality)

Table 3 shows that 167 studies were published in 103 journals, with rankings ranging

from the highest rank of the Academic Journal Guide (AJG) issued by the Chartered Association of Business Schools in 2024 to unranked. Specifically, 13 of the 167 studies (8%) were published in rank 4 and rank 4* journals, 31 studies (19%) were published in rank 3 journals, 72 studies (43%) were published in rank 2 journals, 24 studies (14%) were published in rank 1 journals, and 27 studies (16%) were published in unranked journals. These figures imply that 26% of the reviewed studies (44) are from the top-ranked journals (4*, 4, and 3). At the journal level, the *Managerial Auditing Journal* had the highest number of publications with 8 studies, followed by the *Journal of Applied Accounting Research* with 7 studies and the *British Accounting Review* with 5. *Contemporary Accounting Research* and the *International Journal of Disclosure and Governance* each contributed 4 studies. Collectively, these five journals accounted for 28 articles, representing 17% of the total studies.

Table 3. Research impact by journal rankings.

No.	Journal	No. of Articles	Total %	AJG 2024
1	Accounting Review	2	1.2%	4*
2	Accounting, Organizations and Society	1	0.6%	4*
3	Management Science	1	0.6%	4*
4	Review of Financial Studies	1	0.6%	4*
5	Contemporary Accounting Research	4	2.4%	4
6	Journal of Corporate Finance	1	0.6%	4
7	Review of Accounting Studies	3	1.8%	4
8	Abacus	1	0.6%	3
9	Accounting and Business Research	1	0.6%	3
10	Accounting Horizons	1	0.6%	3
11	Accounting, Auditing and Accountability Journal	2	1.2%	3
12	British Accounting Review	5	3.0%	3
13	Business Strategy and the Environment	1	0.6%	3
14	Corporate Governance: An International Review	1	0.6%	3
15	Financial Management	1	0.6%	3
16	International Journal of Accounting	3	1.8%	3
17	International Journal of Finance and Economics	2	1.2%	3
18	International Journal of Production Economics	1	0.6%	3
19	International Review of Financial Analysis	2	1.2%	3
20	Journal of Accounting and Public Policy	2	1.2%	3
21	Journal of Accounting, Auditing and Finance	2	1.2%	3
22	Journal of Business Ethics	1	0.6%	3
23	Journal of Business Research	3	1.8%	3
24	Journal of International Accounting, Auditing and Taxation	1	0.6%	3
25	Review of Quantitative Finance and Accounting	1	0.6%	3
26	Accounting and Finance	1	0.6%	2
27	Accounting in Europe	1	0.6%	2
28	Accounting Research Journal	2	1.2%	2
29	Advances in Accounting	3	1.8%	2
30	Advances in Accounting Behavioral Research	1	0.6%	2
31	Asian Review of Accounting	2	1.2%	2
32	Asia-Pacific Journal of Accounting and Economics	2	1.2%	2

33	Australian Accounting Review	1	0.6%	2
34	Canadian Journal of Administrative Sciences	1	0.6%	2
35	China Journal of Accounting Research	1	0.6%	2
36	Corporate Governance (Bingley)	3	1.8%	2
37	Emerging Markets Finance and Trade	1	0.6%	2
38	EuroMed Journal of Business	1	0.6%	2
39	European Business Review	1	0.6%	2
40	Finance Research Letters	2	1.2%	2
41	International Journal of Accounting and Information Management	3	1.8%	2
42	International Journal of Accounting Information Systems	3	1.8%	2
43	International Journal of Accounting, Auditing and Performance Evaluation	1	0.6%	2
44	International Journal of Auditing	1	0.6%	2
45	International Journal of Disclosure and Governance	4	2.4%	2
46	International Journal of Managerial and Financial Accounting	2	1.2%	2
47	International Journal of Managerial Finance	1	0.6%	2
48	Journal of Accounting in Emerging Economies	2	1.2%	2
49	Journal of Applied Accounting Research	7	4.2%	2
50	Journal of Competitiveness	1	0.6%	2
51	Journal of Contemporary Accounting and Economics	1	0.6%	2
52	Journal of International Accounting Research	2	1.2%	2
53	Journal of International Financial Management and Accounting	1	0.6%	2
54	Journal of Organizational Change Management	1	0.6%	2
55	Journal of Risk	1	0.6%	2
56	Managerial and Decision Economics	1	0.6%	2
57	Managerial Auditing Journal	8	4.8%	2
58	North American Journal of Economics and Finance	1	0.6%	2
59	Public Money and Management	1	0.6%	2
60	Quarterly Review of Economics and Finance	1	0.6%	2
61	Research in International Business and Finance	2	1.2%	2
62	Review of Accounting and Finance	1	0.6%	2
63	Review of Social Economy	1	0.6%	2
64	Tourism Management Perspectives	1	0.6%	2
65	Global Journal of Flexible Systems Management	1	0.6%	2
66	Competitiveness Review	2	1.2%	1
67	Corporate Social Responsibility and Environmental Management	2	1.2%	1
68	Economies	1	0.6%	1
69	Global Business and Economics Review	1	0.6%	1
70	International Journal of Management Practice	1	0.6%	1
71	International Journal of Productivity and Performance Management	2	1.2%	1
72	Investment Management and Financial Innovations	1	0.6%	1
73	Journal of Emerging Technologies in Accounting	2	1.2%	1
74	Journal of Financial Regulation and Compliance	1	0.6%	1
75	Journal of Financial Reporting and Accounting	2	1.2%	1
76	Journal of Strategy and Management	1	0.6%	1
77	Journal of the Knowledge Economy	1	0.6%	1
78	Management and Labour Studies	1	0.6%	1
79	Meditari Accountancy Research	3	1.8%	1
80	Social Responsibility Journal	1	0.6%	1
81	World Review of Entrepreneurship, Management and Sustainable Development	1	0.6%	1
82	Gender in Management: An International Journal	1	0.6%	1
83	Accounting	1	0.6%	unranked
84	Administrative Sciences	1	0.6%	unranked
85	Asian Journal of Business and Accounting	1	0.6%	unranked
86	Borsa Istanbul Review	1	0.6%	unranked
87	Business: Theory and Practice	2	1.2%	unranked
88	Contaduria y Administracion	3	1.8%	unranked
89	Corporate Board: Role, Duties and Composition	1	0.6%	unranked
90	Corporate Communications	1	0.6%	unranked

91	Corporate Governance and Organizational Behavior Review	1	0.6%	unranked
92	Corporate Ownership and Control	1	0.6%	unranked
93	Estudios Gerenciales	1	0.6%	unranked
94	Indonesian Journal of Sustainability Accounting and Management	1	0.6%	unranked
95	International Journal of Commerce and Management	1	0.6%	unranked
96	International Journal of Financial Research	1	0.6%	unranked
97	International Journal of Law and Management	1	0.6%	unranked
98	International Journal of Risk Assessment and Management	1	0.6%	unranked
99	Journal of Corporate Accounting and Finance	1	0.6%	unranked
100	Journal of Risk and Financial Management	3	1.8%	unranked
101	Nankai Business Review International	1	0.6%	unranked
102	Polish Journal of Management Studies	1	0.6%	unranked
103	Risks	2	1.2%	unranked

Source: Authors own work.

2.4.2. Articles' research impact (citations)

To assess the interest and impact of research on RD, we analyzed the cumulative number of citations (CI) and the average number of citations per year (CPY) since the publication of each paper. Based on Florio (2024), this study used Publish or Perish 8 to query for citations of works via Google Scholar. By March 2025, the overall number of citations for the selected articles was 17,802, with 21% of these citations coming from 13 articles published in journals ranked AJG 4* and 4. Overall, the 167 articles included in this SLR received 2,112 citations per year (CPY). Regarding journal performance, the five articles published in the *British Accounting Review* (AJG 3) received the highest number of CPY, followed by the three articles in the *Review of Accounting Studies* (AJG 4).

Table 4 reports the top 10 articles of the 167 studies ranked by CI and CPY. The lists include the same 9 articles, while Lajili and Zéghal (2005) appear in the top 10 papers for CI only, and Brown et al. (2018) appear in the top 10 list for CPY only. It is worth noting that, as climate issues are gradually gaining global attention, Ilhan et al. (2023) study on climate RD received many citations right after its publication due to introducing a new perspective on the segmentation of risk information. Overall, such data confirms that empirical research on RD has maintained a high academic relevance and has shown a deepening trend.

Table 4. Top-10 articles by citation metrics.

Total citations		Title	Authors	Year	Source	Citations per year	
Rank	No.					Rank	No.
1th	1262	Risk reporting: A study of risk disclosures in the annual reports of UK companies	Linsley and Shrives	2006	British Accounting Review	3th	66.84
2th	1090	A framework for the analysis of firm risk communication	Beretta and Bozzolan	2004	International Journal of Accounting	6th	51.9
3th	1036	The information content of mandatory risk factor disclosures in corporate filing	Campbell et al.	2014	Review of Accounting Studies	2th	94.18
4th	927	Analysing the determinants of narrative risk information in UK FTSE 100 annual reports	Abraham and Cox	2007	British Accounting Review	7th	51.5
5th	740	Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports	Amran et al.	2009	Managerial Auditing Journal	10th	43.53
6th	710	Textual risk disclosures and investors' risk perceptions	Kravet and Muslu	2013	Review of Accounting Studies	5th	59.17
7th	566	A content analysis of risk management disclosures in Canadian annual reports	Lajili and Zéghal	2005	Canadian Journal of Administrative Sciences	-	28.3
8th	565	Corporate governance and risk reporting in South Africa: A study of corporate risk disclosures in the pre- and post-2007/2008 global financial crisis periods	Ntim et al.	2013	International Review of Financial Analysis	9th	47.08
9th	547	Simultaneously discovering and quantifying risk types from textual risk disclosures	Bao and Datta	2014	Management Science	8th	49.73
10th	543	The benefits of specific risk-factor disclosures	Hope et al.	2017	Review of Accounting Studies	4th	60.33
-	459	Climate Risk Disclosure and Institutional Investors	Ilhan et al.	2023	Review of Financial Studies	1th	229.5

Source: Authors own work.

