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Article

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Cogent Business & Management

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Suggested Citation: Mbithi, Erastus; Moloji, Tankiso; Wangombe, David (2022) : Corporate risk disclosure: A systematic literature review and future research agenda, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 9, Iss. 1, pp. 1-23, <https://doi.org/10.1080/23311975.2022.2105569>

This Version is available at:

<https://hdl.handle.net/10419/289112>

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To cite this article: Erastus Mbithi, Tankiso Moloi & David Wangombe (2022) Corporate risk disclosure: A systematic literature review and future research agenda, Cogent Business & Management, 9:1, 2105569, DOI: [10.1080/23311975.2022.2105569](https://doi.org/10.1080/23311975.2022.2105569)

To link to this article: <https://doi.org/10.1080/23311975.2022.2105569>



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Received: 27 January 2022
Accepted: 20 July 2022

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Reviewing editor:
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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | REVIEW ARTICLE

Corporate risk disclosure: A systematic literature review and future research agenda

Erastus Mbithi^{1*}, Tankiso Moloi² and David Wangombe¹

Abstract: This paper provides a systematic review of literature on corporate risk disclosure (CRD): meaning, measures of quality of CRD and directions for future research. This was achieved by obtaining journals from the Association of Business Schools (ABS) 2021 journal ranking guide. The next step involved a detailed search on journal databases to identify how the word “quality” and the term “corporate risk disclosure” have been used. The search produced 59 accounting and non-accounting articles published between 2004 and 2021. The findings show that there is an increase in the number of studies on quality of CRD during the study period. The study also found that there are two perspectives commonly used to conceptualise quality of CRD, namely pre-modern and modern perspectives. In addition, there is no uniform basis to study and measure quality of CRD. The paper encourages researchers to precisely state their perspective of risk before engaging in quality of CRD research for their output to be meaningful. The study generates important insights for regulators and policymakers when measuring quality of CRD.

Subjects: Business, Management and Accounting; Accounting; Financial Accounting

Keywords: quality of CRD; systematic literature review; meaning and measurement

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PUBLIC INTEREST STATEMENT

Corporate risk disclosure (CRD) has received significant attention among scholars and regulators, yet there is no consensus on what constitutes “CRD” and how it should be communicated in the annual report. This study provides the available information about the meaning and measurement of CRD. The study uses systematic literature review to examine 59 accounting and non-accounting articles published between 2004 and 2021. The findings suggest that there are two perspectives commonly used to conceptualize quality of CRD (pre-modern and modern). Moreover, there are two methods commonly used to measure the quality of CRD (disclosure index and counting narratives). The finding generates important insights to academicians, regulators, and standard setters when prescribing the measures of CRD quality.

1. Introduction

After episodes of accounting scandals and economic crisis (Elshandidy et al., 2018; Ibrahim et al., 2019; Linsley & Shrivs, 2006; Ntim et al., 2013), the need for corporate risk disclosure (CRD) quality has dominated the policy agenda among standard setters and regulators. This is evidenced by a surge in the number of reporting instruments in response to the calls for CRD transparency (Almania, 2019; Bamber & McMeeking, 2015; Matuszak & Róžańska, 2021). For instance, in the United States, the Securities and Exchange Commission (SEC) issued Financial Reporting Release (FRR No. 48) on market risk in 1997. Afterwards, FRR No. 48 was amended to capture other risks facing the business (Ibrahim et al., 2019).

Similarly, the German Accounting Standard Board (GASB) issued the German Accounting Standard (GAS-5) on risk reporting in 2001 (Ibrahim et al., 2019; Miihkinen, 2013). GAS-5 is considered a detailed standard on risk reporting than SEC's FRR No. 48 (Miihkinen, 2013). Likewise, the Finnish Accounting Act (FAA) issued the first requirement on risk reporting in 2004 (Miihkinen, 2012). Subsequently, the Finnish Accounting Practice Board enacted another standard in 2006 to strengthen FAA requirements (Bozzolan & Miihkinen, 2021). The Finnish standard is considered more comprehensive than the SEC and GAS-5 (Miihkinen, 2013).

The International Accounting Standard Board (IASB) also issued several standards on risk reporting, namely IAS 30 (1990), IAS 32 (1996), IFRS 7 (2006) and IFRS 9 (2018). These standards focus on financial reporting, particularly, disclosure of financial instruments risks (Ibrahim et al., 2019). However, the IFRS trustee has called upon the IFRS foundation to develop non-financial reporting standards (Abhayawansa & Adams, 2022). In South Africa, risk reporting is highly regulated and has undergone several reforms to provide sound reporting practices (Ntim et al., 2013). These include King I (1994), King II (2002), King III (2009) and King IV (2016; King Committee, 2002, 2016). Equally, the Global Reporting Initiative (GRI) and the International Integrated Reporting Council (IIRC) also contributed to CRD through sustainability and integrated reporting, respectively.

Notwithstanding the development and growing importance of CRD quality, some studies have criticised the suitability of CRD practices given the wide variation among firms (Elshandidy et al., 2018; Grassa et al., 2020; Ibrahim et al., 2019). Such variation may be partly attributed to how the term "quality of corporate risk disclosure" has been understood and measured. For instance, some studies use disclosure quantity as a proxy for disclosure quality, leading to interpretational difficulties (Elzahar & Hussainey, 2012; Al Lawati et al., 2021; Salem et al., 2019). Beretta and Bozzolan (2004) argue that CRD is a multi-dimensional concept, implying that for the practice to serve its purpose, there is need for a common understanding among the stakeholders. Nevertheless, the apparent lack of uniform CRD guideline (Abraham & Cox, 2007; Cabedo & Tirado, 2004) has led to piecemeal approach to CRD regulation (Elshandidy et al., 2018; UNCTAD, 2017). The challenges around regulating CRD have contributed to the growing literature on CRD quality, which provides basis for the current study.

