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Construction of a sustainability reporting score index integrating sustainable development goals (SDGs). The case of Sri Lankan listed firms

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Abstract

Purpose – Although publicly listed firms in Sri Lanka have been increasingly adapting sustainability reporting into their annual reporting practices, a limited number of firms prepare sustainability reports by integrating sustainable development goals (SDGs) into reporting mechanisms. This study attempts to develop

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an index to monitor firms' sustainability reporting practices based on Global Reporting Institute (GRI) guidelines integrating SDGs.

Design/methodology/approach – This paper develops a sustainability score index using the 17 SDGs utilising the results of content analysis of corporate annual reports of a selected sample of 100 firms listed on the Colombo Stock Exchange (CSE). Principal component analysis was employed to examine the reliability of data in the developed index.

Findings – Findings show that the developed scoring index is efficient for evaluating the contents of the sustainability reports of Sri Lankan firms. Sustainability reporting practises with regard to the SDGs were observed to have a turbulent period from 2015 to 2019 and the SDGs 12 and 15 were identified to be mostly reported in Sri Lankan corporate sustainability reports.

Research limitations/implications – The results of the study add to knowledge on the monitoring of sustainability reporting practises with reference to SDGs. The study outcomes are useful for the investors, stakeholders, and statutory bodies to measure the sustainable performance of business firms and assess the firm's commitment towards the global sustainability agenda.

Originality/value – To the best of our knowledge, this is the first study that constructs a sustainability reporting score index integrating SDGs.

Keywords Sustainability reporting index, Sri Lanka, Public listed firms, Principal component analysis, SDGs

Paper type Research paper

1. Introduction

The term "sustainability" was introduced in the report "Our Common Future" by the Brundtland Commission in 1987. Sustainable development was then defined as the development that meets the needs of the present generation without compromising the ability of the future generation to meet their own needs (Brundtland *et al.*, 1987). The concepts of sustainability have evolved over the past few decades with the introduction of new theories and principles. The establishment of sustainable development goals (SDGs) by the United Nations member states in 2015 is a major milestone recognised by all governments and non-governmental institutions around the world as a framework towards achieving sustainability. At present, business organisations have identified the importance of incorporating sustainability-related strategies in their long-term economic growth. For instance, green finance is identified as an emerging discipline amongst the investors related to the capital markets, and sustainability reporting on corporate sustainability performance is being recognised as an indispensable aspect in the global setting (Liu and Wu, 2023). Green finance instruments such as green bonds, social bonds, sustainability bonds and transition bonds are acknowledged as financial instruments to fund environmental and climate-related projects and have gained better recognition in the capital market globally (Climatic Bond Initiative, 2023; Yousaf *et al.*, 2022). Measurement of the green effects over allocation, green investment impact assessment and disclosure of comparable and reliable environmental performance information are recognised as major challenges in the areas of green finance and corporate sustainability reporting (ICMA, 2015; Liu and Wu, 2023). Moreover, the International Sustainability Standards Board (ISSB) recently issued a global baseline for sustainability reporting as IFRS S1 and S2 that are focussed greatly on investors in the capital market (IFRS, 2023). These recent developments and trends disclose the dynamic nature of the sustainability reporting landscape in the global scenario.

Numerous sustainability reporting frameworks are being introduced to guide organisations in sustainability reporting practices. In terms of adaptation, the GRI standard remains the most widely acknowledged framework for corporate sustainability reporting globally (KPMG, 2020). Nevertheless, the adaptation of these guidelines remains an issue for corporates. The firms operating in different industry sectors may adopt guidelines for their corporate reporting cycle based on the top management preferences, necessities, relevance of the guidelines to business operations and the knowledge of the firm employees on sustainability concepts and legitimacy requirements (Dissanayake, 2020). The content of

sustainability reports may vary from region to region based on external and internal environmental characteristics. In this context, it is evident that the incomprehensibility and complexity of the existing sustainability reporting frameworks may deter the adoption of sustainability reporting practices by firms in different countries and regional settings (Dissanayake *et al.*, 2021).

A lower middle-income developing country such as Sri Lanka is observed to have a comparatively lower rate of adoption of complex and recently introduced reporting frameworks (KPMG, 2022). Furthermore, the existing corporate sustainability reporting practices lack comparability. Ample research has been conducted on the extent of the firms' engagement in sustainability reporting using the GRI guidelines as the base. The current study attempts to fill the knowledge gap by developing an index to monitor the sustainability reporting practices of firms by using 17 SDGs and GRI guidelines, which would exhibit firm performance towards the global agenda as well as measure progress towards achieving the global SDGs. A sample of 100 firms listed on the Colombo Stock Exchange as of June 2020 was selected and applied to the developed index. The developed score is used to gain an understanding of the current sustainability reporting practices in the Sri Lankan context, generally and in accordance with specific industry categories. The findings reveal that Sri Lanka has a lower adoption of the 17 SDGs in the corporate reporting cycles. This study is intended to support the firms in monitoring the sustainability reporting regarding a simpler, globally recognised framework.