2.5. Analytical framework

This section defines the analytical framework. In line with Massaro et al. (2016), five main criteria were identified to understand the general and key characteristics of the empirical studies selected. Table 5 presents the five criteria, their respective attributes, and a summary of the results.

Table 5. Analytical framework and results from the analysis.

Criteria	No. of articles	Criteria	No. of articles
Timeframe		**Research question**	
2003 to 2011	15	*RD features*	*17*
2012 to 2019	60	Content of disclosure	8
2020 to 2024	92	Quality of disclosure	3
Total	167	Quantity of Disclosure	6

		Determinants of RD	*96*
Location		Corporate characteristics	17
Location by geography		Corporate governance	45
Africa	10	Industry environment	7
Asia-Pacific	37	RD regulation and legal environment	14
Europe	49	Corporate risk exposure	13
Middle East	13	*Economic consequences of RD*	*44*
The Americas	37	Audit fee	2
Multiple countries	21	Capital cost, trade credit, and credit default swap pricing	8
Total	167		
Location by economic development		Capital market reactions	21
Developed countries	92	Corporate reputation and value	10
Developing countries	54	Operational management	3
Multiple countries	21	*Multiple questions*	*10*
Total	167	Total	167
Research method		**Research outcome**	
Experimental	3	*Positive*	*106*
Mixed	3	RD features	1
Qualitative	10	Determinants of RD	75
Quantitative	151	Economic consequences of RD	30
Total	167	*Negative*	*37*
		RD features	12
		Determinants of RD	14
		Economic consequences of RD	11
		Neutral	*6*
		RD features	4
		Economic consequences of RD	2
		Mixed	*18*
		Total	167

Source: Authors own work.

The first criterion is the timeframe, which analyzes the time distribution of articles published over time to reveal the historical evolution of research in the field and the changing trend of hotspots of interest. Since no articles from 2000 to 2002 met the criteria set for this study, the analysis focuses on articles from 2003 onwards. The first period goes from 2003 to 2011, characterized by the growing interest in RD after the high-profile company failures of the early 21st century and the 2008 financial crisis (Elshandidy et al., 2018; Khandelwal et al., 2019). The second period, from 2012 to 2019, is driven by regulatory reforms in the post-financial crisis era and the gradual standardization of RD (Matuszak and Różańska, 2021;

Mbithi et al., 2022). The third period goes from 2020 to November 2024, with further expansion and deepening of RD regulation in many countries. Meanwhile, the outbreak of the COVID-19 pandemic led to a surge of increasing uncertainty in the external environment.

The second criterion is location, which focuses on the regions the research sample covers to reflect how corporate RD research has developed in different legal, cultural, and market environments. Specifically, RD articles are first divided geographically into five regions: Africa, the Americas, Asia-Pacific, Europe, and the Middle East. Second, the research sample is divided into developed and developing countries based on the *World Economic Outlook* (International Monetary Fund, 2024). This classification allows exploring how RD research has attracted the attention of scholars in different economic contexts. The attribute "Multiple countries" accounts for studies focusing on international samples.

The third criterion is the research method, which helps summarize the analytical techniques and data sources used in the articles, revealing the diversity of the research design employed to study RD. Referring to Zattoni et al. (2020) and Florio (2024), the papers were categorized into five types: 1) quantitative studies, 2) qualitative studies, 3) mixed-methods studies combining quantitative and qualitative methods, and 4) experimental studies.

The fourth criterion is the research question, which focuses on the specific topics explored in the article to identify the core research themes in the field. In the analysis, the research questions are categorized into three main attributes: RD features, determinants of RD, and economic consequences of RD. Each attribute is subdivided into several specific sub-attributes for a detailed and insightful analysis.

The final criterion considers the research outcome. This allows for integrating assessments of each research question related to RD, whether positive, negative, or neutral. These include assessments of RD features, the impact of various influencing factors on RD, and the economic consequences of RD.

2.6. Coding and reliability and coding

We coded the selected articles according to the analytical framework, with the categorization and analysis results being recorded in an Excel spreadsheet to ensure standardization of data processing and traceability of subsequent analysis.

We adopted a re-test reliability method to ensure the article review's reliability. First, 167 articles were initially categorized, and the same literature group was reclassified after some time. As the time interval and changes in researcher familiarity may lead to certain biases, 35 articles were involved in the reclassification, and the consistency between the two classifications before and after was almost equivalent, indicating that the classification results have a high degree of reliability. Appendix A reports the coding results for each of the 128 studies for verification and transparency.

2.7. Validity

We ensured the validity of the findings in multiple ways (Massaro et al., 2016; Tsalavoutas et al., 2020). Internal validity (i.e., the comprehensiveness and appropriateness of the analytical framework and coding) was assessed with experienced researchers discussing the initial list of criteria and then testing 20 articles individually to refine the attributes. External validity (i.e., the comprehensiveness of the sources selected) was initially established by launching the queries in two databases (Scopus and Web of Science) and then comparing the chosen articles with those of prior literature reviews on RD. Since our sample articles equal or exceed those included in other literature reviews in the same timeframe, reasonable assurance is provided that our findings are generalizable. Finally, construct validity (i.e., the quality of the studies reviewed) was ensured by the databases queried, the fact that 80% of the journals considered appear in the AJG and the consistent number of individual and cumulative citations and CPY.

3. Insight and critique

This section discusses the RD literature and answers the first two research questions, "How has empirical research on RD developed from 2000 to 2024?" and "What is the focus and critique of empirical research on RD?" The key features of existing empirical literature are discussed based on the five criteria described in the analytical framework. This classification helps identify trends and issues in how researchers define and measure RD studies. We also provide figures and tables to summarize the overall status of empirical research on RD visually. Appendix A reports the details on the categorization of each article.

3.1. Timeframe

Analyzing the publication date helps us understand the evolution of interest in the research topic. Fig. 2 represents the number of RD studies by year. From 2003 to 2024, the global literature on RD in non-financial corporations shows a significant growth trend, especially after 2020, when it enters a rapid development phase. 2003-2011 is the budding stage, totaling only 15 articles, reflecting that research in this area was still in its infancy. 2012-2019 sees a significant increase in the number of articles, totaling 60, with a significantly higher average annual growth rate, mainly driven by the increased attention to enterprise risk management and information transparency after the 2008 financial crisis, the implementation of the International Financial Reporting Standards (IFRS), and the ESG framework promotion. 2020-2024 enters a rapid growth phase, totaling 92 articles and a significant climb in annual publications. Growth in this period is driven by increased exposure to risk from the pandemic, the importance of business resilience, and national sustainable development policies (Ben-Amar et al., 2023).

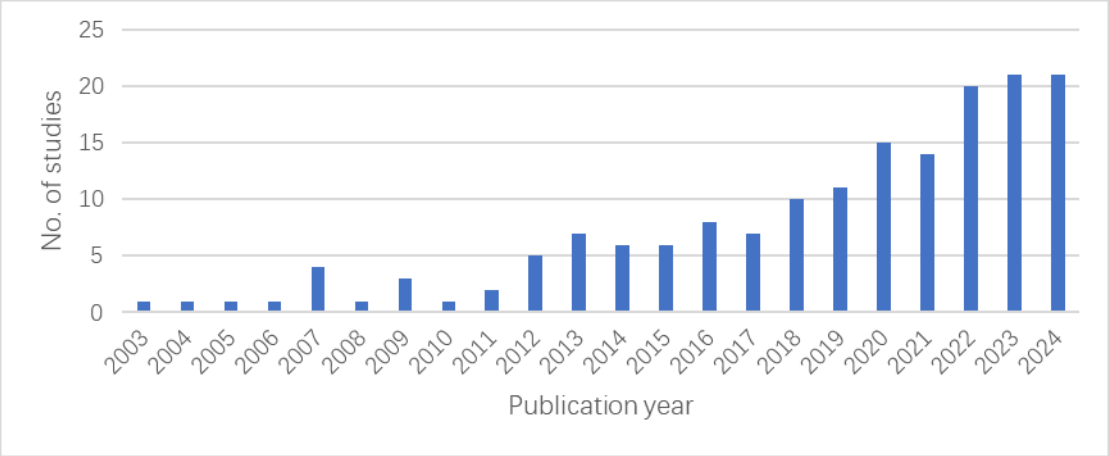

Fig. 2. Literature development over time.

Source: Authors own work.

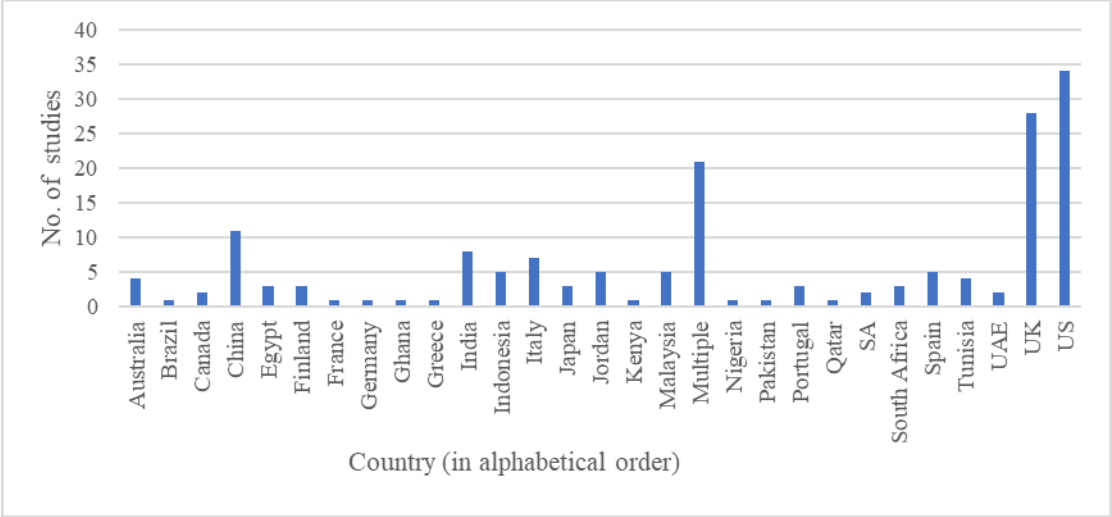

Fig. 3. Articles distribution by country.

