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MAPPING OF RESEARCH THEMES ON ENVIRONMENTAL, SOCIAL, AND GOVERNANCE (ESG) USING LEXIMANCER

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Abstract

This article presents a study using Leximancer (a text mining tool to visualize themes and concepts in text) to find any themes that still have a great opportunity to be studied further related to ESG. This study used the Scopus database and gathered 159 published articles from 2011 to 2020. The articles were selected based on the analysis of the abstract, the theory used, including the development of hypothesis (if any), and conclusions. Further analysis was carried out based on the main themes generated from the Leximancer. Based on the main themes generated from Leximancer software, overall, the 'social' theme was the most dominant, while themes such as 'investor' and 'sustainability' were less dominant. This review reveals that the themes and concepts resulting from Leximancer's content analysis have not been widely studied in the previous literature. Our study continues the previous literature review with a different scope and method. Leximancer offers a larger list of potentially useful keywords for further analysis and provides a visually appealing display of themes and concepts and their level of importance. The results of this review could be used as a basis for providing academic guidance in future ESG research, by providing an opportunity for researchers to identify the unique aspects of it, the analysis of which could bring to light connections that were previously unknown and thus can advance our understanding of the complex nature of ESG to bring a more interesting vibe to it and set the right expectations.

Keywords: Leximancer, ESG, ESG themes, ESG concepts

Abstrak

Artikel ini menyajikan sebuah studi menggunakan Leximancer (alat penambangan teks untuk memvisualisasikan tema dan konsep dalam teks) untuk menemukan tema-tema yang masih memiliki peluang besar untuk diteliti lebih lanjut terkait ESG. Studi ini menggunakan basis data Scopus dan mengumpulkan 159 artikel yang diterbitkan dari tahun 2011 hingga 2020. Artikel-artikel tersebut dipilih berdasarkan analisis abstrak, teori yang digunakan, termasuk pengembangan hipotesis (jika ada), dan kesimpulan. Analisis lebih lanjut dilakukan berdasarkan tema utama yang dihasilkan dari Leximancer. Berdasarkan tema utama yang dihasilkan dari perangkat lunak Leximancer, secara keseluruhan, tema 'sosial' adalah yang paling dominan, sementara tema seperti 'investor' dan 'keberlanjutan' kurang dominan. Tinjauan ini mengungkapkan bahwa tema dan konsep yang dihasilkan dari analisis konten Leximancer belum banyak dipelajari dalam literatur sebelumnya. Studi kami melanjutkan tinjauan pustaka sebelumnya dengan cakupan dan metode yang berbeda. Leximancer menawarkan daftar kata kunci yang lebih besar yang berpotensi berguna untuk analisis lebih lanjut dan menyediakan tampilan visual yang menarik dari tema dan konsep serta tingkat kepentingannya. Hasil tinjauan ini dapat digunakan sebagai dasar untuk memberikan panduan akademis dalam penelitian ESG di masa depan, dengan memberikan kesempatan bagi para peneliti untuk mengidentifikasi aspek-aspek unik dari hal tersebut, analisisnya dapat mengungkapkan koneksi yang sebelumnya tidak diketahui dan dengan demikian dapat meningkatkan pemahaman kita tentang sifat kompleks ESG untuk memberikan nuansa yang lebih menarik dan menetapkan ekspektasi yang tepat.

Kata Kunci: *Beban Pajak Tangguhan, Tax Retention Rate, Mekanisme Tata Kelola, Manajemen Laba, Covid-19.*

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INTRODUCTION

Issues regarding corporate social responsibility (CSR) have increasingly emerged in the last decade. CSR is concerned with implementing corporate social responsibility or determining their position in society. The topic of CSR has been part of the corporate agenda for the past several decades and, therefore, has also become an important part of management and accounting research. CSR is generally classified into environmental, social, and governance (ESG) issues (Fehre and Weber, 2016).

From a legitimacy perspective, Aboud and Diab (2019) found that ESG disclosure could increase the legitimacy of companies in the market. A company with a higher ESG rating is likely to be accepted by the market in particular and society in general. This can be characterized by better economic and market performance, such as a positive stock market reaction to ESG performance. Attention to ESG is not only conducted by companies. In recent years, the financial sector has also played a role in reducing socio- environmental and governance problems and promoting robust green financing processes, although the intensity of ESG integration into the financial sector varies between regions and countries (Ahmed *et al.*, 2019).

Research focusing on ESG is now increasing internationally, unfortunately, reviews of this area are still limited. Friede *et al*. (2015) extracted all primary and secondary data from previous academic review studies. By doing so, the study found generalizable statements, that 90% of them found a non-negative relationship between ESG and corporate financial performance, with the majority found a positive relationship. Brooks and Oikonomou (2018) conducted a literature survey for the effect of the disclosure of ESG on performance, as well as its effect on firm value. Their study was based on the notion that CSR and the increasing public attention to socially responsible investment (SRI) have created a large incentive to delve deeper into the alleged relationship between CSR and financial performance over the past 20 years. Meanwhile, Huang (2019) discussed the understanding of the motivation for profit-pursuing firms to carry out voluntary ESG activities by reviewing meta-analytical evidence of the relationship between ESG performance and corporate financial performance. He found a positive correlation between ESG performance and company performance based on 21 articles that were reviewed using meta-analysis.