The rest of the paper is organised into five sections. The second section reviews the existing literature related to sustainability reporting practices and the development of sustainability reporting indices. The third section illustrates the sample and the methodologies used to analyse the data by the development of sustainability reporting scores, and the fourth section includes the results of the study. The fifth section presents the discussion, and section six summarises the paper's key conclusions.

2. Literature review

2.1 Corporate sustainability reporting

Corporate Sustainability Reporting (CSR) is an emerging discipline. It could be defined as a mechanism to create data and measure the firm's progress and role in achieving global sustainable objectives (UNEP, 2021). Stakeholders, especially investors associated with a company, are required to assess the content of the sustainability reports to decide on their future investments through risk minimisation. However, the monitoring mechanism of CSR is ineffective without a standardised framework to assess the individual firm's non-financial reporting practices, enabling the comparability of the data. It is identified that a global challenge has been created by the lack of a consistent reporting framework (World Economic Forum, 2020). Therefore, firms require a standard set of reporting guidelines or frameworks to promote the comparability of sustainability reports. Even though the 6th target of the 12th SDG emphasises the significance of corporate sustainability reporting practices in the global arena, mere SDG definitions may not be adequate for SDG reporting (Pizzi *et al.*, 2020). Therefore, firms are encouraged to adapt reporting frameworks to promote the adoption of SDGs into their reporting cycles.

Corporate sustainability reporting is associated with different theories and these theories explain the sustainability reporting behaviour of firms. Legitimacy theory is a widely acknowledged concept of explaining sustainability reporting practices of firms (Deegan, 2002; Momin and Parker, 2013; Patten, 1991). The theory advocates that companies are compelled to adhere to societal norms and ethics to operate legitimately (Aggarwal and Singh, 2019). Legitimacy is correspondingly defined as a generalised perception that the firms' actions are appropriate within a socially constructed system (Suchman, 1995).

Thus, the corporate managers operating in accordance with the legitimacy theory propagate over ethical dimensions and enhance the public perception related to the firm operations (Aggarwal and Singh, 2019; Momin and Parker, 2013) Since firm legitimacy is offered by the groups exterior to the organisation, firms tend to encourage appropriate and positive information to be disclosed on their environmental and social performance so that they are legitimate and acceptable to the community (Da Costa Tavares and Dias, 2018). The theory can be associated with the Sri Lankan institutional context, as firms may engage in sustainability reporting practices to enhance their perceived legitimacy by disclosing their sustainability practices, social contributions, ethical business conduct, and environmental initiatives. Sri Lankan firms are usually encountering growing pressure from stakeholders such as customers, governmental authorities, and regulatory bodies. Sri Lanka is well known for its rich biodiversity and conserving its natural resources and ecosystems is considered an important aspect. Sri Lankan firms use corporate sustainability reporting practices to demonstrate their efforts in minimising environmental impacts, supporting the local communities, and complying with regulations to enhance their legitimacy to stakeholders.

In parallel, the stakeholder theory posits that firms should conduct their operations adhering to the interests of the stakeholder groups in an equitable manner (Clarkson, 1995). While the stakeholder theory addresses a set of interest groups that influence a firm's legitimacy, the legitimacy theory refers more broadly to the society as a whole (Ching and Gereb, 2017). In the organisational context of Sri Lanka, firms may identify key stakeholders such as the local communities, governmental bodies, customers, and employees, and engage in sustainability reporting to address the concerns and expectations of the stakeholders. The stakeholder theory's linkage is visible in Sri Lankan sustainability reporting, emphasising engagement with local communities, highlighting the customer-centric initiatives, and focussing on sustainability practices to attract socially responsible investors.

Furthermore, the impression management theory suggests that firms should provide information in order to manage the perception of the key stakeholders, while the signalling theory expresses the deliverance of superior information transparency (Dawkins and Ngunjiri, 2008). Firms may use sustainability reporting as a tool to impress and highlight positive aspects of their corporate sustainability efforts while downplaying the less favourable aspects. As a developing country, the emerging small businesses in Sri Lanka face challenges in addressing the economic, social, and environmental constraints with regard to sustainability. Hence, the theory applies to organisations using their sustainability reporting practices to project an image of commitment to sustainability and improvement. According to the signalling theory, the signals that an organisation sends to its stakeholders could be signals of intent (future action related), camouflage (to divert attention from potential negative impacts), or signals of necessity (Lopez-Santamaria *et al.*, 2021). These theoretical perspectives supporting the corporate sustainability disclosure mechanism explain the cause of engaging in sustainability reporting, necessitating continuous monitoring of the reporting practices.

2.2 SDG reporting

SDG reporting has become a coveted research topic in sustainability research in recent years. The SDGs, formulated by the United Nations in 2015, have presented a significant challenge to business organisations on how they are prepared to address the sustainability issues with the existing limitations of their business models and strategies. SDG reporting has been proven to provide a better platform for firms to incorporate sustainability issues into their corporate reporting cycle (Erin *et al.*, 2022).