Source: Authors own work.

3.2. Location

3.2.1. Location by geography

The location criterion helps understand the interest of RDs in different geographic regions and implicitly highlights understudied areas. At the country level, the RD literature has covered 28 countries. Table 4 reports the results for each attribute of location, Fig. 3 adds the distribution of studies by country, and Table 6 adds the distribution of studies by country, region, and timeframe.

As regards the geographical distribution of the RD literature, Europe ranks first in terms of the number of articles (49/167), followed by the Americas (37) and Asia-Pacific (37), showing the significant leadership of these three regions in RD research. The remaining areas, such as the Middle East (13/167) and Africa (10/167), are less represented. In addition, the number of cross-national studies reached 21 (13%) thanks to the increased trend of globalization of research in recent years. This suggests that recent research developments have overcome the concerns raised by the earlier literature review (Ibrahim et al., 2022) about the lack of research on cross-country RD.

The regional distribution reflects that Europe, the Americas, and Asia have dedicated more attention to RD research, while other regions count relatively fewer studies. The European preeminence can be fully understood since Europe has a more mature policy on corporate RD, especially after 2014 when the EU adopted the NFRD, requiring large

companies to disclose ESG information. The implementation of this policy has effectively contributed to the growth of research in this area. The UK is undoubtedly the primary driver of RD research, with 28 publications (57% of the total articles in the region) and a significant contribution of 20 articles in the 2020-2024 period, showing the high level of interest in corporate RD among its academics. Italy counts 7 articles, Spain has 5 articles, and Portugal and Finland have 3 articles each. Other countries, such as France, Germany, and Greece, record only 1 article each. RD research in Asia-Pacific has mainly focused on China, with 11 articles (30% of the regional total), 10 concentrated in 2020-2024. This is followed by India (8 articles), Indonesia (5 articles), Malaysia (5 articles), and Australia (4 articles). Japan and Pakistan are less involved with 3 and 1 articles, respectively. Finally, RD research in the Americas is almost exclusively contributed by the US, with 34 articles (92% of the regional total), and it shows productive academic activity, especially in 2020-2024, when it reaches 21 articles. This is closely related to the long-term focus on corporate information transparency and regulation in the US. In contrast, Canada and Brazil have contributed less research, with only 2 and 1 articles, respectively, suggesting that there is more room for the Americas region to increase its research engagement outside the US.

The African region has a more decentralized distribution of studies and limited participation in the field. Tunisia leads the way with 4 articles accounting for 40% of the regional total, followed by South Africa (3 articles), Kenya, Ghana, and Nigeria (1 article each). Similarly, RD research in the Middle East is fragmented and limited. It is mainly contributed by Jordan (5 articles), which accounts for 38% of the regional total, with most of them focusing on 2012-2019 and 2020-2024. Egypt (3 articles), Saudi Arabia (2), and the United Arab Emirates (2) follow. Finally, Qatar closes the list with 1 article.

Table 6. Distribution of articles by Location and Timeframe.

Location	Timefame			Total	%
	2003-2011	2012-2019	2020-2024		
Ghana	0	1	0	1	10%
Kenya	0	1	0	1	10%
Nigeria	0	0	1	1	10%
South Africa	0	1	2	3	30%
Tunisia	0	1	3	4	40%

Africa	**0**	**4**	**6**	**10**	**100%**
Brazil	0	1	0	1	3%
Canada	1	1	0	2	5%
US	1	12	21	34	92%
The Americas	**2**	**14**	**21**	**37**	**100%**
Australia	2	1	1	4	11%
China	0	1	10	11	30%
India	0	2	6	8	22%
Indonesia	0	1	4	5	14%
Japan	1	2	0	3	8%
Malaysia	2	3	0	5	14%
Pakistan	0	0	1	1	3%
Asia-Pacific	**5**	**10**	**22**	**37**	**100%**
Finland	0	3	0	3	6%
France	0	0	1	1	2%
Germany	0	1	0	1	2%
Greece	0	0	1	1	2%
Italy	1	3	3	7	14%
Portugal	1	1	1	3	6%
Spain	0	4	1	5	10%
UK	4	4	20	28	57%
Europe	**6**	**16**	**27**	**49**	**100%**
Egypt	0	3	0	3	23%
Jordan	0	1	4	5	38%
Qatar	0	1	0	1	8%
SA	0	2	0	2	15%
UAE	1	1	0	2	15%
The Middle East	**1**	**8**	**4**	**13**	**100%**
Multiple	**1**	**8**	**12**	**21**	**100%**
Total	**15**	**60**	**92**	**167**	
%	9%	36%	55%	100%	

Acronym Legenda: US = United States; UK = United Kingdom; SA = South Africa; UAE = United Arab Emirates

Source: Authors own work.

3.2.2. Location by economic development

According to the World Economic Outlook 2024 categorization of countries' level of development, RD studies cover 12 developed countries (31% of all developed countries) and 16 developing countries (10% of all developing countries). Quantitatively, RD studies were conducted 92 times (55%) in these 12 developed countries and 54 times (32%) in these 16 developing countries. This shows an imbalance in RD research in both developed and

developing countries, and the research in developing countries has significant room for improvement and needs more attention and investment.

3.3. Research method

The research method criterion depicts how empirical evidence on RD is collected. Table 4 shows that quantitative research based on archival data dominated RD research from 2003 to 2024, covering 151 of the 167 studies. Other methods were occasionally used, with only 10 qualitative studies, 3 experimental studies, and 3 mixed-method studies.

Quantitative research has grown in tandem with overall RD research in recent times, and it dominates research conducted in the US, the UK, and cross-national studies. Studies using quantitative methods have extensively explored RD's features, determinants, and economic consequences. Most qualitative studies have focused on analyzing RD features through content analysis of annual reports, while others have explored the impact of specific events (e.g., Brexit and epidemics) on RD. All three relevant experiments were conducted in the US. These papers examine the effects of the framework design of RD on management's disclosure decisions and explore how the quality of RD affects investor decisions. Two studies using mixed methods first developed RD measures through qualitative approaches, then validated these measures and examined RD practices quantitatively (Beretta & Bozzolan, 2004; Ibrahim & Hussainey, 2019). In contrast, another mixed-method study first explored the impact of board-related and firm-specific factors on RD by using a quantitative methodology and then analyzing the results qualitatively (Mbithi et al., 2023).

3.4. Research question

As shown in Table 4, the RD research questions relate to RD features in 17/167 cases, RD determinants in 96 instances, and economic consequences of RD in 44 cases. A few articles (10) focus on multiple questions.

Research on RD features covers three main aspects: disclosure content (8 articles), disclosure quality (3 articles), and disclosure quantity (6 articles). The studies can be categorized into two types according to the research methodology: qualitative analysis based on the content of the annual report and quantitative research through quantifying the textual

content of the annual report into data indicators for in-depth analysis. From the time dimension, early-stage research focuses on general RD, and there is a dearth of analysis on specific risk types. In recent years, particular RDs have become a hot topic with emerging issues such as climate risk (Gao & Calderon, 2023), cyber risk (Calderon & Gao, 2022), human capital risk (Bruwer et al., 2022), merger and acquisition risk (Ott, 2020), and political risk (Hossain et al., 2024) becoming central to the research. These new directions broaden the scope of RD research and provide essential support for more refined and targeted theoretical and empirical research.

Studies on RD influencing factors (i.e., determinants) can be categorized into five main groups: corporate governance (45 articles), corporate characteristics (17 articles), RD regulation and legal environment (14 articles), the company risk exposure (13 articles), and industry environment (7 articles). These topics have remained at the research core, with recent years gradually expanding alongside sustained interest in traditional hotspots. For example, studies on corporate governance have extended from board characteristics to include management factors, and research on corporate characteristics has evolved from basic firm characteristics, such as firm size, to ESG performance and corporate strategy and culture. In terms of method, quantitative analysis dominates, providing broad applicability through a data-driven approach. In addition, a few studies have tried to adopt alternative methodologies, e.g., mixed-method research in Kenya explores the impact of board and firm characteristics on RD (Mbithi et al., 2023); an experimental study in the US focuses on the role of RD formats on managers' disclosure decisions (Yeo, 2021).

The studies on the economic consequences of RD focus on the following areas: capital market reactions (21 articles), corporate reputation and value (10 articles), capital cost, trade credit and credit default swap pricing (8 articles), operational management (3 articles), and audit fees (2 articles). Most of the studies conduct quantitative analysis based on annual report data. Only two articles in the US literature use experimental studies to explore the impact of RD on investor perceptions. Overall, capital market reaction has always been the core research theme. In recent years, scholars have gradually paid attention to the impact of RD on corporate value and capital cost.

3.5. Research outcome

In this section, we categorize the 167 studies based on the existing RD research outcomes to consider whether the assessment of each research question is positive, negative, or neutral. In the research on the content of RD, 6/17 articles assess RD content practices negatively, three articles provide neutral assessments, and none draw positive conclusions. A similar trend is observed for research on the quantity of RD: 4 articles assess the amount of RD negatively, two articles conclude with a neutral assessment, and none offer a positive evaluation of RD quantity. In research on the quality of RD, two articles assess the quality of RD negatively, while one article presents a positive conclusion. These findings highlight issues in RD practices, with research predominantly offering negative assessments. Regarding the determinants of RD, 75/96 articles indicate that certain factors facilitate RD, while 14 articles suggest that some factors may hinder RD. Concerning the economic consequences of RD, 30/44 articles conclude that RD is beneficial, while 11 articles report harmful effects. Additionally, only two studies provide neutral assessments of RD. However, some studies offer mixed evaluations where a bright line cannot be drawn; they are mentioned explicitly in the following subsections based on the classification of research questions.