This study, therefore, analyses the extant literature on CRD quality to provide clarity of perspectives on the meaning and measurement of quality of CRD and directions for future research. In doing so, the study seeks to answer three research questions. First, how research on CRD quality has evolved? Second, how researchers define and measure CRD quality? Third, what is the agenda for future CRD research? The purpose was achieved through a systematic literature review (SLR), which provides high-quality review unlike other methods (e.g., narrative reviews; Tranfield et al., 2003). The study generates important insights for regulators and policymakers when prescribing the measures of CRD quality. Our study extends and complements previous reviews (i.e. Elshandidy et al., 2018; Khandelwal et al., 2019; Khlif & Hussainey, 2014; Wahh et al., 2020).

For instance, Khlif and Hussainey (2014) reviewed the association between risk disclosure and firm characteristics from 2004 to 2014. In their finding, they highlighted the role of industry, legal

and institutional setting when examining firm characteristics and risk disclosure. Elshandidy et al. (2018) provide an in-depth review of risk reporting literature from 1997 to 2016. In their study, they classified literature into two themes: the incentives for and informativeness of risk reporting. Khandelwal et al. (2019) reviewed financial risk reporting literature from 2000 to 2018. Khandelwal et al. (2019) found that there is a dearth of studies linking financial risk disclosure and governance mechanisms. Additionally, Wahh et al. (2020) reviewed extant voluntary risk disclosure literature from 1998 to 2018. In their study, they found that CRD studies mainly adopt content analysis to examine voluntary risk disclosure practices. Our study supplements these recent reviews with a practical focus on the meaning and measurement of quality of CRD.

The remainder of the study is structured as follows: Section 2 presents the literature, Section 3 presents the methodology, Section 4 focuses on results and discussion, Section 5 highlights avenues for future research and Section 6 presents the conclusion.

2. Literature review

According to ICAEW (1999), risk reporting is a cornerstone of accounting and investment practice. For investors, CRD helps to estimate firm performance (earning, cashflows) and risk-profile (Abraham & Cox, 2007; CFA Institute, 2016). For companies, CRD helps to lower cost of capital and manage uncertainty (Cabedo & Tirado, 2004). For financial markets, CRD enhances performance and stability (Grassa et al., 2020), which is vital for long-term economic growth and Sustainable Development Goals (UNCTAD, 2017). Despite the usefulness of CRD and growth in guidelines, there is less consensus on how and to what extent the practice should be communicated (ACCA, 2014; Buckby et al., 2015; Elshandidy et al., 2018). Similarly, concerns have been raised about the information gap between what companies are disclosing and what investors and other users want to see in the annual report (ACCA, 2014; Fujianti et al., 2020; Jain & Raithatha, 2021). This is compounded by the current risk reporting environment which is ambiguous, with potential overlaps that hinder accurate interpretation (Elshandidy et al., 2018), thus, resulting in a claim for diversity in CRD practice among firms.

In addition, several studies have examined the determinants of CRD (e.g., Elamer et al., 2019; Grassa et al., 2021; Kiflee & Ali Khan, 2021; Linsley & Shrivs, 2006). Some studies have investigated corporate variables such as firm size, profitability, leverage, firm growth, etc. (Dobler et al., 2011; Gonidakis et al., 2020; Lajili et al., 2020; Netti, 2019; Saggat & Singh, 2017), whilst others have examined governance attributes such as board characteristics and ownership structure (e.g., Grassa et al., 2020; Khandelwal et al., 2020; Nkuutu et al., 2020; Ntim et al., 2013; Seta & Setyaningrum, 2017). However, these studies have provided inconsistent results. The difference in findings could be partly attributed to the sample size, company characteristics examined, meaning and measurement of CRD quality (Wallace & Naser, 1995). This inconsistency in findings impairs comparability among researchers and adds little to the improvement of CRD practice (Mbithi et al., 2020). Indeed, for CRD practice to serve the intended purpose, it should be clear, precise and agreed upon. Therefore, the present study seeks to provide clarity on the scope of CRD quality.

3. Methodology

To capture the recent academic literature on CRD quality, we conducted a systematic literature review (SLR) of articles published between 2004 and 2021 (Tranfield et al., 2003). This methodology is popular in finance, economics and management studies (Hedin et al., 2019). SLR approach is scientific and follows an evidence-based approach from searching, selecting and analysing literature (Khandelwal et al., 2019; Wahh et al., 2020). Moreover, it follows the principle of transparency and inclusivity to minimise bias (Denyer & Tranfield, 2006).

According to Massaro et al. (2016), Kotb et al. (2020) and Zhao et al. (2021), SLR methodology requires the following steps: establishing the protocol for the review (e.g., ABS 2021 journal ranking guide) and databases (e.g., Emerald, Elsevier, Wiley Online Library, Inderscience, Taylor & Francis and Springer), establishing the research questions to be answered (e.g., how research on CRD

quality has evolved, how researchers define and measure CRD quality and what is the agenda for future CRD research), establishing the type of studies to be analysed and the study period (e.g., use of google scholar citation to identify the most influential papers), defining the framework of analysing past literature on CRD quality and highlighting gaps for future research.

In line with the SLR protocol, we adopted the following steps to address the three research questions similar to (e.g., Kotb et al., 2020; Massaro et al., 2016; Zhao et al., 2021). For instance, the first question investigates how quality of CRD has evolved. This question was addressed through the following analysis: year of publication (yearly trends), journal of publication (productive journals), journal database (productive databases), country and continent (productive country and continent) and citation (influential papers). The second question provides clarity of perspectives on the meaning and measurement of quality of CRD. This was addressed through analysing the previous literature on CRD quality. The third question identifies the opportunities for the future quality of CRD research. This was addressed by suggesting future research avenues from gaps highlighted in the first and second questions. The data for the study were collected in December 2021.