The firms are found to gain a competitive advantage by synchronising their corporate sustainability reporting practices with the SDGs by explicitly outlining the SDGs in their sustainability reports. Firms' contributions to the national development agenda can be expressed more systematically with SDG reporting practices, and firms can uplift their corporate image by being more environmentally and socially conscious (Erin *et al.*, 2022). SDGs are also viewed as a framework for strategic corporate sustainability reporting (Elalfy *et al.*, 2021). Firms can differentiate themselves and gain competitive advantage by adapting sustainability concepts and frameworks such as the SDGs (Rosati and Faria, 2019; Bose and Khan, 2022).

Larger organisations and publicly listed firms are found to integrate SDGs more likely than small organisations. This is partly because firms cannot readily identify the performance indicators specific to SDG activities, and sustainability reporting is not a mandatory requirement (Elalfy *et al.*, 2021; Erin *et al.*, 2022). Therefore, proper regulatory enforcement, a strong institutional setting, and a government structure are essential in systematically promoting the integration of SDGs into reporting.

2.3 Development of non-financial reporting scores and indices

A sustainability index is alleged to stimulate firms' reporting practices, which could drive profits and growth (Beekaroo *et al.*, 2019). Nevertheless, the independent assurance of sustainability reports to enhance the credibility of the firm hardly captures the volume and quality of sustainable information provided. This phenomenon has led to the necessity of a scoring system for firms' sustainability reporting practices (Ching and Gereb, 2017).

Different authors have developed sustainability indices in diverse country and industrial settings to measure the sustainability performance of firms and non-profit organisations. Beekaroo *et al.* (2019) worked on developing a sustainability index to quantify the impacts of Mauritian manufacturing activities by forming a multi-item measuring tool (Beekaroo *et al.*, 2019). Similarly, corporate sustainability reporting indices have been built using results of content analysis and referring to other existent global indices for different industries such as the cruise industry and different national settings (Bonilla-Priego *et al.*, 2014; Garg, 2017; Firmialy and Nainggolan, 2019).

Boggia *et al.* (2018) undertook an approach in developing an assessment procedure to measure environmental sustainability with a multi-criteria index named "METER". The index was developed specifically to measure the environmental sustainability of events (Boggia *et al.*, 2018).

In addition to the sustainability reporting scores constructed, several authors have evaluated the extent of reporting of SDGs by firms in different contexts, such as incorporating SDGs in reporting (Pizzi *et al.*, 2020; Bose and Khan, 2022). However, the scores developed have not captured the extent of the goals or indicators the firms have reported on their sustainability efforts in the SDG-related studies.

2.4 Measuring the corporate sustainability reporting content in Sri Lanka

Research in the Sri Lankan context has primarily measured the sustainability performance of firms using the content analysis of published sustainability information or semi-structured interviews with managers (Dissanayake *et al.*, 2021). The work by Wijesinghe (2012) is notable for developing a disclosure index for corporate social responsibility disclosures. Content analysis was used in the study to develop the disclosure index, where 57 disclosure items were identified on the basis of the GRI index. The score is built upon the percentage of the disclosure items adapted by each disclosure compared to the total number of disclosure items.

The sustainability reporting scores developed in the Sri Lankan context can be classified as ranging from simple to complex nature. Shamil *et al.* (2014) have produced the

sustainability reporting score using a binary variable, whereas Dissanayake *et al.* (2016) have developed an index using 10 criteria. Referring to prior literature, to the best of our knowledge, no study has evaluated the corporate sustainability reporting content using the SDGs as a framework that would facilitate business organisations in monitoring their path towards the 2030 Sustainability Agenda in the Sri Lankan context. Therefore, this study intends to fill that gap by evaluating the corporate sustainability reporting content and integrating SDGs as a reporting framework. Furthermore, our study will make key contribution to the limited SDG research in sustainability literature as it develops a reporting index based on the extent to which the SDGs have been disclosed.

3. Methodology

3.1 Data

The study population consists of 284 publicly listed firms on the Colombo Stock Exchange (CSE) as of June 2020. This study employed a sample of 100 firms in Sri Lanka listed on the Colombo Stock Exchange (CSE) for the financial reporting period from 2015 to 2019. The financial reporting period from 2015 to 2019 was chosen to avoid any external effects or turbulence on the data caused by the pandemic season. The year 2015 was chosen as the starting point because the SDGs were introduced in the year 2015, making the period from 2015 to 2019 the most relevant for examining the variability of data. The sustainability reports of the firms with the highest and lowest market capitalisation were examined in the study, which included the top 50 firms and the bottom 50 firms according to the market capitalisation. These firms were selected based on the availability of a sustainability report or the inclusion of sustainability content in their annual reports, whereas the firms with no sustainability report were disregarded. Further, the firms were categorised under the Global Industry Classification Standards (GICS) (MSCI, 2022; Whittingham *et al.*, 2022). The industry categories defined for each firm by the CSE were classified into 10 industry sectors, as depicted in Table A1 [1], in accordance with the GICS standards to simplify data classification. Following the methodology of Joseph *et al.* (2014), a simplified disclosure index was developed using content analysis of the sustainability reports.