Our study continues the literature review conducted by Friede *et al*. (2015); Brooks and Oikonomou (2018); and Huang (2019), but with different scope and method. Contrasting to the previous review studies that only highlighted the relationship between ESG and corporate financial performance, our study explores the semantic relationships among ESG themes and concepts, including content, theory, and methods. Further analysis was carried out based on the main themes generated from the computer-based content analysis used, i.e., Leximancer, to bring up the most and the less dominant themes. Leximancer offers a larger list of potentially useful keywords for further analysis and provides a visually appealing display of themes and concepts and their level of importance. Leximancer also highlights semantic relationships and allows researchers to explore data in a timely manner, with a list of themes and concepts that emerge automatically from the text without the need for any input from the researchers (Sotiriadou *et al*., 2014; Lemon and Hayes, 2020). Furthermore, Leximancer can minimize the biases that often arise in manually handling data, as NVIVO does when coding or manually coding (Wilk *et al.*, 2021). The results of this study contribute to providing academic guidance in future ESG research, by providing an opportunity for researchers to identify the unique aspects of it, the analysis of which could bring to light connections that were previously unknown and thus can advance our understanding of the complex nature of ESG to bring a more interesting vibe to it and set the right expectations.

Our findings suggest that, overall, the 'social' theme was the most dominant, while themes such as 'investor' and 'sustainability' were less dominant. Regarding the most dominant theme, that is 'social' themes, most studies examine the effect of ESG rating on company performance (financial and/or market performance). Companies with high quality ESG practices enjoy higher firm value (Aboud and Diab, 2018), higher stock liquidity, more trading activity, and a higher return on assets (Aboud and Diab, 2019). However, studies looking at the effect of the ESG rating on long-run performance are rare. These open up opportunities for future research to take up this area.

With regard to the less-dominant themes, that are 'investors' and 'sustainability,' there are still opportunities for future research to examine the ESG rating and sustainable and responsible investing (SRI). Sustainable investing is also referred to as ethical investing which is gaining momentum as more and more investors, portfolio managers, and institutional investors are taking part in this in their investment philosophy. Bodhanwala and Bodhanwala (2019) examined the performance of SRI portfolios (as reflected in the ESG rating) in developing countries and found that they were significantly underperforming their benchmark. Future research needs to further explore related to SRI's portfolio performance in the short, medium, and long term.

Our article is organised as follows. The concept of ESG is explained in Section 1, and the literature review methodology using Leximancer software is described in Section 2. Then it is followed by the results and discussion of the main themes in the ESG literature along with the research trends over the period from 2011 to 2020 (Section 3). Section 4 provides an analysis of the main findings and the article concludes with suggestions for future research.

LITERATURE REVIEW

The concept of ESG is usually juxtaposed with the concept of CSR. Companies usually disclose their ESG initiatives through sustainability reporting (SR). Dobbs and van Staden (2016) and Hu *et al.* (2018) found that shareholders' rights, motives, values, and community concerns were the most significant factors that affected the organisations' decisions to report. Company initiatives towards social responsibility are also triggered by company stakeholders, such as employees, labour unions, the public, the media and the government. Taghian *et al*. (2015) identified that employees and the public have a major influence on CSR initiatives. Sustainability reports, which disclose CSR initiatives, contain economic impacts as well as company disclosures as a form of responsibility for the environment, social, and governance. In general, a sustainability report is a communication between a company/organization and the community (Anas *et al*., 2015).

There are several parameters to measure the sustainability performance of companies that are globally accepted. The Global Reporting Initiative (GRI) provides guidelines for companies that they can use when preparing their sustainability reports using more than 100 indicators that are relevant to the three main areas of sustainability performance. The Institution of Chemical Engineers (IChemE) provides a relatively simpler framework for sustainability reporting. Thomson Reuters provides a framework for evaluating the economic, social, and governance performance of a company based on 10 main indicators (Rajesh, 2020). Apart from these parameters, many sustainability performance measurements could be used by researchers and practitioners.

One of the efforts a company can make to build its reputation and improve its shared value is by disclosing its ESG information in its reporting (annual reports, sustainability reports, or integrated reports). There are a number of reporting frameworks such as the International Integrated Reporting Council (IIRC) framework, the United Nations (Global Compact) framework, and the Global Reporting Initiative (GRI) for non-financial reporting that includes aspects of ESG reporting. It is a company's decision on how it manages its ESG reporting and which indicators to use to disclose ESG information (Lokuwaduge and Heenetigala, 2016).