3.5.1. RD features

Content of disclosure. Some studies focus on the characteristics of corporate RD. Ibrahim and Hussainey (2019) found that 94% of risk information in UK-listed companies was presented from a negative perspective, and 87% of risk-related sentences used negative keywords, suggesting that linguistic representation reinforced negative perceptions. Guthrie et al. (2020) found that Italian firms tended to spread their RD across the various sections of the integrated report rather than concentrating it in specific sections. This decentralized form of disclosure aimed to emphasize the connectivity of information. These findings suggested that RD's linguistic and structural characteristics significantly influenced its accessibility and effectiveness. However, challenges such as readability, quantifiability, uniformity, and forward-looking persisted in RD. Linsley and Lawrence (2007) found that the RD of UK-listed companies was difficult to read, reducing communication effectiveness. Similarly, RD of South African listed companies was found complex to understand, making it more difficult for readers to access the information (Toerien & Toit, 2024). Dobler et al. (2011)

analyzed the listed manufacturing companies in the US, Canada, the UK, and Germany. They found that RD by these companies was primarily focused on financial risks and lacked quantitative and forward-looking information. Lajili and Zéghal (2005) similarly noted that although the intensity of RD was high in Canadian firms, there was still a lack of uniformity and quantitative analysis. Lombardi et al. (2016) noted that the form of financial RD by Italian listed companies was highly stable, with the structure of the report and the type of information remaining unchanged over the years. In addition, studying RD in South African companies, Bruwer et al. (2022) noted that human capital-related risk reporting was fragmented and lacked foresight. However, Serrasqueiro and Mineiro (2018) found a gradual increase in the use of quantitative RD in the interim reports of Portuguese non-financial firms, reflecting the continuous improvement of disclosure practices.

Quantity of disclosure. Although listed companies in some regions and industries had improved in the amount of RD, there was still much room for improvement. The number of RD by the UK-listed companies increased progressively in their annual reports in 1998, 2001, and 2004 (Rajab & Schachler, 2009). Also, the number of US firms disclosing climate change risks rose significantly between 2005 and 2019, but the clarity and depth of disclosures did not see a synchronized improvement (Gao & Calderon, 2023). The companies in the global automotive industry tended to reduce the disclosure of negative information and showed a more conservative disclosure attitude even in high-risk environments (Vychytilova et al., 2020). The situation in developing countries was worse by comparison. Studies in Ghana, Malaysia, and Egypt showed that the number of sentences used to discuss risk information in annual reports was limited and insufficiently structured (Mokhtar & Mellett, 2013; Probohudono et al., 2013a; Amran et al., 2008; Appiagyei et al., 2016). In addition, the number of RD varied significantly according to the geographic location of operations. UK multinationals in high-risk regions were more inclined to reduce RD for this region, resulting in less transparency in these regions (Kang & Gray, 2019).

Quality of disclosure. RD is inherently narrative in nature, and therefore, the quantity of RD does not necessarily reflect its quality. Several studies investigate RD quality and find it generally low, with considerable room for improvement. Beretta and Bozzolan (2004) found that Italian-listed companies tended toward a "formal disclosure but substantial

nondisclosure" policy when reporting risk factors. This practice weakened the decision-making value of RD for external investors and other stakeholders. Similarly, Abraham and Shrives (2014) found that listed companies in the UK food industry were more inclined to provide symbolic rather than substantive disclosures. Between 2002 and 2007, RD was generally vague and showed no significant changes over time, with low relevance to actual risks. Oliveira et al. (2011) further reinforced these findings by showing that despite adopting high-quality accounting standards, the quality of RD among Portuguese-listed companies did not improve in the short term and that RD often lacked comparability and transparency. However, more recent studies suggest a gradual improvement in RD quality as firms have become increasingly aware of the importance of corporate transparency. Shivaani et al. (2020) found that the overall disclosure quality of Indian firms was low from 2005 to 2015, but the quality has shown an upward trend over time.

3.5.2. Determinants of RD

RD regulation and legal environment. Regarding the impact of mandatory RD regulation on RD, most of the literature suggested that the introduction of mandatory disclosure standards and the legal environment contributed to the level and quality of RD. In Finland, Portugal, and Spain, the mandatory implementation of RD standards significantly increased the release of elevated quantity and quality of RD (Hernández-Madrigal et al., 2012; Miihkinen, 2012). Similarly, the SEC's policy in the US push led to a gradual shift in RD from generic information in 2008 to more specific topics in 2016 (Penela & Serrasqueiro, 2019). For example, the SEC's disclosure guidelines encouraged companies to disclose cybersecurity risks regardless of risk level (Li et al., 2018; Gao et al., 2020). This facilitation was also present in developing countries, where in Malaysia, introducing a specific standard has facilitated financial instrument risk management disclosures despite significant differences in disclosure quality in terms of qualitative and quantitative aspects (Othman & Ameer, 2009). In Ghana and India, following IFRS convergence, firms' risk descriptions became broader and more evenly distributed across risk topic categories (Appiagyei et al., 2016; Firoz & Dalal, 2023). Some scholars explored the relationship between mandatory and voluntary disclosure. Cordazzo et al. (2017) found a complementary effect between mandatory and voluntary RD, particularly in Germany. Arena et al. (2023) studied global oil companies and

found that voluntary disclosure was usually positively correlated to mandatory disclosure. However, voluntary disclosure decreases when mandatory disclosure requirements reach a certain threshold. In addition, the legal environment had a positive impact on RD. The level of RD varies significantly across countries, which is mainly influenced by the institutional environment and corporate reporting incentives, with firms operating in countries with stronger legal systems and stricter accounting regulations having more comprehensive RD (Elshandidy et al., 2015; Lajili et al., 2024; Serrasqueiro & Oliveira, 2022; Ben-Amar et al., 2023; Adam-Müller & Erkens, 2020; Oliveira et al., 2018).

Corporate governance. Regarding the impact of corporate governance factors on RD, the studies showed that better corporate governance enhanced the quality and readability of RD. A cross-country study in Tunisia, the UK, and Italy showed that firms with strong governance provided more meaningful risk information and improved market liquidity than firms with weak governance (Elshandidy & Neri, 2015). Research in the US further found that adequate internal control systems were associated with higher levels of RD (Elsayed & Elshandidy, 2021). Looking specifically at board structural characteristics, several studies showed that board size, board gender diversity, board independence, and increased frequency of board meetings all improved the comprehensiveness of RD (Abraham & Cox, 2007; Al-Dubai & Alotaibi, 2023; Allini et al., 2016; Bravo, 2018; Bufarwa et al., 2020; Elgammal et al., 2018; Elsayed & Hassanein, 2024; Erin et al., 2023; Gull et al., 2023; Khandelwal et al., 2020; Mbithi et al., 2023; Mokhtar & Mellem, 2013; Moumen et al., 2016; Ntim et al., 2013; Raimo et al., 2022; Saggar et al., 2022, 2023; Salem et al., 2019; Saggar & Singh, 2017, 2019; Seebeck & Vetter, 2022). Audit and risk committees played a key role in the corporate governance system as specialized committees under the board of directors. The size and independence of audit and risk committees were positively associated with the quality of RD (Amrin, 2019; Alshirah et al., 2021; Zhang et al., 2013; Salem et al., 2019; Ayuningtyas & Harymawan, 2022; Jia & Li, 2022). In addition, board members' expertise was also a key factor. For example, a study in Jordan found that directors with specialized backgrounds significantly contributed to RD (Alshirah et al., 2020). The overseas background of the board of directors also contributed to the level of disclosure; for example, the introduction of foreign directors increased the breadth of RD in Jordan (Alshirah et al., 2019). However, the

relationship between directors' incentives and RD was inconsistent. For example, a Finnish study found that non-executive board members' holdings of company shares and options were positively associated with the level of RD. In contrast, their remuneration was negatively associated with RD (Martikainen et al., 2015).

Corporations' ownership structure also significantly influenced RD quality, with its effects varying across regions and ownership types. The impact of founder ownership concentration (FOC) on RD showed significant regional differences: while Oliveira et al. (2018) suggested that firms with concentrated shareholding structures tended to disclose more risk information in Portugal and Spain, Jain and Raithatha (2024) found that FOC reduced the RD in India. Regarding the nature of ownership, Alshirah and Alshira'h (2024) revealed the negative impact of family ownership on RD in Jordan. Institutional investors showed a more positive effect: Zhang et al. (2013) confirmed that institutional investors enhanced the quality of RD in Australia, and Ilhan et al. (2023) further found that climate-conscious institutions were positively associated with climate RD in France.

The management factor was another determinant of RD. Studies in Italy and the UK showed that despite the introduction of new mandatory disclosure requirements, management used discretion to protect its interests, and RD was still dominated by a past rather than a future perspective (Greco, 2012; Leopizzi et al., 2020; Monjed & Ibrahim, 2020; Monjed et al., 2022). Some studies explored executive characteristics, finding that the Chief Executive Officer (CEO) overconfidence generally increased RD (Hassanein et al., 2024). However, CEO role duality and tenure had a negative impact (Alshirah et al., 2020; Trisnawati et al., 2023). Similarly, management shareholding and power granting reduced risk information transparency (Salem et al., 2019; Sun & Xiao, 2024). A study in China found that entrepreneurial popularity was positively related to the level of climate RD, with media attention playing a mediation role (Li, 2024). A study in Jordan found that political affiliation of management reduced RD (Alshirah et al., 2022). In addition, management's decision-making mechanism and cognitive framework also played an important role. An experimental study from the US showed that the disclosure framework largely influenced the disclosure quality. Specifically, when risk information is presented as a gain frame, firms are more inclined to disclose detailed information. Conversely, disclosure quality decreases when

given as a loss frame (Yeo, 2021).