3.2 Content analysis

Content analysis is a primary tool for analysing published information (Jose and Lee, 2007) and is widely used in corporate social responsibility research (Gray *et al.*, 1995). Initially, a set of codes was developed based on existing literature (Buhmann *et al.*, 2019; Erin and Bamigboye, 2021; Lopez, 2020). Quantitative content analysis was performed where the set of codes, or the coding scheme, was decided before the coding process in accordance with the SDGs. Table A2 [1] presents the SDGs and the relevant business reporting indicators used as the coding scheme in the content analysis. The text was then coded while reading the sustainability reports thoroughly. NVivo qualitative analysis software was used to reduce the complexity of the data. Coding the data involved encoding it after reading and classifying crucial moments and placing them into containers named by the identified specific name of the goal. Since codes assign a symbolic meaning to the information compiled during the study (Miles *et al.*, 2014), the words and phrases denoting important sustainability aspects in the sustainability reports referring to the SDGs were identified as references according to the previously defined coding schemes (Table A2 [1]).

3.3 Developing a score for sustainability reporting

A score system can be defined as a methodology to provide alleged credibility to the interested stakeholders or readers concerning the extent of disclosure in sustainability

reports (Ching and Gereb, 2017). The sustainability reporting score was assigned according to the methodology followed by Boggia *et al.* (2018) and Firmialy and Nainggolan (2019), allocating scores for the content disclosed. This study assigned a 1–5 score for each firm's performance in a particular year, with indicators created in relation to the SDG. The score was initiated from 1 to avoid the index getting a null sustainability reporting score since all firms were selected based on the fact that there was a sustainability disclosure mechanism for all five years. Therefore, the minimum score for sustainability reporting by a firm was accounted for a score of 17 (17*1), while the maximum score probable was accounted for 85 (17*5).

D_{it} represents the number of references (coded through content analysis of the reports) for a particular firm i in the reporting year t. The goal number is represented by $j = \{1,2,3 \ldots,17\}$. D_j represents the number of references of a particular firm referring to the goal j. The score for that firm i for goal j, $S_{i,j}$ was determined by dividing the range of the series of references under the particular goal by 5 and assigning a value from 1–5 as per equation (1) and equation (2).

$$S_{i,j} = \begin{cases} 5, if\ D_{ij} > \min(D_j) + 4W \\ 4, if\ D_{ij} > \min(D_j) + 3W \\ 3, if\ D_{ij} > \min(D_j) + 2W \\ 2, if\ D_{ij} > \min(D_j) + W \\ 1, Otherwise \end{cases} \tag{1}$$

$$W = \frac{(\max(D_j) - \min(D_j))}{5} \tag{2}$$

The sustainability reporting score for a firm i in the particular reporting year t was calculated as in equation [3]. The sustainability reporting score $SR_{i,t}$ for the firm i in the year t would be the summation of the scores obtained for all 17 goals.

$$SR_{i,t} = \sum_{j=1}^{17} S_{i,j} \tag{3}$$

Further, a sustainability reporting score was developed using the Principal Component Analysis (PCA) methodology (Hotelling, 1933) and compared with the developed index in the study to ensure the validity of the sustainability reporting index constructed by using the STATA 16 statistical software. The PCA methodology introduced by Hotelling (1933) was used to identify the optimum variables while reducing the dimensionality of the data set and retaining as much variation as possible in the data set. Furthermore, descriptive statistics examined the scores developed according to different industry sectors.

4. Results

4.1 Sustainability reporting score index

A total of 11,802 references were identified based on content analysis. The sustainability reporting score was calculated using the references. General descriptive statistics of the sustainability reporting score obtained are summarised in Figure A1 [1] and Table A3 [1]. Figure A1 [1] shows the boxplot diagram of the concentration of data of the sustainability reporting scores developed in the study.

The descriptive statistics obtained for individual SDGs in Table A3 [1] show that SDGs 12 and 15 were most commonly reported by firms, while the least reported goals were 16 and 17. Figure A2 [1] gives a graphical illustration of the variation of written content according to the specific SDGs.

Pre-estimation tests, such as the Kaiser-Meyer-Olkin (KMO) test for measuring sample adequacy and the Bartlett test of sphericity were conducted. The results are shown in Table A4 [1]. It is observed that the variables are acceptable to conduct PCA. The Bartlett test for sphericity similarly confirms that the null hypothesis of no inter-correlation amongst variables could be rejected, and it is appropriate to perform PCA on the data set.

Consequently, the PCA was performed to identify the best linear combination of variables, which demonstrates the data set variation more precisely. The results of PCA are shown in Table A5 [1]. The first principal component, accounting for 21% of the variability in the data set, was chosen as the linear combination of the variables as it illustrated the highest variability in the data set. The sustainability reporting score SR_{pca} was obtained by predicting the values for the first principal component using the STATA 16 statistical software.

The developed score (SR_{it}) was compared with the predicted score (SR_{pca}) through the PCA to check the validity of the developed model (Firmialy and Nainggolan, 2019). A pairwise comparability test was performed, and SR_{it} and SR_{pca} results were found to be highly correlated with each other, showing a value of 0.9899 with statistical significance (p-value<0.05). This indicates that the results from these two approaches are comparatively similar, and the developed SR index is effective.