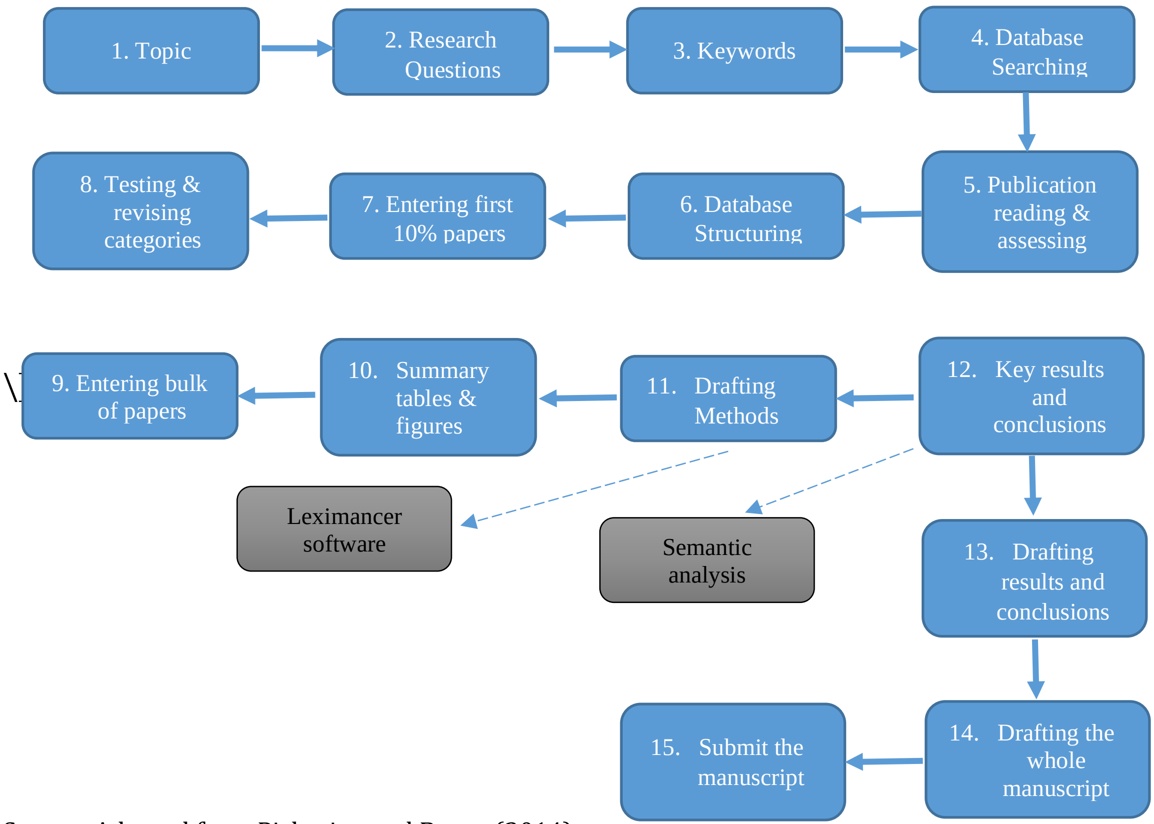
A company's decision to report its ESG information can have an impact on the company's performance. Weber (2013) stated that ESG reporting is an important tool for improving a company's ESG performance. ESG reporting is a tool to achieve transparency regarding the performance of each company and a means of communication with stakeholders, such as the shareholders (investors), employees, customers, or the public. The combination of high ESG performance and transparent reporting will result in a high market return for the company, thus creating a win-win situation for the shareholders and sustainable development.

In conjunction with the previous ESG literature review, Friede *et al*. (2015) extracted all primary and secondary data from previous academic review studies. By doing so, using meta-analysis, the study found that 90% of them found a non-negative relationship between ESG and corporate financial performance. Brooks and Oikonomou (2018) reviewed the developing literature studying the relationship between corporate social performance or ESG and financial performance using content analysis. Even though they have got the big picture, they acknowledged that much remains to be learned about the exact shape of the relationship, what moderating and mediating factors could play an important role in corporate decisions that determine a particular level of ESG, or what dynamic components could change it. Consistent with Friede *et al*. (2015) and Brooks and Oikonomou (2018), in a subsequent publication, Huang (2019) reviewed alternative accounts for the relationship between ESG performance and corporate financial performance using meta-analysis. They highlighted that this relationship is statistically significant but economically modest, thus arguing that ESG activity is unlikely to be motivated by narrow measures of firm financial performance. In a nutshell, the three studies only highlighted the relationship between ESG and CFP, for that reason the aspects outside the company's financial performance were not a concern.

RESEARCH METHODOLOGY

A large number of previous studies have attempted to test ESG initiatives in various forms. Tsang *et al*. (2023) conducted a literature review by dividing ESG information into four categories: motivations and consequences related to ESG information, as well as characteristics such as disclosure level and usage level that potentially affect the observed disclosure outcomes. In addition, they also discuss the important role of non-financial rating agencies as intermediaries in the dissemination of new ESG information in the capital market. In Indonesia in particular, ESG issues are growing and there is a need for literature studies that highlight this. The majority of ESG studies in Indonesia remain focused on the determinants of CSR disclosure (Hasanah and Rudyanto, 2020) and its consequences on financial performance (Lestari and Lelyta, 2019; Chintya and Haryanto, 2018). Therefore, we need a study that emphasis the importance of structured and systematic reviews that uncover the trends in ESG research. This research followed a systematic literature review process that used a systematic quantitative literature review (SQLR) explicitly. The following stages or procedures are needed for an SQLR (Pickering and Byrne, 2014): (1) define topic; (2) formulate research questions; (3) identify keywords; (4) identify and search databases; (5) read and assess publications; (6) structure databases; (7) enter first 10% papers; (8) test and revise categories; (9) enter the bulk of papers; (10) produce and review summary tables; (11) draft methods; (12) evaluate key results and conclusions; (13) draft results and discussion; (14) draft introduction, abstract, and references; and (15) revise the paper until ready for submission. This can be seen in Figure 1.

Figure 1. SQLR Procedures



Source: Adapted from Pickering and Byrne (2014).