3.1. Identification and selection of articles

The first step involved the identification of peer-reviewed journals published between 2004 and 2021. These journals were defined according to the Association of Business Schools (ABS) 2021 journal ranking guide. The non-refereed publications, e.g., websites, newspapers, book chapters, etc., were excluded from the present study. The choice of the period (2004–2021) is informed by the idea that quality of CRD gained attention after cases of high-profile corporate failure in the early 2000s and the financial crisis 2007/08 (Khandelwal et al., 2019). The second step involved a detailed electronic search on the databases of the selected journals (Emerald, Elsevier, Wiley Online Library, Inderscience, Taylor & Francis and Springer; Wangombe, 2013). The search was carried out with the help of keywords to identify how the word “quality” and the term “corporate risk disclosure” have been used among scholars (Mbithi et al., 2020). To enrich our search, the terms “corporate risk disclosure” and “corporate risk reporting” have been used interchangeably. Nevertheless, we take note that disclosure and reporting are not synonymous (Veltri, 2020). Besides, studies that have used the term “corporate risk disclosure” or “corporate risk reporting” without paying attention to quality were eliminated.

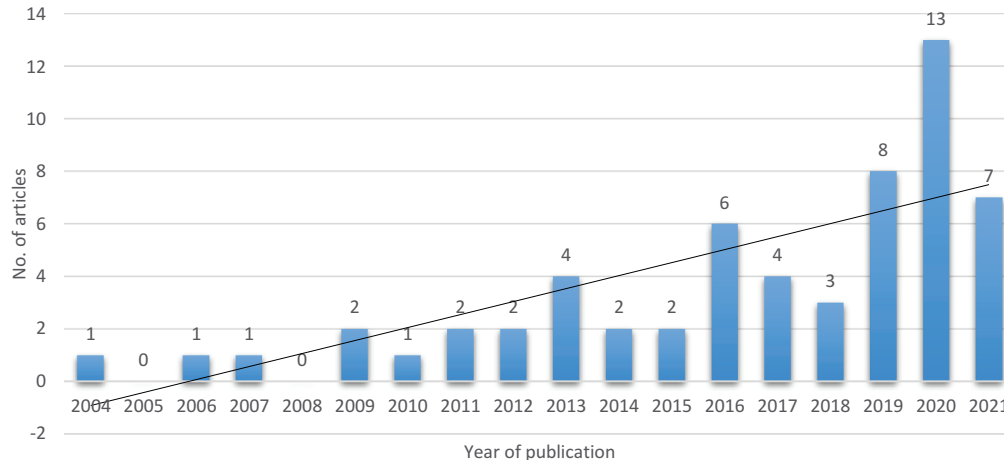
4. Results and discussion

The search produced 59 journal articles published between 2004 and 2021. The selected papers were analysed and classified by the year of publication, journal of publication, country of publication, citation analysis, the meaning of quality CRD and measurement of CRD. This classification aids in understanding the trends and issues in the definition and measurement of quality of CRD among researchers. We also provide figures and tables to highlight the differences and similarities in CRD practice.

4.1. Analysis by year of publication

This analysis sought to identify how articles on quality of CRD are placed over time. Figure 1 indicates that the number of studies on quality of CRD increased during the study period, especially in 2020 where the number of published articles was 13. A similar trend is observed in a review of financial risk reporting practices by Khandelwal et al. (2019). The increase in studies suggests that the subject of CRD quality generated increased interest among researchers over the study period. This could be attributed to the occurrence of special events on CRD that have attracted a great deal of research (UNCTAD, 2017). Examples are occurrences of financial crises, and cases of high profile corporate failure, highlighting the need for effective risk management and reporting practices (Abraham & Shrives, 2014; Khandelwal et al., 2020). Equally, there was a surge in the number of reporting instruments and efforts by the regulator to encourage firms to provide transparent risk information (Matuszak & Rózańska, 2021). As a result, researchers became keen on assessing developments in understanding the CRD quality, determinants and motivations

Figure 1. Analysis by year of publication.



(Khandelwal et al., 2019). The study also revealed that many articles were published in 2019 and 2020. It is worth noting that in the years 2005 and 2008, CRD studies did not pay attention to quality.

4.2. Analysis by journal of publication

This analysis set out to identify the journals involved in the conversations about quality of CRD. Table 1 indicates that there is variation in the number of articles on quality of CRD among the selected journals. Nevertheless, there is broad acceptance of quality of CRD studies among accounting and non-accounting journals. This suggests that CRD is a multi-disciplinary concept, it can be published in other journals other than accounting journals. More specifically, there are nine journals with more than one article. The Managerial Auditing Journal has the highest number of publications with eight, followed by the Journal of Applied Accounting Research with six, the International Review of Financial Analysis with five and the International Journal of Accounting with four. The remaining five journals have two papers each namely, the International Journal of Disclosure & Governance, the British Accounting Review, the International Journal of Finance & Economics, the International Journal of Accounting, Auditing & Performance Evaluation, and the International Journal of Accounting & Information Management.

4.3. Analysis by journal database

This analysis aimed to identify the major social science databases publishing quality of CRD research. Table 2 below indicates a wide variation in the number of articles across the databases. More specifically, Emerald constitutes the highest with 26 articles, representing 44% of the total articles. This is followed by Elsevier with 20 articles, representing 33% of the total articles. Next is Springer with four articles, representing 7% of the total articles. The remaining databases (Inderscience, Taylor & Francis and Wiley online) have three articles each, representing 5% each of the total articles. The distribution of articles among the databases provide contemporary evidence that quality of CRD is widely recognised across the social science databases. This reinforces the argument that CRD is a multi-disciplinary concept that spans numerous disciplines.