4.2 Sustainability reporting score according to industry sectors

The firms in the sample for the study were categorised into 10 industry sectors following the GICS, as shown in Table A1 [1]. A majority of the firms in the sample belonged to the financial sector, while fewer belonged to the communication and utility sectors.

Figure A3 [1] represents the boxplot diagram of the developed sustainability reporting scores according to the industry categories. The highest reporting scores were observed in firms in the real estate sector and consumer discretionary (non-essential consumer goods) sector. In contrast, the least sustainability reporting scores were reported from the utilities and communication services sectors.

Figure A4 [1] shows the variability of the average sustainability reporting scores from 2015 to 2019 according to industry categories. It was observed that all industry sectors represented a downward trend in sustainability reporting practices concerning the SDGs from 2015 until 2017, followed by a considerable increase in 2018 and a slight reduction in 2019.

5. Discussion

The developed sustainability reporting index could be employed as guidelines to report and measure the firm's sustainability levels. The present study used the SDGs to establish the matrices or criteria to evaluate the sustainability content in the reports. The study adds new knowledge by extending beyond prior research conducted on environmental sustainability efforts for specific industries and indicators based on GRI guidelines (Beekaroo *et al.*, 2019; Boggia *et al.*, 2018; Bonilla-Priego *et al.*, 2014; Garg, 2017).

It was observed that the average SRS of 22.5 is about 26% of the maximum reporting score that could be achieved. The SDG reporting score developed by Pizzi *et al.* (2020) showed that the average score equals 33.6% of the total indicators to be covered in the case of Italian companies. This indicates that the average sustainability reporting practices incorporating SDGs are at a lower level in Sri Lanka compared to the findings of Pizzi *et al.* (2020) and Bose and Khan (2022). The necessity of establishing guidelines in favour of SDGs is exhibited through the findings. Furthermore, the reduced percentage of reporting SDGs could be accounted for by the corporate management being selective of the SDGs to disclose based on the stakeholder theory (Clarkson, 1995; Dissanayake *et al.*, 2021).

The results of the study revealed that publicly listed Sri Lankan firms tend to report more information regarding SDGs 12 and 15, which are on responsible consumption and production and life on land. More firms have referred to mitigating the environmental impact of their operations, as the current sustainability reporting regulations are more inclined towards environmental aspects (Ministry of Environment Sri Lanka, 2011). Furthermore, the results were in line with the work of Fonseka and Carvalho (2019) and Whittingham *et al.* (2022), where it was found that the highest average score accounted for SDG 12. The inclination of the firms towards reporting on environmental aspects and resource efficiency signifies the firms are paying attention to gaining credibility and legitimacy in the societal context in the case of Sri Lanka, conforming to the legitimacy theory (Suchman, 1995). Additionally, the mostly reported and least reported SDGs in the results show that firms tend to report on SDGs, which create a positive image for the stakeholders and society in which they operate. Firms may tend to report on matters related to responsible consumption and production, and biodiversity, as stakeholders associated with Sri Lankan firms influence them to comply with societal and stakeholder expectations in accordance with both Legitimacy and stakeholder theory perspectives (Aggarwal and Singh, 2019; Ching and Gereb, 2017). Moreover, firms may provide the information to manage the perception of the stakeholders and signal better sustainability performance through more focussed information on their contribution to the sustainability agenda (Dawkins and Ngunjiri, 2008).

It was observed that variations in institutional factors and different stakeholder engagements give rise to variations in the relationships with the firm's financial performance (Karyawati *et al.*, 2020). Moreover, the results are aligned with the results of Salehi *et al.* (2019), where it was found that firms in different industry categories vary significantly and the sustainability reporting practices vary with different industry sectors in the country (Salehi *et al.*, 2019).

The lowest reporting score belonging to the utility and communication sectors shows that the stakeholder theory has influenced the reporting practices of those firms. Reporting practices are being managed to address specific stakeholder needs, and these sector firms have the least legitimacy issues compared to other industry sectors (Suchman, 1995). As the highest reporting scores are accounted for by the real estate and consumer discretionary sector, it is evident that these firms try to increase the demand for their products by creating an impression and providing information to manage the perception of their customers (Dawkins and Ngunjiri, 2008).

The results shown in Figure A4 [1] for different industry sectors reveal that the overall sustainability reporting concerning SDGs decreased over the years from 2015 to 2017 and increased in 2018 but slightly decreased in 2019. This variation of SDG-incorporated reporting in Sri Lankan firms is justifiable to the findings of Bose and Khan (2022). Additionally, in the case of the global scenario on SDG-incorporated reporting, the firms incorporating SDGs were limited only to European and Latin American firms from 2015 to 2017. Rapid growth in SDG-incorporated reporting was observed after that, including Asian and North American firms (KPMG, 2017, 2020). This shows that the newly established concepts in European nations on sustainability, such as the global SDGs, have taken some time to be adopted by non-European countries such as Sri Lanka.