For this study, we collected abstracts of all articles related to ESG published in the Scopus database. Keywords used for collecting the articles were: 'environmental, social, and governance'; 'ESG disclosure'; 'ESG performance'; 'ESG rating'; and 'ESG score'. In the Scopus database, article searches are limited to the disciplines of Business, Management and Accounting and Economics, Econometrics and Finance. Based on a search in the Scopus database, the publication of articles on ESG mostly occurred during the period from 2011 to 2020. Then the abstracts of the articles were read to ascertain whether the research database would be included or not and to ensure duplication did not occur. Based on the developed criteria, our search resulted in 159 articles to be reviewed with the across time distribution as follows: 29 articles in the 2011-2015 and 130 articles in the 2016-2020 during the time of articles mining.

The next step was a content analysis using the Leximancer software by inserting the 159 articles into the software. Then, we asked Leximancer to analyse the entire articles, and we interpreted the overall concept map that contained the themes and concepts produced. The concept map was then re-examined, to see whether it matched the themes and concepts that should exist. If an irrelevant theme was found, the word was deleted and then Leximancer reprocessed the articles until we had the themes and concepts that were supposed to exist. Furthermore, after the concept map was produced, we analysed the concept map to answer the research questions.

RESULT AND DISCUSSIONS

Descriptive analysis

Descriptive analysis was conducted to review the efforts of researchers in testing, investigating, and analysing the ESG initiatives undertaken by companies. Table I presents a list of the main journals (indexed by Scopus) publishing research on ESG so that it can be used by researchers as a reference for destination journals when submitting articles about ESG. The three journals that publish the most ESG articles are Sustainability; Business Strategy and the Environment; and Corporate Social Responsibility and Environmental Management.

Table 1. Top Ten List of Journals and Article Count Published (Period of 2011-2020)

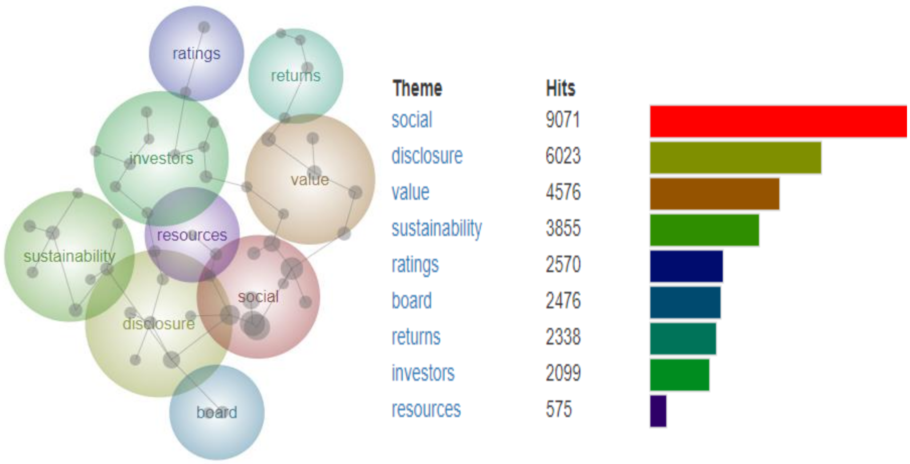
No	Journal Name	Number of Articles Published
1	Sustainability	14
2	Business Strategy and the Environment	11
3	Corporate Social Responsibility and Environmental Management	11
4	Journal of Business Ethics	8
5	Journal of Sustainable Finance & Investment	7
6	Journal of Cleaner Production	7
7	Sustainability Accounting, Management and Policy Journal	6

No	Journal Name	Number of Articles Published
8	Social Responsibility Journal	5
9	Journal of Banking and Finance	4
10	Corporate Governance	4

Semantic Analysis of Overall Themes

In this section, we present a semantic analysis of ESG and analyse the top themes and concepts about ESG. When we ran the Leximancer software to review the 159 articles, the essential themes related to ESG were: social, disclosure, value, sustainability, ratings, boards, returns, investors, and resources (Figure 2). Hot colours (red and orange) denote the most dominant themes, and cool colours (blue and green) denote the least dominant themes. In the figure, we hide the concepts generated from the Leximancer software, and we set our theme size at 35%. Based on this figure, the most dominant ESG themes are related to social and value, and the least dominant themes are returns and investors.

Figure 2. Major Themes Map in ESG Articles



Regarding the themes of returns and investors, both can be related to each other. Based on several articles we reviewed, the theme of the return emphasised firm performance, for both accounting-based returns and market-based returns (Birindelli *et al*., 2018; Conway, 2019; Buallay *et al.*, 2020). These two bases of returns ultimately have a direct impact on investors. For example, investors who consider ESG issues in their decision making (socially responsible investors) can use the ESG rating agency as a basis. Dorfleitner *et al.* (2015) empirically compared the various ESG scoring approaches used by the ESG rating agency. Their findings are of particular concern to managers and investors who rely on ESG ratings in their decision-making processes. However, the existing literature does not differentiate between individual and institutional investor types or differentiate between investors based on their risk profile (risk-taking vs. risk-averse investors). This creates an opportunity for future research. Apart from the type of investor, any future research could also use a more specific setting, for example emerging markets, underdeveloped countries, or financial service companies, because the previous literature was limited in exploring those settings.