4.4. Analysis by country

This analysis provides wide experience on CRD practice worldwide. Table 3 shows countries and continents represented in the sample. Table 3 indicates that CRD research is more dominant in Europe, with 24 studies out of the 59 selected. This is followed by Asia with 23 studies out of the 59 selected. This could be attributed to the influence by regulators and professional bodies on improving quality of CRD (Khandelwal et al., 2019). Furthermore, most, that is, 54 out of 59 selected articles on CRD focused on single country settings. The few studies on cross-country

Table 1. Analysis by journal of publication

Journals	No. of articles
<i>Managerial Auditing Journal</i>	8
<i>Journal of Applied Accounting Research</i>	6
<i>International Review of Financial Analysis</i>	5
<i>The International Journal of Accounting</i>	4
<i>International Journal of Disclosure and Governance</i>	2
<i>British Accounting Review</i>	2
<i>International Journal of Finance and Economics</i>	2
<i>International Journal of Accounting, Auditing and Performance Evaluation</i>	2
<i>International Journal of Accounting & Information Management</i>	2
<i>World Review of Entrepreneurship Management and Sustainable Development</i>	1
<i>Journal of Banking Regulation</i>	1
<i>Journal of Banking & Finance</i>	1
<i>Advances in Accounting</i>	1
<i>Spanish Accounting Review</i>	1
<i>Review of Accounting Studies</i>	1
<i>Public Money and Management</i>	1
<i>International Financial Management and Accounting</i>	1
<i>European Business Review</i>	1
<i>Accounting Forum</i>	1
<i>Global Finance Journal</i>	1
<i>Journal of Accounting in Emerging Economies</i>	1
<i>EuroMed Journal of Business.</i>	1
<i>Pacific-Basin Finance Journal</i>	1
<i>Research in International Business and Finance</i>	1
<i>International Journal of Law and Management</i>	1
<i>Quarterly Review of Economics and Finance</i>	1
<i>Gender in Management: An International Journal</i>	1
<i>International Journal of Productivity and Performance Management</i>	1
<i>Journal of Financial Reporting and Accounting</i>	1
<i>Meditari Accountancy Research</i>	1
<i>Management Research Review</i>	1
<i>Journal of Business Research</i>	1
<i>Corporate Governance: The International Journal of Business in Society</i>	1
<i>Review of Social Economy</i>	1
<i>Pacific-Basin Finance Journal</i>	1
Total	59

settings indicate absence of literature to compare results across different cultures, institutions and contexts. Cross-country studies provide better insights that enable researchers to understand the subject from various social, cultural and political aspects (Al-Matari & Mgamal, 2019).

Table 2. Analysis by journal database

Database	Scope	Date of search	Time horizon	No. of articles
Elsevier	Title/Abstract/ Keywords	31 December 2021	2004–2021	20
Emerald	Title/Abstract/ Keywords	31 December 2021	2004–2021	26
Springer	Title/Abstract/ Keywords	31 December 2021	2004–2021	4
Inderscience	Title/Abstract/ Keywords	31 December 2021	2004–2021	3
Taylor & Francis	Title/Abstract/ Keywords	31 December 2021	2004–2021	3
Wiley Online	Title/Abstract/ Keywords	31 December 2021	2004–2021	3
Total				59

Table 3. Analysis by country

Continent	Country	Type of study	No. of papers
Europe	United Kingdom	within country	9
Asia	India	within country	6
Europe	Finland	within country	4
South America	United States	within country	3
Europe	Spain	within country	3
Europe	Portugal	within country	3
Asia	MENA	cross-counties	3
Asia	GCC	cross-counties	3
Asia	Japan	within country	3
Europe	Italy	within country	2
Europe	Portugal	within country	2
Australia	Australia	within country	2
Asia and Africa	Islamic countries	cross-counties	2
Asia	Jordan	within country	2
Africa	Egypt	within country	2
Africa	South Africa	within country	2
Africa	Tunisia	within country	2
Europe and North America	Germany and Canada	cross-counties	1
Asia	United Arab Emirates	within country	1
Asia	China	within country	1
Asia	Saudi Arabia	within country	1
Asia	Bangladesh	within country	1
Africa	South Africa and Nigeria	cross-counties	1
Total			59

Note: Islamic countries: Bahrain, Indonesia, Jordan, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia, Tunisia, Egypt, Turkey and United Arab Emirates. Gulf Cooperation Council (GCC): Saudi Arabia, Kuwait, Qatar, Bahrain, Oman and United Arab Emirates. Middle East and North Africa (MENA): Bahrain, Egypt, Jordan, Iraq, Kuwait, Lebanon, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Syria, Tunisia and United Arab Emirates.

Table 4. Analysis by citation

Author	Journal	Citations
Linsley and Shrivs (2006)	<i>The British Accounting Review</i>	921
Beretta and Bozzolan (2004)	<i>The International Journal of Accounting</i>	865
Pérignon and Smith (2010)	<i>Journal of Banking & Finance</i>	421
Ntim et al. (2013)	<i>International Review of Financial Analysis</i>	317
Hassan (2009)	<i>Managerial Auditing Journal</i>	269
Oliveira et al. (2011)	<i>Managerial Auditing Journal</i>	263
Abraham and Shrivs (2014)	<i>The British Accounting Review</i>	251
Miikkinen (2012)	<i>The International Journal of Accounting</i>	242
Hope et al. (2016)	<i>Review of Accounting Studies</i>	225
Barakat and Hussainey (2013)	<i>International Review of Financial Analysis</i>	222
Mokhtar and Mellett (2013)	<i>Managerial Auditing Journal</i>	174
Rajab and Handley-Schachler (2009)	<i>World Review of Entrepreneurship Management and Sustainable Development</i>	158
Miikkinen (2013)	<i>Advances in Accounting</i>	144
Allini et al. (2016)	<i>Public Money and Management</i>	139
Total		4611

4.5. Analysis by citation

This analysis sought to identify the most significant papers on quality of CRD in the literature. It involves checking the number of times other researchers have cited the article. Information for the 59 articles was obtained from Google Scholar to perform the analysis. Table 4 presents the articles with at least 100 citations similar to, e.g., Khandelwal et al. (2019). It was observed that 14 out of the 59 selected articles have at least 100 citations, with the average number of citations per article being 329 times. Moreover, the top five influential papers on quality of CRD literature include Linsley and Shrivess (2006) with 921 citations, Beretta and Bozzolan (2004) with 865 citations, Pérignon and Smith (2010) with 421 citations, Ntim et al. (2013) with 317 citations and Hassan (2009) with 269 citations. In addition, Table 4 provides more information on quality of CRD as obtained from the 14 influential papers.