The positive trend observed in the sustainability reporting practices of Sri Lanka could be attributed to the country's regulatory frameworks. The Sustainable Development Council of Sri Lanka was established after the establishment of the Sustainable Development Act No. 19 of 2017 to coordinate, facilitate, monitor, and evaluate the reporting practices on the implementation of the global agenda for sustainable development in Sri Lanka (Sustainable Development Council of Sri Lanka, 2022). This establishment of national regulations triggered SDG-incorporated reporting practices in Sri Lanka after 2017. Presently, the sustainability reported content is evaluated based on the National Green Reporting System of Sri Lanka, a set

of guidelines which were developed in collaboration with the Ministry of Environment in 2011 after the introduction of the National Action Plan of the Haritha (green) Lanka Program in 2009 (Ministry of Environment Sri Lanka, 2011). Furthermore, the National Green Reporting System (NGRS) is formulated on the basis of the GRI – G3 guidelines, which were launched in 2006 (Global Reporting Initiative, 2022) along with ISO 26000 standards. However, these standards need to be updated to best represent the guidelines in the global context. Better national sustainability regulations such as the implementation of the Sustainable Development Council of Sri Lanka in 2017 could be forwarded as the reason for enhanced sustainability reporting performance (Bose and Khan, 2022).

6. Conclusion

The study developed a sustainability reporting score index using the global SDGs. PCA was employed in the study to check the reliability of the formulated sustainability score index by evaluating the 17 SDGs. It was identified that the developed scoring index efficiently assesses the sustainability reporting content in Sri Lankan firms. A sample of 100 firms listed in the CSE was chosen, and the methodology was implemented to determine the extent of firms' sustainability reporting. The methodology developed contributed to the literature by introducing a novel framework for evaluating the sustainability reporting content with specific reference to SDGs. This framework will assist both firms and governmental organisations in assessing the path of Sri Lanka towards a sustainable future.

Updating the existing Sri Lankan corporate sustainability guidelines based on the novel standards and formulating a framework to encourage all the firms in Sri Lanka on sustainability reporting would be beneficial. Editing and revising the evaluation criteria and indicators to best suit the current reporting practice of Sri Lanka, combined with the SDGs, would be an added advantage. Reporting on SDG achievement is not only a better impression and risk management tool for firms but also a tool to gain a competitive advantage in the global market. The SDGs need to be promoted while conveying their importance to different industry categories and explaining how they could be used to exploit benefits through adoption. Therefore, the research findings could encourage governmental organisations and regulators to set and update national guidelines to measure the private sector's progress towards achieving the global agenda. Additionally, the findings may be valuable to the researchers and corporates in developing, assessing, and reporting sustainability-related content in conjunction with the corporate reporting cycle of a firm.

This study has several limitations. Firstly, the study has been conducted to give an overall understanding of the companies in the Sri Lankan context with respect to global SDGs, considering the market capitalisation as a basis. Future research could be suggested to engage specific industry sectors which are sensitive to environmental, social, and sustainability issues to benchmark themselves amongst companies in the same industry. Furthermore, future research could be recommended to include how the developed sustainability reporting score would influence firm performance and other indicators. While PCA was used to examine the reliability of the formulated scoring methodology, other models or approaches can be tested for the robustness of the results. Moreover, a future study can be conducted covering the period of COVID-19 disruptions to explore the sustainability activities during that turbulent period.

Note

1. Please see it on the Online Appendix.

References

Aggarwal, P. and Singh, A.K. (2019), "CSR and sustainability reporting practices in India: an in-depth content analysis of top-listed companies", *Social Responsibility Journal*, Vol. 15 No. 8, pp. 1033-1053, doi: 10.1108/srj-03-2018-0078.

Beekaroo, D., Callychurn, D. and Hurreeram, D. (2019), "Developing a sustainability index for Mauritian manufacturing companies", *Ecological Indicators*, Vol. 96, pp. 250-257, doi: 10.1016/j.ecolind.2018.09.003.

Boggia, A., Massei, G., Paolotti, L., Rocchi, L. and Schiavi, F. (2018), "A model for measuring the environmental sustainability of events", *Journal of Environmental Management*, Vol. 206, pp. 836-845, doi: 10.1016/j.jenvman.2017.11.057.

Bonilla-Priego, M., Font, X. and Pacheco-Olivares, M. (2014), "Corporate sustainability reporting index and baseline data for the cruise industry", *Tourism Management*, Vol. 44, pp. 149-160, doi: 10.1016/j.tourman.2014.03.004.

Bose, S. and Khan, H.Z. (2022), "Sustainable development goals (SDGs) reporting and the role of country-level institutional factors: an international evidence", *Journal of Cleaner Production*, Vol. 335, 130290, doi: 10.1016/j.jclepro.2021.130290.

Brundtland, G.H., Khalid, M., Agnelli, S., Al-Athel, S. and Chidzero, B.J.N.Y. (1987), *Our Common Future*, Oxford University Press, Oxford.

Buhmann, K., Jonsson, J. and Fisker, M. (2019), "Do no harm and do more good too: connecting the SDGs with business and human rights and political CSR theor", *Corporate Governance*, Vol. 19 No. 3, pp. 389-403, doi: 10.1108/cg-01-2018-0030.