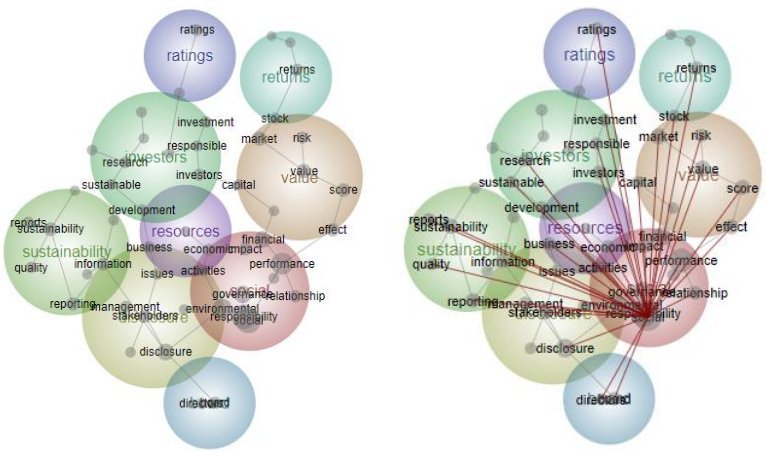
Regarding the theory that underlies the previous research, to our knowledge, there are still very few studies that discuss the theoretical insights into ESG research. This is also an opportunity for future research. Some of the theories are listed in Table II. Previous researchers mostly used the agency theory, stakeholder theory, and legitimacy theory as the basis for building their research. Meanwhile, many other theories need to be explored in such a way that they become established theories for ESG research, such as the slack resources theory, good management theory, social construction theory, and so on.

Table 2. Summary of Theories Used in ESG Literature

Theory	Hits	Theory	Hits
Stakeholder theory	63	Risk-mitigation hypothesis	2
Agency theory	29	Social construction theory	1
Legitimacy theory	29	Dynamic capabilities theory	1
Institutional theory	23	Myopia avoidance hypothesis	1
Resource-based theory	11	Expectancy value theory (EVT)	1
Portfolio theory	7	Theory of market information	1
Slack resources theory	5	Anticipation theory	1
Voluntary disclosure theory	5	Resource dependency theory	1
Signaling theory	5	Organized hypocrisy theory	1
Theory of the firm	5	Organisational façade theory	1
Managerial opportunism theory	4	Funding or affordability theory	1
Neoclassical theory	4	Positive synergies theory	1
Value-enhancing theory	4	Greenwashing theory	1
Good management theory	4	Theory of debt intolerance	1
Trade-off hypothesis	4	Credit quality hypothesis	1
Stewardship theory	3	Rough set theory	1
Instrumental theory	3	Gender socialisation theory	1
Shareholder expense theory	3	Social identity theory	1
Neo-institutional theory	3	Theory of justice	1
Overinvestment theory	3	Learning theory	1
Capabilities theory	2	Ecological modernisation theory	1
Fuzzy set theory	2	Contingency theory	1
Economic theory	2	Social movement theory	1
Political cost theory	2	Theory of planned behavior (TPB)	1
Media agenda-setting theory	2	Coalition theory	1
Critical mass theory	2	Intergroup contact theory	1
Deterrence theory	2	Capital pricing theory	1
Socio-political theory	2	Grey theory	1
Business ethics theory	2	Cognitive resource diversity theory	1
Upper echelon theory	2		

Figure 3 presents the theme along with the visibility of the concepts enlarged to 71%. Panel A presents the ESG themes and all the concepts in each theme. In contrast, Panel B shows the most dominant ESG theme—the social theme—along with its concepts (the results of the concept count and likelihood are not displayed in the article). Based on this figure, we conclude that most social themes are related to the concepts of (1) responsibility; (2) environment; (3) governance; (4) economic; and (5) issues. It means that, in addition to talking about social themes, there are concepts regarding responsibility, environment, governance, economics, and issues. For example, Liern & Pérez-Gladish (2017) stated that corporate sustainability is a multidimensional concept that balances the current and future environmental, social and economic needs of stakeholders. The authors proposed a method that can complement the information provided by the ESG rating agencies based on the average sector performance of the firms. The ESG rating agencies typically assess companies and organisations for their practice and performance on ESG issues. They provided an example of a rating agency, Vigeo, which assesses the extent to which companies take into account social responsibility objectives when implementing their corporate strategies, using six dimensions. The six dimensions include human rights, human resources, environment, business behaviour, corporate governance, and community involvement.

Figure 3. ESG Themes and Concepts



(a) ESG Themes and Concepts (b) Social Themes and Concepts

Another example comes from Lokuwaduge & Heenetigala (2016). They stated that an organisation's ability to address its ESG issues is an important part of its business strategy. ESG disclosure practices can be used by stakeholders to monitor non-financial performance management strategies that could have an impact on long-term economic sustainability. It is consistent with the legitimacy and stakeholder theories that, according to the social responsibility model, companies have a responsibility with regard to their shareholders, suppliers, customers, employees, the government, and society.

Regarding the 'social' themes, Ho (2013) proposed a social construction perspective for ESG issues in SRI (socially responsible investment) indices. SRI indices were created as a response by the capital market regulators around the world to the increasing demand for SRI. SRI indices are the stock indices that reflect socially responsible investing. When the capital market has SRI indices, there is a motivation for companies to show enthusiasm for and be included in the indices because they play an important role in improving the companies' sustainability practices. Using the social construction theory, she thought that this theory could be used in the corporate sustainability literature to explain the increasing awareness of the environmental movement in society.