4.6. Meaning of quality of CRD applied in prior studies

A review of the literature shows that there is no universally accepted concept of risk among the researchers; they use different concepts of risk and related terms, namely risk-related narratives (Allini et al., 2016; Beretta & Bozzolan, 2004), risk management disclosures (Buckby et al., 2015), risk disclosure (Saggar & Singh, 2017) and voluntary/mandatory risk-related disclosures including narratives, tables and graphs (Elamer et al., 2019; Ntim et al., 2013). The inconsistency around the concept of risk contributes to lack of clarity in the definition (Elshandidy et al., 2018). Equally, the majority of the researchers do not define risk and assume the reader is aware of what they mean by risk, which causes confusion among readers (Ibrahim & Hussainey, 2019). However, those who define the term do so from two main perspectives, namely one-side definition and two-side definition.

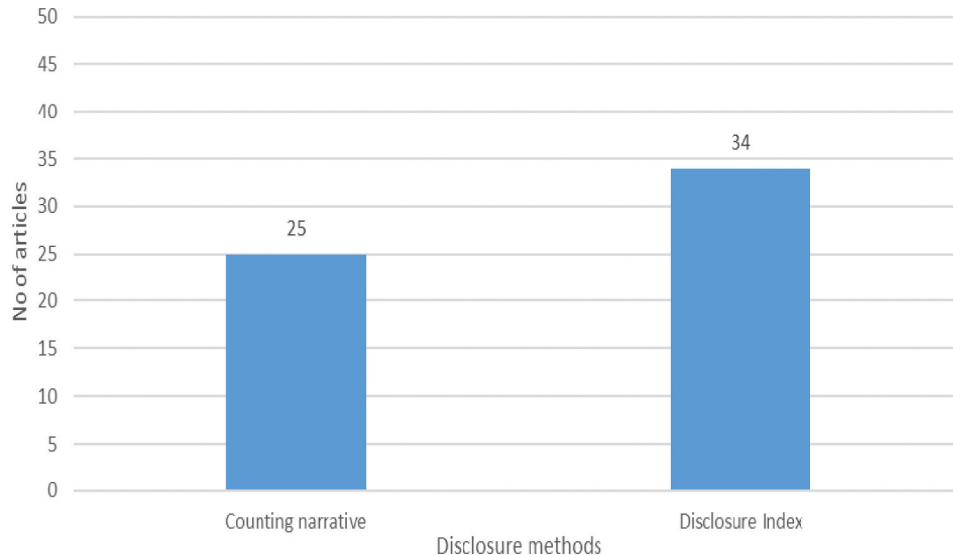
One-side definition is regarded as the pre-modern view of risk and it recognises risk as a negative outcome, while the two-side definition is regarded as the modern view of risk that recognises risk as both positive and negative outcomes (Ibrahim & Hussainey, 2019). Horcher (2005) defines risk as the possibility of loss or uncertainty in line with the pre-modern view of risk. However, Linsley and Shrivess (2006) recognise risk as a future event that has both positive and negative outcomes in line with the modern view of risk. It is worth noting that each perspective determines what constitutes its quality. This implies that quality of CRD based on pre-modern view is different from quality of CRD based on the modern view. Consequently, the measure of such quality might be different even though there could be some similarities. The two perspectives reinforce the argument that CRD is multi-dimensional in nature (Beretta & Bozzolan, 2004; Elshandidy et al., 2018). Thus, for CRD research to contribute to meaningful policy implications, we recommend future researchers to state precisely what they mean by the phrase “corporate risk disclosure”. Additionally, justification should be provided why a certain perspective or definition (pre-modern or modern) is preferred over the other.

4.7. Disclosure methods applied in prior studies

This analysis aimed at identifying the methods commonly used to measure the quality of CRD. Figure 2 presents two main methods, namely disclosure index and counting narratives. Disclosure index is the frequently used method to measure quality of CRD (Beretta & Bozzolan, 2004; Bufarwa et al., 2020; Ntim et al., 2013). Disclosure index may either be unweighted or weighted; unweighted index treats all the disclosure items as equal, irrespective of the amount of space or importance devoted to the item. The weighted index uses different weights for various disclosure items (Abed et al., 2016; Chow & Wong-Boren, 1987).

Constructing a disclosure index involves three main steps: first, preparing a checklist of pre-determined items using the existing guidelines, standards and literature (Grassa et al., 2020; Singhvi & Desai, 1971). This implies that the approach is appropriate for areas where the researcher knows what might be found (Abed et al., 2016). However, prior studies differ on the number of items included in the checklist (Inchausti, 1997), for instance, Ntim et al. (2013) considered 50 items, Shivaani et al. (2019) included 69 items while Elamer et al. (2019) used 96

Figure 2. Analysis by disclosure method.



items. Such difference is partly attributed to the setting where the studies were carried out (Aljifri et al., 2014). It is worth noting that CRD varies from voluntary to strictly mandatory in some jurisdictions.

Once the checklist is developed, researchers examine whether the predetermined item is disclosed or not in the annual report following a particular coding scheme (Abed et al., 2016; Shivaani et al., 2019). Lastly, researchers sum the scores given to each firm observation and then divide by the maximum score to determine the level of CRD. Even though the method (disclosure index) is effective, it has several weaknesses (Abed et al., 2016; Marston & Shrives, 1991). For instance, it has been criticised for being labour-intensive, expensive and subjective (Marston & Shrives, 1991). To minimise subjectivity, researchers advocate for reliability tests (Bufarwa et al., 2020; Elamer et al., 2019), and the use of computerised content analysis (Elshandidy & Neri, 2015).