In addition, high-quality audits usually enhance RD transparency and detail. A study in the UK showed that key audit matters were positively associated with the level of risk, as narrated by management, suggesting that the audit process effectively promoted RD transparency (Elmarzouky et al., 2022). A study in Japan found that audit partners with short-term tenure tended to push firms to disclose more business risk information, while audit partners with more clients pushed firms to disclose more detailed risk information (Fukukawa & Kim, 2017). In addition, audit firm quality was significantly associated with the level of RD in the UK extractive industry, with high-quality audit firms driving firms to reveal their level of risk more clearly (Mcchlery & Hussainey, 2021). However, the role of audit quality was not entirely consistent across market environments. For example, in Portugal, an analysis of interim reports of non-financial firms found that RD policies were not significantly affected by auditor quality (Serrasqueiro & Mineiro, 2018).

Corporate characteristics. A stream of literature has explored firm characteristics as a determinant of the quantity and quality of RD, offering studies focused on five factors: firm size, debt pressure, corporate strategy, corporate culture, and financial performance.

Most studies found that firm size was a significant positive factor in enhancing RD. This finding has been validated in the UK (Linsley & Shrives, 2006), Japan (Konishi & Ali, 2007), Portugal (Oliveira et al., 2011), Spain (Madrigal et al., 2015), Germany (Elshandidy & Shrives, 2016), Brazil (Kouloukoui et al., 2019), the US (Gao et al., 2020), and Saudi Arabia (Alsheikh & Alsheikh, 2023).

Corporate debt pressure significantly enhanced the quality and transparency of RD, as evidenced by firms tending to provide more specific and more precise RD when they were exposed to refinancing risks or accepting private loans (Wang et al., 2023; Dai et al., 2024), while factors such as debt governance and leverage ratios further drove firms to be more proactive in fulfilling stakeholder demands of risk transparency (Taylor et al., 2010; Ali et al., 2018).

Corporate strategy also played an essential role in the direction and depth of RD. Research on UK-listed firms noted that firms with high levels of internationalization excelled in risk exposure management, which adjusted the content of RD (Vasilescu & Weir, 2023). Risk

information provided by internationally oriented firms in China resulted in more benefits compared to domestically oriented firms (Tan et al., 2017). In addition, cross-country studies in Europe showed that firms adopting innovation-oriented strategies disclose more risk information than firms with efficiency-oriented strategies (Weber & Müßig, 2022). These results suggested that strategic orientation optimized or adjusted firms' disclosure behavior.

Corporate culture was equally influential in shaping corporate disclosure behavior. A study in Nigeria and South Africa found that firms with higher power distance disclosed less risk information (Agyei-Mensah & Buertey, 2019). In the United Arab Emirates, however, a hierarchical culture that focuses on formal work procedures significantly drove RD (Wahid & Kamal, 2014).

Conclusions on the relationship between firm performance and RD were not consistent. In Brazil, corporate financial performance and country context were significantly and positively associated with climate RD (Kouloukoui et al., 2019). Cross-country European studies also showed that good corporate performance in terms of environment and governance was positively related to financial RD (Chouaibi et al., 2024). However, a study in the US found that firms' corporate social responsibility (CSR) performance substituted for RD and that companies with better CSR performance tended to disclose less political risk (Laksmana et al., 2023).

Corporate risk exposure. Several studies showed that the level of risk exposure had a significant positive impact on RD, prompting companies to improve the quantity and quality of disclosures to meet external demands. Studies in Germany and Portugal validated this trend, with higher levels of environmental risk significantly increasing the quality of firms' RD (Elshandidy & Shrives, 2016; Oliveira et al., 2011). Research from the US suggested that the greater the risk a firm faces, the greater the disclosure of its risk factors, demonstrating the practical use of risk information (Campbell et al., 2014). Another research in the US further showed that cybersecurity risks and cyberattack incidents drove the length and depth of RD (Gao et al., 2020). In the UK, voluntary RD was positively correlated with litigation risk, showing that risk pressures in the legal environment drove firms to disclose more aggressively (Hassanein & Elsayed, 2021).

In addition, some serious and significant external events, such as financial crises, public

health events, and political unrest, affected the quantity and quality of RD. The UK construction firms significantly increased RD quantity and quality during the financial crisis, suggesting that firms sought to enhance transparency through more detailed reporting (Gulko et al., 2017). Moreover, companies in Greece targeted financial, personnel, and legal RD with focused enhancements (Gonidakis et al., 2020). In contrast, RD by listed firms in Canada, Germany, Indonesia, Malaysia, Singapore, and Australia remained stable during the crisis, with no significant increase in the amount of information (Maingot et al., 2012; Maingot et al., 2014; Probohudono et al., 2013b; Lajili et al., 2021). In terms of disclosure content, Penela and Serrasqueiro (2019) compared risk reports of hospitality firms in the US and found that disclosures tended to be more generic during the financial crisis and more specific in the context of economic recovery, with a particular focus on outcomes and information security risks. During the COVID-19 epidemic, UK firms significantly improved the annual report communication by enhancing the readability and transparency of their disclosures (Moussa & Elmarzouky, 2024). And American airlines adjusted the focus of their risk reports to discuss more about the long-term effects of the outbreak (Penela & Palma, 2023). Political crises likewise affected corporate RD practices. The UK exit from the EU triggered a heightened focus on related risks among FTSE 100 companies, with almost all discussing Brexit-related issues in their annual reports. However, most of these disclosures focused on a macro description of risks and lacked in-depth analysis of specific firms' situations, especially in the banking and pharmaceutical industries (Vasilescu & Weir, 2023; Svetlova, 2023). In Egypt, during the political turmoil in 2011, companies significantly increased their disclosure of currency risks and potential future risks in an attempt to provide investors with more comprehensive information to cope with uncertainty (Marzouk, 2016).

Industry environment. The studies showed that firms' RD strategies were driven by the competitive market environment, the peer imitation effect, and the industry to which the company belongs (Khalil and Maghraby, 2017). In a competitive market environment, firms adopted a proactive RD strategy. Research in Egypt indicated that in industries with high barriers to entry, firms tended to proactively disclose voluntary risk information, possibly aiming to enhance market trust and consolidate competitive advantage (Mokhtar & Mellett, 2013). Research in India suggested that when firms had a strong competitive position in the

industry, firms were often more willing to provide forward-looking information, even when such information may reveal potential negative impacts (Shivaani, 2018). Research in the UK further suggested that when competition in the market increases, firms are more inclined to disseminate negative risk information to discourage the entry of potential competitors (Hassanein, 2022). In addition to competition drivers, there was a significant peer imitation effect in disclosure. Research in the US suggested that firms with higher industry concentration disclosed more narrative risk information. Still, their content was similar to that of their competitors, leading to a decline in overall disclosure quality (Yen et al., 2016). Similarly, when the SEC commented on the RD of intra-industry subsidiaries, other firms quickly adjusted their disclosures in response to regulatory pressure (Brown et al., 2018; Cazier et al., 2021). In China, the peer effect was equally evident, particularly concerning climate RD. The Chinese firms either actively mimicked the disclosure behavior of their peers to reduce costs or passively followed under institutional pressure (Li et al., 2024).

3.5.3. Economic consequences of RD

Capital market reactions. Overall, high-quality RD improved market information efficiency, enhanced liquidity, and reduced the risk of valuation crashes while at the same time generating negative spillovers for stakeholders in the supply chain. Regarding the usefulness of RD information in the capital markets, research from the US found that specific attributes of RD in the annual reports of listed firms were significantly associated with subsequent default risk, providing valuable insights for investors to assess financial distress (Jin et al., 2024). Research in the Middle East and North Africa region suggested that voluntary RD was positively associated with the market's ability to predict changes in earnings over the next two years, highlighting their role in enhancing the market's ability to anticipate (Moumen et al., 2015). Research on companies listed in the S&P 100 index showed through textual similarity analysis that RD provided new information not yet reflected in historical stock prices and created economic value by optimizing portfolios (Tilmann & Walther, 2023). In terms of stock price responses, studies in the UK found that upside RD enhanced stock prices, while downside RD had a negative effect, with high-growth firms and profitable firms being more sensitive to risk information (Elshandidy & Zeng, 2022; Lim & Tan, 2007). However, the presentation of risk information in different reports had different effects. The study in

South Africa showed that RD in integrated reports had no impact on market value compared to annual reports (Elshandidy et al., 2022). Research in China showed that qualitative customer RD also had a negative spillover effect on supplier stock prices (Li et al., 2021). Regarding stock liquidity, research in the US showed that increased RD correlated with higher earnings volatility, greater trading volume, and broader market forecast dispersion (Kravet & Muslu, 2013). Additionally, more detailed market RD enhanced liquidity levels and reduced liquidity uncertainty (Kohlbeck & Luo, 2024). Regarding stock price synchronization, research in the UK showed that non-forward-looking RD provided more firm-specific information and was significantly negatively associated with stock price synchronization. Conversely, forward-looking RD was more generalized and positively associated with stock price synchronization (Elshandidy & Ahmed, 2023). Finally, in terms of valuation crash risk, a Chinese study noted that voluntary disclosure of information related to the COVID-19 outbreak significantly reduced stock risk (Hao & Dong, 2022), and effective internal control RD further reduced the risk of corporate crash (Zhu et al., 2024). Meanwhile, research in the US found that political RD played a key role in lowering stock crash risk (Hossain et al., 2024).