Park *et al.* (2018) examined the relationship between activities related to corporate social responsibility and corporate value, and whether the social ties between inside and outside directors affect the relationship between the two. The intensity of social ties is measured by the region and educational relations using the concept of density from the social network theory. By using the ESG score to measure CSR activities, they found that on average, a company could increase its value through its CSR activities. However, interestingly, companies with strong social ties have been ineffective in monitoring their CSR activities in Korea. Their results showed that nepotism in Korea is still widespread even though the government there has made great efforts to improve corporate governance with a focus on independence from outside directors. As a future research agenda, this phenomenon is interesting to study, to confirm if other countries have similar characteristics to Korea, especially if they are developing countries.

Arayssi *et al.* (2020) investigated the impact of the board of directors' composition on ESG reporting in the Gulf Cooperation Council (GCC). These countries are witnessing fast-growing capital markets and are making a serious effort to attract foreign investment to divert their economies away from oil and gas dependence. Their results show that the independence of the board of directors is higher, and the participation of women on the board facilitates a positive image of the company by increasing its social responsibility. The board's composition can be a catalyst for achieving corporate financial targets and social responsibility. However, the duality of the CEO does not support the implementation of a social agenda or reporting of the company's ESG activities.

Wasiuzzaman & Wan Mohammad (2020) investigated the effect of the boards' gender diversity on the transparency of ESG disclosures in emerging markets such as Malaysia. The results of their study showed that the ESG disclosure scores increased significantly, in line with the increasing presence of women directors. However, when the individual ESG component was further investigated, the impact of gender diversity within a board's structure varied. Based on studies in Malaysia related to the issue of diversity on the boards of commissioners, future research can confirm these results in other developing countries.

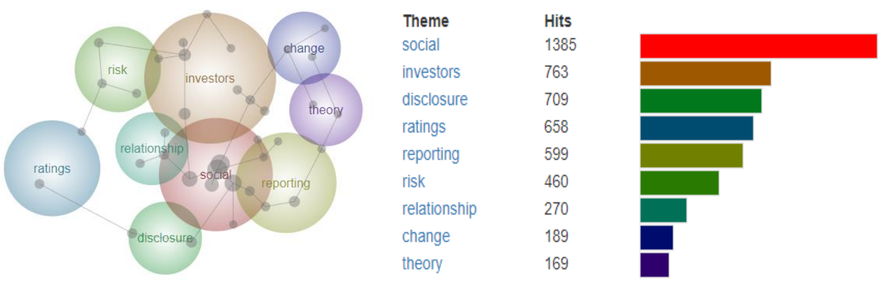
With regard to the less-dominant themes, i.e., 'investors' and 'sustainability,' there are still opportunities for future research to examine the ESG rating and sustainable and responsible investing (SRI). Over the past two decades there has been a significant increase in interest in socially responsible investment (SRI). However, research in this case still needs to be explored deeply. The majority of SRI investors still depend on the ESG rating provided by the ESG rating agency. Therefore, Widyawati (2020) comprehensively explored the quality of ESG rating measurements from four well-known rating agencies, i.e. Sustainalytics, Bloomberg, Thomson Reuters, and MSCI KLD. The result of her study indicated that, in terms of dimensions, reliability, and validity, there are fundamental differences between the four rating agencies, so that it is very possible that the resulting ESG ratings may differ. The implication is to overcome the difference in score or rating, users can use more than one ESG rating as a proxy for ESG performance.

Semantic Analysis of Time Evolution

After analysing the overall themes, we separated the dataset into two-time groups, 2011 to 2015 and 2016 to 2020. The Scopus database using pre-defined keywords only goes back as far as 2011. Only 29 articles were found for the 2011 to 2015 time-frame, while as many as 130 articles were found for the 2016 to 2020 time-frame. It means that in the past five years, research into ESG has increasingly been carried out by researchers, to try to attract the world's attention to sustainable activities and sustainable development goals. Figure 4 and Figure 5 present the themes and concepts of each of these periods.

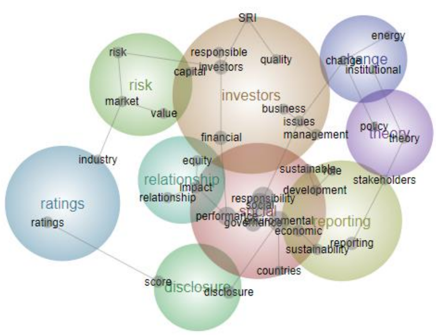
In Figure 4, Panel A can be seen that during the period from 2011 to 2015, all 29 articles discussed 'social', 'investors', 'disclosures', 'ratings', 'reporting', 'risk', 'relationship', 'change', and 'theory' themes. The most dominant theme was the social (the red/hot colour). However, in this period, there were limited studies that linked the activity of ESG with risk (the green/cool colour).