The other common method to measure the quality of CRD is counting narratives. This method involves counting risk-related sentences (Linsley & Shrives, 2006), words (Abraham & Cox, 2007; Miihkinen, 2012) or texts (Ntim et al., 2013) then transforming the number into natural logarithms. Unlike the disclosure index, this approach takes count of the space devoted to the particular disclosure. Counting of narratives can be done manually or it can be automated. However, be it manual or automated content analysis, the debate has been on the choice of measurement unit such as the use of words, sentences, paragraphs or pages (Abed et al., 2016; Joseph & Taplin, 2011). The use of word as a measurement unit has been criticised because the word meaning relies on the syntactical role it plays within a sentence, and words do not convey any meaning (Linsley & Shrives, 2006).

Unerman (2000) argues that using sentences as a unit of measurement ignores the possibility that differences in sentence length may lead to different scores for companies disclosing the same amount of information. Conversely, Adler and Milne (1999) state that sentences provide complete, reliable and meaningful data for analysis as opposed to coding using a single word or a phrase. In this study, sentence is the commonly used measurement unit with 55 out of 59 selected articles. Notwithstanding the applicability of counting narratives to measure quality of CRD, it has also been accused of using quantity as a proxy of quality, leading to interpretational difficulties (Abed et al., 2016). To overcome the limitation of both disclosure index and counting narratives, we suggest further research to consider multi-method approach when measuring CRD. The multi-method approach takes into account multiple forms of CRD measurement, namely, qualitative

measurement and quantitative measurement (Mik-meyer, 2020). The triangulation of different measurement methods will help to explore the multi-dimensional nature of CRD (e.g., pre-modern and modern view), drawing from strengths and weaknesses of each method to improve robustness of results.

4.8. Disclosure techniques applied in previous studies

The aim here was to identify techniques commonly used to measure the quality of CRD. Figure 3 presents two main techniques, namely content analysis and computational linguistics. Employed in 58 articles, content analysis is the most frequently used method to measure quality. Computational linguistics was used in one out of the 59 selected papers. To measure CRD quality, the content analysis relies on predefined words or sentences, or both, that reflect risk in the annual reports (Elamer et al., 2020). Content analysis studies fall under two principal methods, namely manual and automated content analysis.

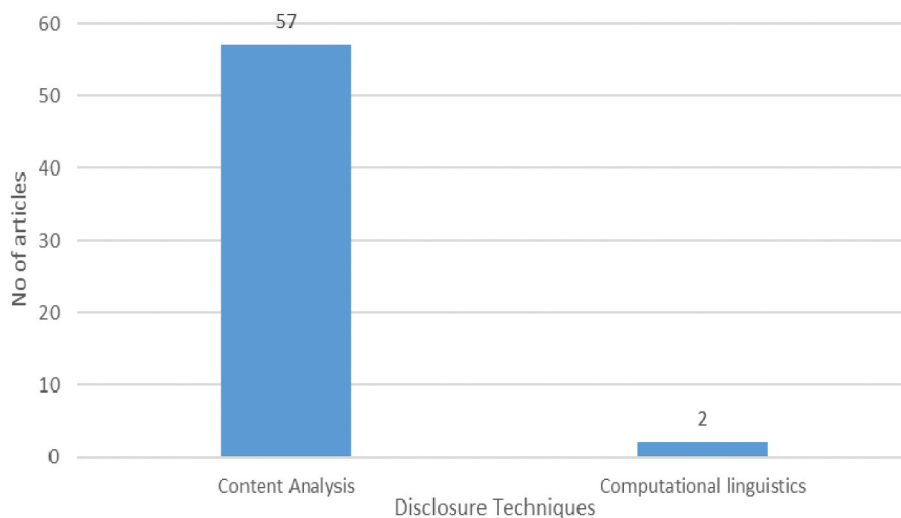
Manual content analysis involves developing a checklist of disclosure items and reading the entire narrative to identify relevant disclosures. It permits the use of quantitative and qualitative analysis, and thus allows the researcher to interpret better the meaning of specific words and phrases (Abed et al., 2016; Deumes, 2008). However, it is time-consuming and expensive if a large amount of data are involved (Abed et al., 2016; Deumes, 2008). In addition, Krippendorff (2004) argues that it might be challenging to design a reliable coding technique under manual content analysis. Because of this, researchers have resorted to automated content analysis.

Computational linguistics involves the use of natural language processing techniques from linguistics and artificial intelligence to measure the quality of CRD. This approach captures broad aspects of the disclosure that cannot be measured by other means when dealing with a large sample size (Beyer et al., 2010). Despite the superiority of the technique, accounting researchers still rely on content analysis because of lack of experience in natural language processing techniques (Ibrahim & Hussainey, 2019). Therefore, future studies should adopt the multi-disciplinary approach, borrowing from both linguistics and artificial intelligence to provide a meaningful measure for quality of CRD.

5. Future research avenues on quality of CRD

This section presents gaps in the extant CRD literature and provides suggestions for future research. Several avenues were identified for research based on the systematic review of quality of CRD literature. In terms of the yearly trends, there has been growth in quality of CRD research

Figure 3. Analysis by disclosure techniques.



among academicians as evidenced by an increase in the number of publications. This development may be attributed to pressure from stakeholders and the need for sustainable corporations (Abraham & Cox, 2007; Linsley & Shrides, 2006). There is need for further research to better understand the multi-dimensional nature of quality of CRD. Moreover, since quality of CRD is dynamic in nature, there is need to promote the accountability debate by using newer reporting frameworks to examine such quality.

Despite the growing interest in quality of CRD, the review suggests that quality of CRD is under-explored, especially in Africa. Most studies on quality of CRD focus on Europe and Asia. There is need for research investigating quality of CRD in other developing countries (Mazumder & Hossain, 2018). In addition, most of the studies on CRD focus on single country settings. The results from single country settings limit generalisation to other jurisdictions because each country has a unique regulatory environment framed within a political, social, cultural and economic context (Elshandidy et al., 2018). There is need for studies to provide comparative insights across countries and continents. Future studies should focus mostly on cross-country settings to evaluate the effectiveness of risk regulations put in place in achieving transparency. This will contribute to the CRD debate in developing uniform and best practices around the world.