Ching, H. and Gereb, F. (2017), "Sustainability reports in Brazil through the lens of signaling, legitimacy and shareholder theories", *Social Responsibility Journal*, Vol. 13 No. 1, pp. 95-110, doi: 10.1108/srj-10-2015-0147.

Clarkson, M. (1995), "A stakeholder framework for analyzing and evaluating corporate social performance", *Academy of Management Review*, Vol. 20 No. 1, pp. 92-117, doi: 10.5465/amr.1995.9503271994.

Climatic Bond Initiative (2023), "Sustainable debt market summary Q1 2023", available at: https://www.climatebonds.net/resources/reports/q1-2023-market-update-sustainable-debt-shows-recovery

Da Costa Tavares, M. and Dias, A. (2018), "Theoritical perspectives on sustainability reporting: a Literature Review", in *Accounting from a Cross-Cultural Perspective*, s.l., intechopen.

Dawkins, C. and Ngunjiri, F. (2008), "Corporate social responcibility reporting in South Africa; A descriptive and comparative analysis", *The Journal of Business Communications*, Vol. 45 No. 3, pp. 286-307, doi: 10.1177/0021943608317111.

Deegan, C. (2002), "Introduction: the legitimising effect of social and environmental disclosures-a theoretical foundation", *Accounting, Auditing and Accountability Journal*, Vol. 15 No. 3, pp. 282-311, doi: 10.1108/09513570210435852.

Dissanayake, D. (2020), "Sustainability key performance indicators and the global reporting initiative: usage and challenges in a developing country context", *Meditari Accountancy Research*, Vol. 29 No. 3, pp. 543-567, doi: 10.1108/medar-08-2019-0543.

Dissanayake, D., Tilt, C. and Lobo, M. (2016), "Sustainability reporting by publicly listed companies in Sri Lank", *Journal of Cleaner Production*, Vol. 129, pp. 169-182, doi: 10.1016/j.jclepro.2016.04.086.

Dissanayake, D., Tilt, C. and Qian, W. (2021), "How to public companies respond to national challenge through sustainability reporting? - the case of Sri Lanka", *Qualitiative Research in Accounting and Management*, Vol. 18 No. 5, pp. 455-483, doi: 10.1108/qram-06-2020-0088.

Elalfy, A., Weber, O. and Geobey, S. (2021), "The Sustainable Development Goals (SDGs): a rising tide lifts all boats? Global reporting implications in a post SDGs world", *Journal of Applied Accounting Research*, Vol. 22 No. 3, pp. 557-575, doi: 10.1108/jaar-06-2020-0116.

Erin, O.A. and Bamigboye, O. (2021), "Evaluation and analysis of SDG reporting: evidence from Africa", *Journal of Accounting and Organizational Change*, pp. 1832-5912.

Erin, O.A., Bamigboye, O.A. and Oyewo, B. (2022), "Sustainable development goals (SDG) reporting: an analysis of disclosure", *Journal of Accounting in Emerging Economies*, Vol. 12 No. 5, pp. 761-789.

Firmialy, S.D. and Nainggolan, Y.A. (2019), "Constructing the ideal SRI (sustainability reporting index) framework for Indonesian market: combined perspectives from rating agencies, academics, and practitioners", *Social Responsibility Journal*, Vol. 15 No. 5, pp. 573-596, doi: 10.1108/srj-07-2016-0128.

Fonseka, L. and Carvalho, F. (2019), "The reporting of SDGs by quality, environmental, and occupational Health and safety-certified organizations", *Sustainability*, Vol. 11 No. 20, 5797, doi: 10.3390/su11205797.

Garg, P. (2017), "Development of sustainability reporting index (SRI) with special reference to companies in India", *Decision*, Vol. 44 No. 4, pp. 259-273, doi: 10.1007/s40622-017-0162-8.

Global Reporting Initiative (2022), "GRI", available at: https://www.globalreporting.org/abut-gri/mission-history/

Gray, R., Kouhy, R. and Lavers, S. (1995), "Corporate Social and Environmental Reporting; A review of literature and a longitudinal study of UK disclosure", *Accounting, Auditing and Accountability Journal*, Vol. 8 No. 2, pp. 47-77, doi: 10.1108/09513579510146996.

Hotelling, H. (1933), "Analysis of a complex of statistical variables into principal components", *Journal of Educational Psychology*, Vol. 24 No. 6, pp. 417-441, doi: 10.1037/h0071325.

ICMA (2015), "Green bond principles, voluntary process guidelines for issuing green bonds", available at: https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/GBP_2015_27-March.pdf (accessed 17 August 2023).

IFRS (2023), "IFRS sustainability standards navigator", available at: https://www.ifrs.org/issued-standards/ifrs-sustainability-standards-navigator/ (accessed 17 August 2023).

Jose, A. and Lee, S. (2007), "Environmental reporting of global cooperations: a content analysis based on website disclosures", *Journal of Business Ethics*, Vol. 27, pp. 307-321.

Joseph, C., Pilcher, R. and Taplin, R. (2014), "Malaysisan Local government Internet sustainability reporting", *Pacific Accounting Review*, Vol. 26 No. 2, pp. 75-93, doi: 10.1108/par-07-2013-0071.