Figure 4. ESG Themes and Concepts during a period of 2011-2015



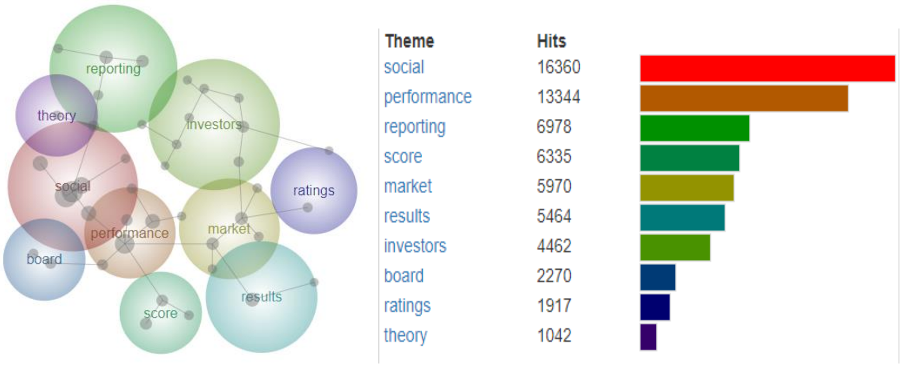
Theme	Hits
social	1385
investors	763
disclosure	709
ratings	658
reporting	599
risk	460
relationship	270
change	189
theory	169

(a) ESG themes during a period of 2011-2015

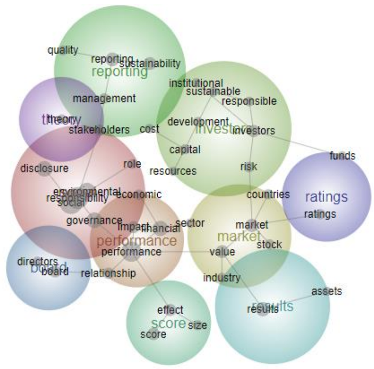


(b) ESG themes and concept during a period of 2011-2015

Figure 5. ESG Themes and Concepts during a period of 2016-2020



(a) ESG themes during a period of 2016-2020



(b) ESG themes and concept during a period of 2015-2020

Theoretical Framework in ESG Literature

Based on the results of a review of the 159 selected articles, we present the theories used by researchers as a framework for the ESG works of literature. The previous researchers mostly used the agency theory, stakeholder theory, and legitimacy theory as the basis for building their research ideas. Some of the articles only used one theory, while others used more than one. Table 2 summarised the theories used in the ESG literature. The table provided a theoretical basis that can be used by future researchers to develop theories that have rarely been used in the ESG literature.

In our opinion, there is very limited ESG literature using the slack resources theory (Cajias *et al.*, 2014; Ortas *et al.*, 2015; Chollet & Sandwidi (2018); Drempetic *et al.*, 2019; Taliento *et al.*, 2019). For example, Drempetic *et al.* (2019) confirmed that larger companies have a significant influence on their CSR disclosures. The slack resources theory assumes that large companies are under pressure to disclose more information, to gain legitimacy. Large companies have many resources, which may be classed as excessive, so they are committed to supporting sustainable development goals. However, the research supporting the slack resources theory is still inconclusive, thus providing opportunities for future research to explore this theory.

CONCLUSION

Corporate social responsibility, as a form of support for sustainable development goals, can be assessed from the environmental, social, and governance dimensions. The ESG literature trends in the Scopus database explores the impact of this ESG dimension on financial performance and market performance. In the last decade, some research has also investigated the dimensions of corporate governance, in terms of the boards' structure, to assess the effect of governance on the extent to which sustainability disclosures are proxied by ESG. This article contributes to the ESG literature in terms of providing analytical methods based on text mining using a systematic quantitative literature review. Leximancer software can bridge the gap between traditional qualitative approaches and machine- learning approaches. The traditional qualitative approach is, of course, still superior as a method for reviewing the literature, in terms of the depth of the analysis it provides. However, this approach is still difficult for other researchers to replicate. In contrast, the machine-learning approach is straightforward for future researchers to replicate with different research topics and semantic analysis, following the subjectivity of the researchers. However, the depth of analysis is still a weakness. The choice of words specified in the Leximancer software is dependent on the researcher and can give different results even though the same articles are being reviewed.

REFERENCES

Aboud, A. and Diab, A. (2018). The impact of social, environmental and corporate governance disclosures on firm value: Evidence from Egypt. *Journal of Accounting in Emerging Economies*, *8*(4), 442–458.

Aboud, A. and Diab, A. (2019). The financial and market consequences of environmental, social and governance ratings: The implications of recent political volatility in Egypt. *Sustainability Accounting, Management and Policy Journal*, *10*(3), 498–520.

Ahmed, S.P., Ahmed, S.U., Noor, M.F., Ahmed, Z., & Karmaker, U. (2019). The policy-led sustainability and financial performance linkage in the banking sector: Case of Bangladesh. *Banks and Bank Systems*, *14*(4), 89–103.

Anas, A., Rashid, H.M.A. and Annuar, H.A. (2015). The effect of award on CSR disclosures in annual reports of Malaysian PLCs. *Social Responsibility Journal*, *11*(4), 831–852.

Arayssi, M., Jizi, M. and Tabaja, H.H. (2020). The impact of board composition on the level of ESG disclosures in GCC countries. *Sustainability Accounting, Management and Policy Journal*, *11*(1), 137–161.

Birindelli, G. *et al.* (2018). Composition and activity of the board of directors: Impact on ESG performance in the banking system. *Sustainability*, *10*(12), 1–20.

Bodhanwala, S. and Bodhanwala, R. (2019). Relationship between sustainable and responsible investing and returns: a global evidence. *Social Responsibility Journal*, *16*(4), 579–594.

Brooks, C. and Oikonomou, I. (2018). The effects of environmental, social and governance disclosures and performance on firm value: A review of the literature in accounting and finance. *British Accounting Review*, *50*(1), 1–15.

Buallay, A. *et al.* (2020). Sustainability reporting and performance of MENA banks: is there a trade-off? *Measuring Business Excellence*, *24*(2), 197–221.