Furthermore, most studies focus on quantitative methods to examine quality of CRD, namely disclosure index and counting narratives. According to Marston and Shrides (1991), quantitative methods are highly subjective; others use disclosure quantity as a proxy for disclosure quality, leading to interpretational difficulties (Al Lawati et al., 2021; Salem et al., 2019). Linsley and Shrides (2005) argue that qualitative methods (e.g., interviews) could provide important insights when assessing CRD. Therefore, future studies should examine CRD quality using mixed-methods (Creswell, 2014). This is because, first, the subject matter of CRD has both qualitative and quantitative characteristics. Second, it is both an observable reality (through existing corporate reports) and empirically testable (through relating it to hypothesis determining variables). Third, CRD is a social reality with meaning that exists in the minds of the managers involved in making decisions on whether to report and how to report. Moreover, mixed-methods provide better inferences and opportunities for presenting divergent views from different stakeholders (Tashakkori & Teddlie, 2003).

The review of influential papers (Table 5) suggests that there is no single theory that can be used to explain quality of CRD in totality. This reinforces the argument that CRD is a complex and multifaceted concept, with each theory presenting a certain aspect. We recall the submission by Ntim et al. (2013) that there is absence of uniform and comprehensive theory to study CRD. However, several theories have been used in literature. These include agency theory, resource dependence theory, signalling theory, stakeholder theory, legitimacy theory, institutional theory, proprietary theory, efficient market theory, political theory and management entrenchment theory. Future studies should adopt a multi-theoretical framework consisting of commonly used theories. The multi-theoretical framework provides wide lens and resonates with differences in cultural, social and institutional characteristics in different contexts (Al-Matari & Mgamal, 2019).

Regarding the meaning of quality of CRD, the review suggests that there is no universally accepted concept of CRD quality among the researchers (Allini et al., 2016; Beretta & Bozzolan, 2004). Likewise, some researchers do not define the term CRD quality and assume the reader is aware. Researchers are encouraged to state their perspective of CRD for their output to be meaningful. A proper justification should be provided why a particular perspective is preferred over the other. This is because quality based on the pre-modern view is different from quality based on the modern view even though there could be some similarities. In addition, the guidelines have not provided a universal definition of CRD quality. Instead, they have taken CRD quality to be risk information that meets a set of attributes. However, these attributes are not consistent across the guidelines. Future research could explore the possibility of harmonising CRD guidelines akin to financial reporting.

Table 5. Summary of studies with at least 100 citations on Quality of CRD (2004–2021)

Author	Country (Period)	Theory	Sample	Measurement of Quality of CRD	Meaning source	Finding
Beretta and Bozzolan (2004)	Italy, 2001	None	85 non-financial firms	CRD measured using risk categories (company strategy, company characteristics and external environment) and semantic properties (economic sign, type of measure and outlook orientation). Method: quantitative (manual content analysis).	(FASB, 2001; ICAEW, 2002; Bell et al., 1997)	The study found that quality of CRD is low (43.3%). In addition, industry and firm size varies across the quality dimensions.
Linsley and Shrive (2006)	UK, 2001	Attribution theory	79 FTSE non-financial firms	CRD measured using risk categories (financial risk, operational risk, empowerment risk, information processing and technology risk, integrity and strategic risks) and semantic properties (nature of disclosure, time horizon and type of news). Method: quantitative (manual content analysis).	(ICAEW, 1997; Milne & Hackston, 1996)	CRD is incomplete and incoherent. Furthermore, CRD is related with firm size and environmental risk, while leverage and asset cover are not related with CRD.

(Continued)

Table 5. (Continued)

Author	Country (Period)	Theory	Sample	Measurement of Quality of CRD	Meaning source	Finding
Rajab and Handley-Schachler (2009)	UK, 1998–2004	Agency theory, political cost theory and signalling theory	52-non-financial firms listed	CRD measured using risk categories (operational risks; environmental risk and strategic risk) and semantic properties (nature of evidence, type of news and news time-frame). Method: quantitative (manual content analysis).	(Linsley & Shrives, 2006)	The study found an increasing trend of CRD from 50.23% (1998) to 93.5% (2004). Also, CRD is related with dual listing and involvement in heavy industries, while firm size and leverage are not related with CRD.
Hassan (2009)	UAE, 2005	Institutional theory and signalling theory	49 financial and non-financial firms listed in Dubai financial market	CRD measured as quantitative and qualitative risk information. Method: quantitative (manual content analysis).	(Beretta & Bozzolan, 2004; Linsley & Shrives, 2006)	The study found that quality of CRD is low. Additionally, industry leverage influences risk disclosure while firm size does not.
Pérignon and Smith (2010)	USA, 1996–2005	None	10 largest international banks	CRD measured using value at risk characteristics, summary of value at risk comparison, intertemporal at risk figures, trading revenues and back testing. Method: quantitative (manual content analysis).	(BCBS, 1996)	The study found that quality of value at risk disclosure remained low while the level improved.