Karyawati, G., Subrato, B., T, S. and Saraswati, E. (2020), "Explaining the complexity relationship of CSR and financial performance using neo-institutional theory", *Journal of Asian Business and Economic Studi*, Vol. 27 No. 3, pp. 227-244, doi: 10.1108/jabes-10-2019-0106.

KPMG (2017), *The Road Ahead; the KPMG Survey of Sustainability Reporting 2020*, s.l, KPMG, Chetpet.

KPMG (2020), *The Time Has Come; the KPMG Survey of Sustainability Reporting 2020*, s.l, KPMG, Chetpet.

KPMG (2022), *Big Shifts, Small Steps: Survey of Sustainability Reporting 2022*, s.l, KPMG.

Liu, C. and Wu, S.S. (2023), "Green finance, sustainability disclosure and economic implications", *Fulbright Review of Economics and Policy*, Vol. 3 No. 1, pp. 1-24, doi: 10.1108/frep-03-2022-0021.

Lopez, B. (2020), "Connecting business and sustainable development goals in Spain", *Marketing Intelligence and Planning*, Vol. 38 No. 5, pp. 573-585, doi: 10.1108/mip-08-2018-0367.

Lopez-Santamaria, M., Amaya, N., Hinestroza, M.P.G. and Cuero, Y.A. (2021), "Sustainability disclosure practises as seen through the lense of signalling theory: a study of companies listed on the Colombian Stock Exchange", *Journal of Cleaner Production*, Vol. 317, 128416, doi: 10.1016/j.jclepro.2021.128416.

Miles, M., Huberman, A. and Saldana, J. (2014), *Qualitative Data Analysis: A Methods Sourcebook. Third Edition Ed*, s.l., SAGE, London.

Ministry of Environment Sri Lanka (2011), *National Green Reporting System of Sri Lanka*, s.l., Ministry of Environment, Chennai.

Momin, M. and Parker, L. (2013), "Motivations for corporate social responcibility reporting by MNC subsidiaries in an emerging country: the case of Bangladesh", *The British Accounting Review*, Vol. 45 No. 3, pp. 215-228, doi: 10.1016/j.bar.2013.06.007.

MSCI (2022), "The global industry classification standard", available at: https://www.msci.com/our-solutions/indexes/gics

Patten, D. (1991), "Exposure, Legitimacy and social disclosure", *Journal of Accounting and Public Policy*, Vol. 10 No. 4, pp. 297-308, doi: 10.1016/0278-4254(91)90003-3.

Pizzi, S., Rosati, F. and Venturelli, A. (2020), "The determinants of business contribution to the 2030 agenda: introducing the SDG reporting score", *Business Strategy and Environment*, Vol. 30, pp. 1-18, doi: 10.1002/bse.2628.

Rosati, F. and Faria, L. (2019), "Addressing the Sustainable Development Goals in sustainability reports: the relationship with institutional factors", *Journal of Cleaner Production*, Vol. 215, pp. 1312-1326, doi: 10.1016/j.jclepro.2018.12.107.

Salehi, M., Tarighi, H. and Rezanezhad, M. (2019), "Empirical study on the effective factors of social responsibility disclosure of Iranian companies", *Journal of Asian Business and Economic Studies*, Vol. 26 No. 1, pp. 34-55, doi: 10.1108/jabes-06-2018-0028.

Shamil, M., Shaikh, J.M., Ho, P.L. and Krishnan, A. (2014), "The influence of Board characteristics on Sustainability Reporting; Empirical evidence from Sri Lankan firms", *Asian Review of Accounting*, Vol. 22 No. 2, pp. 78-97, doi: 10.1108/ara-09-2013-0060.

Suchman, M. (1995), "Managing legitimacy: strategic and institutional approaches", *The Academy of Management Review*, Vol. 20 No. 3, pp. 571-610, doi: 10.2307/258788.

Sustainable Development Council of Sri Lanka (2022), Sustainable Development Council of Sri Lanka, available at: sdc.gov.lk

UNEP (2021), "Corporate sustainability reporting", available at: www.unep.org (accessed 2022).

Whittingham, K., Earle, A., Levya-de a Hiz, D. and Argiolas, A. (2022), "The impact of the United Nations sustainable development goals on corporate sustainability reporting", *BRQ Business Research Quarterly*, Vol. 26 No. 1, pp. 45-61, doi: 10.1177/23409444221085585.

Wijesinghe, K. (2012), "Current context of disclosure of corporate social responsibility in Sri Lanka", *Procedia Economics and Finance*, Vol. 2, pp. 171-178, doi: 10.1016/s2212-5671(12)00077-9.

World Economic Forum (2020), *Measuring Stakeholder Capitalism; towards Common Metrics and Consistent Reporting of Sustainable Value Creation*, s.l., World Economic Forum, Cologny.

Yousaf, I., Suleman, M.T. and Demirer, R. (2022), "Green investments: a luxary good or a financial necessity?", *Energy Economics*, Vol. 105, 105745, doi: 10.1016/j.eneco.2021.105745.

Supplementary online appendix
Supplementary material for this article can be found online.

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