Cajias, M. *et al.* (2014). Do responsible real estate companies outperform their peers? *International Journal of Strategic Property Management*, *18*(1), 11–27.

Chintya, C. and Haryanto, M. (2018). Pengaruh intellectual capital dan corporate social responsiblity disclosure terhadap kinerja perusahaan. *Equity*, *21*(1), 93–106.

Chollet, P. and Sandwidi, B.W. (2018). CSR engagement and financial risk: A virtuous circle? International evidence. *Global Finance Journal*, *38*(March), 65–81.

Conway, E. (2019). Quantitative impacts of mandatory integrated reporting. *Journal of Financial Reporting and Accounting*, *17*(4), 604–634.

Dobbs, S. and van Staden, C. (2016). Motivations for corporate social and environmental reporting: New Zealand evidence. *Sustainability Accounting, Management and Policy Journal*, *7*(3), 449–472.

Dorfleitner, G., Halbritter, G. and Nguyen, M. (2015). Measuring the level and risk of corporate responsibility - An empirical comparison of different ESG rating approaches. *Journal of Asset Management*, *16*(7), 450–466.

Drempetic, S., Klein, C. and Zwergel, B. (2020). The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review. *Journal of Business Ethics*, *167*, 333-360.

Fehre, K. and Weber, F. (2016). Challenging corporate commitment to CSR: Do CEOs keep talking about corporate social responsibility (CSR) issues in times of the global financial crisis? *Management Research Review*, *39*(11), 1410–1430.

Friede, G., Busch, T. and Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance and Investment*, *5*(4), 210–233.

Hasanah, H. and Rudyanto, A. (2020). Determinan Pengungkapan Corporate Social Responsibility Perusahaan di Bursa Efek Indonesia. *Equity*, *22*(2), 215–238.

Ho, M. (2013). The social construction perspective on ESG issues in SRI indices. *Journal of Sustainable Finance and Investment*, *3*(4), 360–373.

Hu, Y.Y. *et al.* (2018). Ownership influence and CSR disclosure in China. *Accounting Research Journal*, *31*(1), 8–21.

Huang, D.Z.X. (2021). Environmental, social and governance (ESG) activity and firm performance: a review and consolidation. *Accounting and Finance, 61*(1), 335-360.

Lemon, L.L. and Hayes, J. (2020). Enhancing Trustworthiness of Qualitative Findings: Using Leximancer for Qualitative Data Analysis Triangulation. *The Qualitative Report*, *25*(3), 604–614.

Lestari, N. and Lelyta, N. (2019). Pengaruh Corporate Social Responsibility Terhadap Kinerja Keuangan. *Equity*, *22*(1), 1–11.

Liern, V. and Pérez-Gladish, B. (2018). Ranking corporate sustainability: a flexible multidimensional approach based on linguistic variables. *International Transactions in Operational Research*, *25*(3), 1081–1100.

Lokuwaduge, C.S.D.S. and Heenetigala, K. (2016). Integrating environmental, social and governance (ESG) disclosure for a sustainable development: An Australian study. *Business Strategy and the Environment*, *26*(4), 438–450.

Ortas, E., Álvarez, I. and Garayar, A. (2015). The environmental, social, governance, and financial performance effects on companies that adopt the United Nations Global Compact. *Sustainability*, *7*(2), 1932–1956.

Park, J.H., Park, H.Y. and Lee, H.Y. (2018). The effect of social ties between outside and inside directors on the association between corporate social responsibility and firm value. *Sustainability*, *10*(11), 1–24.

Pickering, C. and Byrne, J. (2014). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher Education Research and Development*, *33*(3), 534–548.

Rajesh, R. (2020). Exploring the sustainability performances of firms using environmental, social, and governance scores. *Journal of Cleaner Production*, *247*, 119600.

Sotiriadou, P., Brouwers, J. and Le, T.A. (2014). Choosing a qualitative data analysis tool: A comparison of NVivo and Leximancer. *Annals of Leisure Research*, *17*(2), pp. 218–234.

Taghian, M., D'Souza, C. and Polonsky, M.J. (2015). A stakeholder approach to corporate social responsibility, reputation and business performance. *Social Responsibility Journal*, *11*(2), 340–363.

Taliento, M., Favino, C. and Netti, A. (2019). Impact of environmental, social, and governance information on economic performance: Evidence of a corporate "sustainability advantage" from Europe. *Sustainability*, *11*(6).

Tsang, A., Frost, T. and Cao, H. (2023). Environmental, Social, and Governance (ESG) disclosure: A literature review. *British Accounting Review*, *55*(1), 101149.

Wasiuzzaman, S. and Wan Mohammad, W.M. (2020). Board gender diversity and transparency of environmental, social and governance disclosure: Evidence from Malaysia. *Managerial and Decision Economics*, *41*(1), 145–156.

Weber, O. (2013). Environmental, social and governance reporting in China. *Business Strategy and the Environment*, *23*(5), 303–317.

Widyawati, L. (2021). Measurement concerns and agreement of environmental social governance ratings. *Accounting and Finance*, *61*(S1), 1589-1623.

Wilk, V., Cripps, H., Capatina, A., Micu, A., & Micu, A-E. (2021). The state of #digitalentrepreneurship: a big data Leximancer analysis of social media activity. *International Entrepreneurship and Management Journal*, *17*(4), 1899–1916.