(Continued)

Table 5. (Continued)

Author	Country (Period)	Theory	Sample	Measurement of Quality of CRD	Meaning source	Finding
Oliveira et al. (2011)	Portugal, 2005	Agency theory, legitimacy theory and resources-based perspective.	42 non-financial firms listed in Euronext Lisbon market	CRD categorised as financial risk and non-financial risk and included semantic properties (economic sign, type of measure, outlook and type of disclosure). Method: quantitative (manual content analysis).	(Abraham & Cox, 2007)	The study found that risk disclosures are vague, past and qualitative. Also, risk disclosures are not affected by guidelines. Likewise, firm size and leverage influence quality of risk disclosure.
Miñkinen (2012)	Finland, 2005–2006	None	99 non-financial firms listed in the OMX Helsinki	CRD measured using risk categories (strategic risks, operational risks, financial risks, damage risks and risk management) and quality indicators (quantity, coverage, depth and outlook profile). Method: quantitative (manual content analysis).	(Linsley & Shrive, 2006)	The study found that quality of CRD increased after the introduction of the Finnish standard. Moreover, CRD is associated with firm size, profitability level and listing status.
Miñkinen (2013)	Finland, 2005–2009	Efficient market theory	Non-financial firms listed in Helsinki	CRD measured using risk categories (strategic risks, operational risks, financial risks, damage risks and risk management) and quality indicators (quantity and coverage). Method: quantitative (manual content analysis).	(Linsley & Shrive, 2006)	CRD quality has a negative impact on information asymmetry. CRD is useful if it is provided by small companies

(Continued)

Table 5. (Continued)

Author	Country (Period)	Theory	Sample	Measurement of Quality of CRD	Meaning source	Finding
Barakat and Hussainey (2013)	Europe, 2008–2010	Agency theory, management entrenchment theory, legitimacy theory, resource dependence theory and stakeholder theory	85 banks from 20 EU members	CRD measured using operational risk disclosure with 14 risk categories. Method: quantitative (manual content analysis).	(BCBS, 2006)	Banks provide moderate risk disclosures. Furthermore, outside board directors, lower executive ownership, concentrated outside non-governmental ownership and active audit committee are associated with quality risk disclosure.
Nim et al. (2013)	South Africa, 2002–2011	Agency, legitimacy, institutional, resource-dependence and stakeholder theories	50 non-financial firms listed in the Johannesburg Stock Exchange	CRD measured using risk categories (financial risks, operational risks and strategic risks) or 50 CRD items and quality indicators (nature of information and type of information, outlook). Method: quantitative (manual content analysis).	(Linsley & Shrive, 2006; King Committee, 2002)	CRD is largely non-financial, historical, qualitative and good news. Likewise, CRD is positively associated with board diversity, board size and independent non-executive directors, while block ownership and institutional are negatively related. In addition, dual board leadership structure is not related with CRD.

(Continued)

Table 5. (Continued)

Author	Country (Period)	Theory	Sample	Measurement of Quality of CRD	Meaning source	Finding
Mokhtar and Mellett (2013)	Egypt, 2007	Proprietary cost, agency theory, stakeholder theory, political cost, signaling theory and legitimacy theory	105 non-financial companies listed Egyptian Exchange	CRD measured using risk categories (financial risks, operational risks, empowerment risks, information processing and technology risks, integrity risks and strategic risks) and quality indicators (nature of information, type of information and outlook). Method: quantitative (manual content analysis).	(Linsley & Shrive, 2006)	The study found that quality of CRD is low (21.57%). Moreover, competition, role duality, ownership concentration, board size and auditor size influence CRD.
Abraham and Shrive (2014)	UK, 2002-2007	Proprietary and Institutional theory	Food producers and processing sector, four companies	CRD categorised as general, company-specific and analysed for meaning. Method: quantitative (manual content analysis).	(Abraham & Cox, 2007)	Risk disclosures are routine and general.
Hope et al. (2016)	USA, 2006-2011	Proprietary costs theory	A sample of 14,865 observations in 10-Ks	Developed measure of the degree of specificity in firms' risk-factor disclosures (Item 1A in the 10-K report) using computing algorithm. Method: quantitative (automated content analysis).	(Kravet & Muslu, 2013)	The market reaction to the 10-K filing is positively and significantly associated with specificity.

(Continued)

Table 5. (Continued)

Author	Country (Period)	Theory	Sample	Measurement of Quality of CRD	Meaning source	Finding
Allini et al. (2016)	Italy, 2008–2011	Agency theory and signaling theory	Sample of 17 SOEs	Adopted Linsley and Shives (2006) definition of risk, and computer-based content analysis to generate the risk disclosure score. Method: quantitative (automated content analysis).	(Kravet & Muslu, 2013)	The study found that quality of CRD is low (12.06). Additionally, gender, age of board members and directors having accounting/finance/business qualification negatively influence CRD, while company size and internet visibility positively influence CRD.

6. Conclusion

The paper sought to present clarity on the meaning and measurement of quality of CRD and directions for future research. Using a systematic literature review, this study analysed 59 accounting and non-accounting articles published between 2004 and 2021. The review of these studies revealed that, first, there is no universally accepted definition of CRD quality among researchers. Secondly, there are two perspectives commonly used to conceptualise quality of CRD, namely the pre-modern and modern perspectives. Thirdly, two methods have been commonly used to measure the quality of CRD, namely disclosure index and counting narratives. Fourthly, two techniques have been commonly used to measure the quality of CRD, namely content analysis and computational linguistics.

The paper suggests that any attempts to enhance quality of CRD should start by establishing a common framework to minimise diversity in CRD definition and measurement. Furthermore, based on the review of influential articles on CRD quality, the study found that quality of CRD is low and varies across firms within the same country though the measurement is different. The study recommends that the boundary of CRD quality should be defined based on the agreed set of rules, best practices or framework. Regulators also should intensify monitoring to enhance CRD quality.

However, like other studies, the study suffers from the following limitations. The study relied on archival data, pointing to the need for more reliable and valid hand-collected data. Future research should focus on other methods of data collection to help understand CRD aspects that cannot be observed using archival databases. In addition, the study used peer-reviewed literature and excluded grey literature, and this potentially eliminated some CRD insights. Future studies should expand the inclusion criteria to consider other journal ranking guides, other databases and studies that will be published in future.

Funding

The authors received no direct funding for this research.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Citation information

Cite this article as: Corporate risk disclosure: A systematic literature review and future research agenda, Erastus Mbithi, Tankiso Moloi & David Wangombe, *Cogent Business & Management* (2022), 9: 2105569.

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