Research generally agreed that RD affected investors' risk awareness and confidence but had different effects on analysts' forecasts. In terms of investor risk perceptions, an experimental study in the US revealed that risk information in management discussions and analyses significantly increased non-expert investors' perceptions of stock risk, and this enhanced risk perception, while not directly affecting investment decisions, makes their perceptions of future performance more negative (Fortin & Berthelot, 2012). In addition, positive tone RD positively influenced investor judgments when risks were unrealized, contributing to investment confidence, but this positive effect quickly diminished when risks materialized (Tan & Yeo, 2023). Another empirical study in the US further pointed to the complex and varied effects of different types of RD on investor perceptions: disclosures of three types of systemic and liquidity risks significantly increased investor risk perceptions, while disclosures of five kinds of non-systemic risks served to mitigate risk perceptions, demonstrating the differential effects of risk type on the perceptual mechanism (Bao & Datta, 2014). An event study in China showed that firms' disclosure of climate risk information was

not penalized by the market but instead resulted in abnormally positive daily returns or market-neutral responses, suggesting that climate RD did not trigger negative investor sentiment and may even be viewed as a positive signal of corporate governance capabilities (Li et al., 2023).

There were significant differences in the impact of RD on analysts. A study in Spain showed that RD failed to reduce analysts' uncertainty or significantly improve the accuracy of profit forecasts, possibly due to insufficient disclosure content or difficulties translating it into practical insights (Tirado-Beltrán & Cabedo-Semper, 2020). In contrast, high-quality RD by Chinese Initial Public Offering firms was associated with lower earnings forecast bias, less dispersion, and more timely forecasts, where analysts were better at handling financial and operational RD but less able to respond to technology, market and macroeconomic risks. This suggested that high-quality and structured RD support analysts' forecasting efforts (Zhao et al., 2022).

Capital cost, trade credit, and credit default swap pricing. RD had diverse economic consequences on the cost of capital, supplier trading credit, and credit default swap (CDS) pricing. A study in Japan found that increasing business RD helped reduce the cost of capital (Kim & Yasuda, 2018). In a UK study, lenders paid more attention to risk information on adverse outcomes. At the same time, shareholders considered a combination of positive and negative outcome disclosures, and the results showed that a high level of RD contributed to lower lending rates and expected returns to shareholders (Ibrahim & Aboud, 2024a). However, a study in Spain found a significant positive correlation between financial RD and the cost of equity (Semper & Beltrán, 2014), and a study in Indonesia noted that environmental RD significantly increased the cost of equity (Eriandani et al., 2019). Tunisian research found that adequate RD enhances supplier confidence at the supply chain level, increasing firms' access to trade credit (Haj-Salem & Hussainey, 2021a). In terms of CDS pricing, one study in the US showed that transparent RD significantly reduced the information premium in CDS spreads, and in particular, quantitative expected risk and risk management information reduced the cost of credit risk assessment (Chiu et al., 2018; Wang, 2021). However, certain qualitative disclosures (e.g., legal risk) unexpectedly increased CDS spreads (Nagel et al., 2022).

Operational management. Several studies explored the impact of RD on operational

management. RD generally had a positive effect on surplus management and operational efficiency. In terms of management's incentives to manage surplus, the Chinese study finds that heterogeneous IPO RD can effectively dampen management's surplus management behavior, especially in the case of firms with high analyst attention, low marketization, and non-state-owned firms, suggesting that transparent risk information limited managerial opportunism (He et al., 2025). A study in Indonesia showed a positive relationship between RD and firms' operational efficiency, revealing that transparent risk information helps improve overall firm operations (Sulistyawati & Suryani, 2022). In terms of cash holdings, a Tunisian study found that RD may lead to a reduction in cash holdings, presumably because firms improved the efficiency of capital utilization by reducing cash holdings (Haj-Salem & Hussainey, 2021b).

Audit fees. RD generally had a positive impact on audit fees. A US study suggested that the length and clarity of climate change RD was closely related to audit fees, with more detailed disclosures but insufficient clarity increasing inherent risk and audit risk, leading to higher audit fees (Gao & Calderon, 2023). Additionally, the word count, readability, and use of litigation-related language in corporate cybersecurity RD significantly increased the complexity of risk assessment for auditors, further driving up audit fees (Calderon & Gao, 2021). Research in China suggested that when risk factors in corporate financial reports overlapped with disclosures of key audit matters in audit reports, auditors need to assess the reliability and potential impact of this information in greater depth, and the increased responsibility drove up audit fees significantly (Gotti et al., 2024).

Corporate reputation and value. The impact of RD on corporate reputation was positive, while there were different views on the impact on corporate value. RD significantly increased corporate reputation in studies in the US and India (Arora et al., 2021; Singh, 2024). In addition, RD was usually positively associated with a firm market value in several studies in Malaysia, the US, the UK, and Italy (Abdullah et al., 2015; Bravo, 2017; Ibrahim & Aboud, 2024b; Veltri et al., 2020). However, studies in Malaysia, India, and Tunisia found that RD negatively affected firm value (Kamaruzaman et al., 2019; Jain & Raithatha, 2022; Haj-Salem et al., 2020; Oliveira et al., 2021). Whereas a UK study pointed out that RD has a significant impact on firm value only when it is related to the firm's book-to-market value drivers,

suggesting that the impact of RD on firm value is context-dependent (Crovini et al., 2024).

4. Directions for future research

Having provided insights on empirical evidence on RD from 2003 in the prior section, we now identify several gaps in the RD literature and make recommendations for future research.

First, although publications have expanded in number and geographic coverage between 2003 and 2024, empirical evidence from many countries remains limited and fragmented. Notably, 38% of RD studies are concentrated in two developed countries, the US and the UK, indicating a high research concentration. The RD research questions are usually pioneered in a few developed countries before gradually gaining attention in other countries. As such, RD research is still relatively scarce in other developed and developing countries, where the research topics appear to lag. Future research should focus more on these neglected regions to solve the shortcomings in existing research geographical and thematic distribution and fill the current knowledge gaps.

Concerning research questions, existing studies have examined RD readability, quantifiability, uniformity, and forward-looking characteristics, providing a solid foundation for understanding its core features. Meanwhile, research on RD determinants and economic consequences has also progressively matured. However, future research could further expand this foundation by adopting a more multidimensional perspective. For example, focusing on stakeholders' needs and the interplay between different disclosure channels (e.g., strategic, financial, supply chain, legal, human capital, cybersecurity, climate, and industry-specific risk information), future studies could explore how to address better diverse stakeholder demands and how the interaction of various channels enhances the effectiveness of risk information transmission. Specifically, while research on general risk information is relatively comprehensive, future studies could focus more on whether and how specific types of risks are disclosed and with what consequences. These risks not only help stakeholders gain a more thorough understanding of the multiple risks companies face, but they also provide targeted guidance for risk management practices. By systematically examining the disclosure characteristics and impacts of these risk types, future research can address the gaps in the existing literature and further enhance the depth and practical value of RD studies. In addition,

existing research has primarily focused on risk information in corporate annual reports, with little exploration of whether firms communicate risk information through other channels (e.g., interim reports, social media, conference calls, and press releases) and the potential impacts of risk information transmitted through these channels. As information dissemination channels diversify, the content, form, consistency, and complementarity of risk information disclosed across different channels will likely significantly influence stakeholders' perception of risk and their decision-making processes. Therefore, studying the interaction between these channels and their respective roles in disseminating risk information can enrich the theoretical framework of RD and provide practical guidance to optimize the efficiency and effectiveness of corporate disclosure.

Quantitative studies based on archival data dominate RD research, accounting for approximately 88% of the total. These studies reveal trends in RD through historical data and provide a crucial empirical foundation for standard-setting. However, an overreliance on archival data has limited the exploration of dynamic changes and diverse perspectives, particularly the in-depth understanding of standard implementation processes and stakeholders' viewpoints (Creswell & Creswell, 2017). This gap underscores the need for supplementary research methods. Qualitative research is limited, with most existing studies focusing on content analysis of RD, but there is potential to expand this approach. Future studies could incorporate interviews and qualitative surveys to examine the perceptions of standard-setters, regulators, management, and market participants on proposed RD standards, particularly regarding the various types of risks companies face. Such research would not only capture the practical demand for RD from multiple stakeholders but also offer actionable insights for standard improvement (Creswell & Creswell, 2017). Experimental research is also underutilized, with only three relevant studies conducted in a single setting, namely, the US. This approach has the advantage of providing direct evidence of the effectiveness and applicability of RD standards by using control variables to test causality and observing actual decision-making behavior in simulated environments (Libby et al., 2002). To broaden the applicability of this method, future experimental studies should be conducted in diverse cultural, regulatory, and market contexts to validate standards and promote RD research globalization. Finally, mixed-methods research is still in its early stages, with only one study

attempting to combine qualitative and quantitative approaches. While the findings from such studies may lack generalizability, their strength lies in offering more profound and nuanced insights into complex issues (Tashakkori & Teddlie, 2010). Future research could leverage mixed methods to integrate data analysis and in-depth interviews, particularly in cross-cultural contexts, opening new avenues for RD research.

5. Conclusions

This SLR comprehensively reviews non-financial corporate RD research from 2000 to 2024. By screening RD literature from Scopus and Web of Science databases, 167 studies were collected, systematically coded, and analyzed based on the analytical frameworks of timeframe, location, research method, research questions, and research outcomes.

The review shows that although the attention of non-financial company RD research has been increasing year by year, existing research is mainly concentrated in developed countries such as the US and the UK, with the distribution of research in other developed and developing countries still unbalanced. Future research should expand the geographical scope and strengthen the focus on RD behavior in developing countries to enhance the comprehensiveness and balance of global RD research. In addition, quantitative research currently dominates, while qualitative research, experimental research, and mixed research are relatively scarce. In the future, efforts should be made to introduce diversified research methods for a more in-depth exploration of the research questions. Regarding research topics, future studies should focus on the disclosure of specific risk types and other risk information disclosure channels, combining different methods for systematic exploration to provide richer theoretical and practical insights for the study of RD in non-financial enterprises.

Every literature review has limitations, and this one is no exception – notwithstanding the efforts made to ensure results validity and reliability. First, the review timeframe was limited to 2000 to 2024, which may have missed studies outside this timeframe, including historical or very recent contributions. Second, low-ranked journals were included to ensure the comprehensiveness of the review, but the research rigor of the articles published in these journals may not be equal to that of high-ranked journals. In addition, studies published in languages other than English were not included due to linguistic limitations, which may have

led to the omission of important findings in specific regional or cultural contexts. Finally, some degree of subjective judgment was inevitably involved in analyzing and interpreting the findings, which may affect the objectivity and generalizability of the conclusions.

Despite such limitations, this SLR systematizes the extensive empirical research on RD and provides insights and a critique that may help PhD students and novice researchers understand this stream of literature and identify original research ideas and approaches to advance academic knowledge. Referring to this last point, experienced researchers may also take advantage of the SLR. Furthermore, with its granular and – at the same time – structured integration and presentation of existing research questions and outcomes, this SLR presents insights that may be useful to both preparers and users of RD to understand their respective behavior and reactions, as well as to regulators and standard setters in countries with diverse legal, cultural, and market environments and a diverse stage of economic development.

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Appendix A - Details on the 167 studies analyzed in this structured literature review

Authors (Year)	Location	Country	Research method	Research question	Research outcome
Abdullah et al. (2015)	Asia-Pacific	Malaysia	Quantitative	Consequences	Corporate reputation and value — Positive
Abraham and Cox (2007)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
Abraham and Shrives (2014)	Europe	UK	Qualitative	Features	RD quality — Negative
Adam-Müller and Erkens (2020)	Multiple	Multiple	Quantitative	Determinants	RD regulation and legal environment — Positive
Agyei-Mensah and Buertey (2019)	Multiple	Multiple	Quantitative	Determinants	Corporate characteristics — Negative
Al-Dubai and Alotaibi (2023)	Middle East	SA	Quantitative	Determinants	Corporate governance — Positive
Ali et al. (2018)	Asia-Pacific	Malaysia	Quantitative	Determinants	Capital market reactions — Positive
Allini et al. (2016)	Europe	Italy	Quantitative	Determinants	Corporate governance — Positive
Alsheikh and Alsheikh (2023)	Middle East	SA	Quantitative	Determinants	Mixed (Firm size, industry — Positive; Firm leverage, profitability — Neutral)
Alshirah and Alshira'h (2024)	Middle East	Jordan	Quantitative	Determinants	Corporate governance — Negative
Alshirah et al. (2019)	Middle East	Jordan	Quantitative	Determinants	Corporate governance — Positive
Alshirah et al. (2020)	Middle East	Jordan	Quantitative	Determinants	Corporate governance — Negative
Alshirah et al. (2021)	Middle East	Jordan	Quantitative	Determinants	Corporate governance — Positive
Alshirah et al. (2022)	Middle East	Jordan	Quantitative	Determinants	Corporate governance — Negative
Amran et al. (2008)	Asia-Pacific	Malaysia	Quantitative	Features	RD quantity — Negative
Amrin (2019)	Asia-Pacific	Indonesia	Quantitative	Determinants	Corporate governance — Positive
Appiagyei et al. (2016)	Africa	Ghana	Quantitative	Multiple (Features; Determinants)	Mixed (RD quantity — Negative; RD regulation and legal environment — Positive)
Arena et al. (2023)	Multiple	Multiple	Quantitative	Determinants	RD regulation and legal environment — Positive
Arora et al. (2021)	The Americas	US	Quantitative	Consequences	Corporate reputation and value — Positive

Ayuningtyas and Harymawan (2022)	Asia-Pacific	Indonesia	Quantitative	Determinants	Corporate governance — Positive
Bao and Datta (2014)	The Americas	US	Quantitative	Consequences	Mixed (Capital market reactions to three types of systemic and liquidity RDs — Positive; Capital market reactions to five types of unsystematic RD — Negative; Capital market reactions to other RDs — Neutral)
Ben-Amar et al. (2023)	Multiple	Multiple	Qualitative	Determinants	RD regulation and legal environment — Positive
Beretta and Bozzolan (2004)	Europe	Italy	Mixed	Features	RD quality — Negative
Bravo (2017)	The Americas	US	Quantitative	Consequences	Corporate reputation and value — Positive
Bravo (2018)	The Americas	US	Quantitative	Determinants	Corporate governance — Positive
Brown et al. (2018)	The Americas	US	Quantitative	Determinants	Industry environment — Positive
Bruwer et al. (2022)	Africa	SA	Qualitative	Features	RD content — Negative
Bufarwa et al. (2020)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
Calderon and Gao (2021)	The Americas	US	Quantitative	Consequences	Audit fees — Negative
Calderon and Gao (2022)	The Americas	US	Quantitative	Features	RD quantity — Neutral
Campbell et al. (2014)	The Americas	US	Quantitative	Determinants	The company risk exposure — Positive
Carlon et al. (2003)	Asia-Pacific	Australia	Qualitative	Features	RD quantity — Neutral
Cazier et al. (2021)	The Americas	US	Quantitative	Determinants	Industry environment — Positive
Chiu et al. (2018)	The Americas	US	Quantitative	Consequences	Credit default swap pricing — Positive
Chouaibi et al. (2024)	Multiple	Multiple	Quantitative	Determinants	Capital market reactions — Positive
Cordazzo et al. (2017)	Multiple	Multiple	Quantitative	Determinants	RD regulation and legal environment — Negative
Crovini et al. (2024)	Europe	UK	Quantitative	Consequences	Corporate reputation and value — Neutral

Dai et al. (2024)	The Americas	US	Quantitative	Determinants	Capital market reactions — Positive
Dobler et al. (2011)	Multiple	Multiple	Quantitative	Features	RD content — Negative
Elgammal et al. (2018)	Middle East	Qatar	Quantitative	Determinants	Corporate governance — Positive
Elmarzouky et al. (2022)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
Elsayed and Elshandidy (2021)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
Elsayed and Hassanein (2024)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
Elshandidy and Ahmed (2023)	Europe	UK	Quantitative	Consequences	Capital market reactions — Positive
Elshandidy and Neri (2015)	Multiple	Multiple	Quantitative	Determinants	Corporate governance — Positive
Elshandidy and Shrives (2016)	Europe	Germany	Quantitative	Determinants	Mixed (Risk exposure, firm size — Positive; Dividend payout — Negative)
Elshandidy and Zeng (2022)	Europe	UK	Quantitative	Consequences	Capital market reactions — Positive
Elshandidy et al. (2015)	Multiple	Multiple	Quantitative	Determinants	RD regulation and legal environment — Positive
Elshandidy et al. (2022)	Europe	UK	Quantitative	Consequences	Capital market reactions — Neutral
Eriandani et al. (2019)	Asia-Pacific	Indonesia	Quantitative	Consequences	Capital cost — Negative
Erin et al. (2023)	Africa	Nigeria	Quantitative	Determinants	Corporate governance — Positive
Fortin and Berthelot (2012)	The Americas	US	Experimental	Consequences	Capital market reactions — Positive
Fukukawa and Kim (2017)	Asia-Pacific	Japan	Quantitative	Determinants	Corporate governance — Positive
Gao and Calderon (2023)	The Americas	US	Quantitative	Multiple (Features; Consequences)	Mixed (RD quantity — Negative; Audit fees — Positive)
Gao et al. (2020)	The Americas	US	Quantitative	Determinants	Mixed (Industry— Positive; Firm size — Negative)
Gonidakis et al. (2020)	Europe	Greece	Quantitative	Determinants	Risk exposure — Positive
Gotti et al. (2024)	Asia-Pacific	China	Quantitative	Consequences	Audit fees — Negative
Greco (2012)	Europe	Italy	Quantitative	Determinants	Corporate governance — Negative
Gulko et al. (2017)	Europe	UK	Quantitative	Determinants	Risk exposure — Positive

Gull et al. (2023)	Asia-Pacific	Pakistan	Quantitative	Determinants	Corporate governance — Positive
Guthrie et al. (2020)	Europe	Italy	Qualitative	Features	RD content — Neutral
Haj-Salem and Hussainey (2021b)	Middle East	Tunisia	Quantitative	Consequences	Operational management — Positive
Haj-Salem and Hussainey (2021a)	Middle East	Tunisia	Quantitative	Consequences	Trade credit — Positive
Haj-Salem et al. (2020)	Middle East	Tunisia	Quantitative	Consequences	Corporate reputation and value — Negative
Hao and Dong (2022)	Asia-Pacific	China	Quantitative	Multiple (Determinants; Consequences)	Mixed (Corporate characteristics — Positive; Capital market reactions — Positive)
Hassan (2009)	Middle East	UAE	Quantitative	Determinants	Mixed (Firm size — Neutral; Risk exposure, Industry — Positive; Corporate reserve — Negative)
Hassanein (2022)	Europe	UK	Quantitative	Determinants	Industry environment — Positive
Hassanein and Elsayed (2021)	Europe	UK	Quantitative	Determinants	Risk exposure — Positive
Hassanein et al. (2024)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
He et al. (2025)	Asia-Pacific	China	Quantitative	Consequences	Operational management — Positive
Hernández et al. (2015)	Europe	Spain	Quantitative	Determinants	Capital market reactions — Positive
Hernández-Madrigal et al. (2012)	Europe	Spain	Quantitative	Determinants	RD regulation and legal environment — Positive
Hope et al. (2016)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Hossain et al. (2024)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Ibrahim and Aboud (2024a)	Europe	UK	Quantitative	Consequences	Capital cost — Positive
Ibrahim and Aboud (2024b)	Europe	UK	Quantitative	Consequences	Corporate reputation and value — Positive
Ibrahim and Hussainey (2019)	Europe	UK	Mixed	Features	RD Content — Neutral
Ilhan et al. (2023)	Europe	France	Quantitative	Determinants	Corporate governance — Positive
Jain and Raithatha (2022)	Asia-Pacific	India	Quantitative	Consequences	Corporate reputation and value — Negative
Jain and Raithatha (2024)	Asia-Pacific	India	Quantitative	Determinants	Corporate governance — Negative
Jia and Li (2022)	Asia-Pacific	Australia	Quantitative	Determinants	Corporate governance — Positive

Jin et al. (2024)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Kamaruzaman et al. (2019)	Asia-Pacific	Malaysia	Quantitative	Multiple (Determinants; Consequences)	Mixed (Corporate governance — Positive; Corporate reputation and value — Negative)
Kang and Gray (2019)	Europe	UK	Quantitative	Features	RD quantity — Negative
Khalil and Maghraby (2017)	Middle East	Egypt	Quantitative	Determinants	Industry environment — Positive
Khandelwal et al. (2020)	Asia-Pacific	India	Quantitative	Determinants	Corporate governance — Positive
Kim and Yasuda (2018)	Asia-Pacific	Japan	Quantitative	Consequences	Capital cost — Positive
Kohlbeck and Luo (2024)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Konishi and Ali (2007)	Asia-Pacific	Japan	Quantitative	Determinants	Capital market reactions — Positive
Kouloukoui et al. (2019)	The Americas	Brazil	Quantitative	Determinants	Mixed (Firm size, financial performance, country — Positive; Firm leverage — Negative)
Kravet and Muslu (2013)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Lajili and Zéghal (2005)	The Americas	Canada	Qualitative	Features	RD content — Negative
Lajili et al. (2021)	Multiple	Multiple	Quantitative	Determinants	Risk exposure — Positive
Lajili et al. (2024)	Multiple	Multiple	Quantitative	Determinants	RD regulation and legal environment — Positive
Laksmana et al. (2023)	The Americas	US	Quantitative	Determinants	Corporate characteristics — Negative
Leopizzi et al. (2020)	Europe	Italy	Quantitative	Determinants	Corporate governance — Negative
Li (2024)	Asia-Pacific	China	Quantitative	Determinants	Corporate governance — Positive
Li et al. (2018)	The Americas	US	Quantitative	Determinants	RD regulation and legal environment — Positive
Li et al. (2021)	Asia-Pacific	China	Quantitative	Consequences	Capital market reactions — Negative
Li et al. (2023)	Asia-Pacific	China	Quantitative	Consequences	Capital market reactions — Negative
Li et al. (2024)	Asia-Pacific	China	Quantitative	Determinants	Industry environment — Positive
Lim and Tan (2007)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive

Linsley and Lawrence (2007)	Europe	UK	Quantitative	Features	RD content — Negative
Linsley and Shrives (2006)	Europe	UK	Quantitative	Determinants	Capital market reactions — Positive
Lombardi et al. (2016)	Europe	Italy	Qualitative	Features	RD content — Negative
Maingot et al. (2014)	Multiple	Multiple	Quantitative	Determinants	Risk exposure — Positive
Maingot et al. (2012)	The Americas	Canada	Quantitative	Determinants	Risk exposure — Positive
Martikainen et al. (2015)	Europe	Finland	Quantitative	Determinants	Mixed (Non-executive board members' wealth, experience, education — Positive; Non-executive board members' salary — Negative)
Marzouk (2016)	Middle East	Egypt	Quantitative	Determinants	Risk exposure — Positive
Mbithi et al. (2023)	Africa	Kenya	Mixed	Determinants	Corporate governance — Positive
Mcchlery and Hussainey (2021)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive
Miihkinen (2012)	Europe	Finland	Quantitative	Determinants	RD regulation and legal environment — Positive
Miihkinen (2013)	Europe	Finland	Quantitative	Consequences	Capital market reactions — Positive
Mokhtar and Mellett (2013)	Middle East	Egypt	Quantitative	Multiple (Features; Determinants)	Mixed (RD quantity — Negative; Corporate governance, industry environment — Positive)
Monjed and Ibrahim (2020)	Europe	UK	Quantitative	Determinants	Corporate governance — Negative
Monjed et al. (2022)	Europe	UK	Quantitative	Determinants	Corporate governance — Negative
Moumen et al. (2015)	Multiple	Multiple	Quantitative	Consequences	Capital market reactions — Positive
Moumen et al. (2016)	Multiple	Multiple	Quantitative	Determinants	Corporate governance — Positive
Moussa and Elmarzouky (2024)	Europe	UK	Quantitative	Determinants	Risk exposure — Positive
Nagel et al. (2022)	The Americas	US	Quantitative	Consequences	Credit default swap pricing — Negative
Ntim et al. (2013)	Africa	SA	Quantitative	Determinants	Corporate governance — Positive

Oliveira et al. (2011)	Europe	Portugal	Quantitative	Multiple (Features; Determinants)	Mixed (RD quality — Negative; Corporate characteristics — Positive)
Oliveira et al. (2018)	Europe	Spain	Quantitative	Determinants	RD regulation and legal environment — Positive
Oliveira et al. (2021)	Europe	Portugal	Quantitative	Consequences	Corporate reputation and value — Negative
Othman and Ameer (2009)	Asia-Pacific	Malaysia	Qualitative	Determinants	RD regulation and legal environment — Positive
Ott (2020)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Penela and Palma (2023)	Africa	US	Qualitative	Determinants	Risk exposure — Positive
Penela and Serrasqueiro (2019)	The Americas	US	Quantitative	Multiple (Features; Determinants)	Mixed (RD content — Neutral; Risk exposure, RD regulation and legal environment — Positive)
Probohudono et al. (2013b)	Multiple	Multiple	Quantitative	Multiple (Features; Determinants)	Mixed (RD quantity — Negative; Firm size, corporate governance — Positive)
Probohudono et al. (2013a)	Multiple	Multiple	Quantitative	Features	RD quantity — Negative
Raimo et al. (2022)	Multiple	Multiple	Quantitative	Determinants	Corporate governance — Positive
Rajab and Handley-Schachler (2009)	Europe	UK	Quantitative	Multiple (Features; Determinants)	Mixed (RD quantity — Positive; Corporate characteristics — Neutral)
Saggar and Singh (2017)	Asia-Pacific	India	Quantitative	Determinants	Corporate governance — Positive
Saggar and Singh (2019)	Multiple	Multiple	Quantitative	Determinants	Corporate governance — Positive
Saggar et al. (2022)	Asia-Pacific	India	Quantitative	Determinants	Corporate governance — Positive
Saggar et al. (2023)	The Americas	US	Quantitative	Determinants	Corporate governance — Positive
Salem et al. (2019)	Middle East	Tunisia	Quantitative	Determinants	Corporate governance — Negative
Saravanan et al. (2023)	Asia-Pacific	India	Quantitative	Determinants	RD regulation and legal environment — Positive
Seebeck and Vetter (2022)	Europe	UK	Quantitative	Determinants	Corporate governance — Positive

Semper and Beltrán (2014)	Europe	Spain	Quantitative	Consequences	Capital cost — Negative
Serrasqueiro and Mineiro (2018)	Europe	Portugal	Quantitative	Multiple (Features; Determinants)	Mixed (RD content — Neutral; Corporate governance — Positive)
Serrasqueiro and Oliveira (2022)	Multiple	Multiple	Quantitative	Determinants	RD regulation and legal environment — Positive
Shivaani (2018)	Asia-Pacific	India	Quantitative	Determinants	Industry environment — Positive
Shivaani et al. (2020)	Asia-Pacific	India	Quantitative	Features	RD quality — Positive
Singh (2024)	The Americas	US	Quantitative	Consequences	Corporate reputation and value — Positive
Sulistyawati and Suryani (2022)	Asia-Pacific	Indonesia	Quantitative	Consequences	Operational management — Positive
Sun and Xiao (2024)	Asia-Pacific	China	Quantitative	Determinants	Corporate governance — Negative
Svetlova (2023)	Europe	UK	Qualitative	Determinants	Risk exposure — Positive
Tan and Yeo (2023)	The Americas	US	Experimental	Consequences	Capital market reactions — Positive
Tan et al. (2017)	Asia-Pacific	China	Quantitative	Determinants	Capital market reactions — Positive
Taylor et al. (2010)	Asia-Pacific	Australia	Quantitative	Determinants	Capital market reactions — Positive
Tilmann and Walther (2023)	The Americas	US	Quantitative	Consequences	Capital market reactions — Positive
Tirado-Beltrán et al. (2020)	Europe	Spain	Quantitative	Consequences	Capital market reactions — Negative
Toerien and Toit (2024)	Africa	SA	Quantitative	Features	RD content — Negative
Trisnawati et al. (2023)	Asia-Pacific	Indonesia	Quantitative	Determinants	Corporate governance — Negative
Vasilescu and Weir (2023)	Europe	UK	Quantitative	Determinants	Mixed (Risk exposure, corporate characteristics — Positive)
Veltri et al. (2020)	Europe	Italy	Quantitative	Consequences	Corporate reputation and value — Positive
Vychytilova et al. (2020)	Multiple	Multiple	Quantitative	Features	RD quantity — Negative
Wahid and Kamal (2014)	Middle East	UAE	Quantitative	Determinants	Capital market reactions — Positive
Wang (2021)	The Americas	US	Quantitative	Consequences	Credit default swap pricing — Positive
Wang et al. (2023)	The Americas	US	Quantitative	Determinants	Capital market reactions — Positive
Weber and Müßig (2022)	Multiple	Multiple	Quantitative	Determinants	Capital market reactions — Positive

Yen et al. (2016)	The Americas	US	Quantitative	Determinants	Industry environment — Positive
Yeo (2021)	The Americas	US	Experimental	Determinants	Corporate governance — Positive
Zhang et al. (2013)	Asia-Pacific	Australia	Quantitative	Determinants	Corporate governance — Positive
Zhao et al. (2022)	Asia-Pacific	China	Quantitative	Consequences	Capital market reactions — Positive
Zhu et al. (2024)	Asia-Pacific	China	Quantitative	Consequences	Capital market reactions — Positive

Acronym Legenda: US = United States; UK = United Kingdom; SA = South Africa; UAE = United Arab Emirates