

Circular Economy and Its Influence on ESG

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ESG, which stands for environmental, social, and governance, has emerged as a fundamental rating framework for companies and businesses worldwide. ESG ratings play an important role in assessing a company's accountability and long-term profitability. As a result, there has been a significant increase in literature exploring the origins and impact of ESG. At the same time, the adoption of the circular economy business model has gained popularity as companies strive for more sustainable production practices. It is important to examine the relationship between ESG and the circular economy, specifically whether the circular economy model can influence a business's ESG rating. This paper aims to delve into the existing literature on the circular economy model and ESG, analyzing both concepts and identifying how the two concepts interrelate, specifically focusing more in depth on the environmental aspect of circular economy and ESG. For this purpose, social, governance, and environmental indicator of ESG are investigated. It becomes evident through the literature that the circular economy can impact ESG performance in various ways. The circular economy exerts substantial influence on the environmental aspect of ESG in particular, while there exists a subtle connection between the circular economy and the social aspect of ESG. However, literature on the relationship between the circular economy and the governance aspect of ESG remains scarce and represents a potential topic of future inquiry. While all three indicators will be researched upon, the focus of this paper is to explore the influence of the environmental factor.

Introduction

Environmental, social and governance, known as ESG, is a concept that assesses a company's financial performance through the lens of the three factors. Freeman¹ notes that ESG is grounded in the stakeholder theory, proposing that companies should attend to the interest of all stakeholders, including employees. Many companies depend on ESG ratings to identify long-term goals and aims. Moreover, related concepts can be used to foresee and predict future threats and risks that exist in the company. There are a lot of different aspects that can influence the ESG performance, especially when the rating depends on three wide-ranging factors.

Numerous distinct business practices align with the concept of ESG, one of which is the so-called "circular economy". Circular economy is a concept that emphasizes sustainability through practices such as reuse, recycling and resource efficiency². Products and materials are being recycled and refurbished into reusable objects. In other words, it is a loop chain that maximizes the use of materials and waste products. In this research paper, the primary focus will be on how the circular economy practices contribute to the environmental side of ESG and sustainable practices. By acknowledging this, insightful findings about potential circular economy and ESG relationships will be presented and discussed upon.

Similarly, different companies are characterized by distinct business practices that can have performance implications and result in varying levels of profitability. Nowadays, ESG ratings

and sustainable business practices have emerged as a leading evaluation tool in this context, acting as a significant metric for long-term financial success. These ratings and metrics measure a businesses' commitment to addressing issues related to the environment, social responsibility, and governance³.

Through analyzing different interrelationships, concepts and corresponding empirical evidence we establish a better understanding of the connection between ESG and circular economy business practices. Furthermore, the paper provides a sophisticated comprehension of how circular economy business practices can impact better ESG performances, specifically the environmental indicator of ESG. By synthesizing insights from various sources, we aim to contribute to the ongoing discourse on sustainable business practices and offer valuable perspectives for both practitioners and scholars in the field. Moreover, identifying gaps that exist between ESG and the circular economy that can justify research in the future.

In brief, this paper will identify different business models and strategies, rooted in the concepts of circular economy, that have ESG implications. Through the results section, the concept of ESG, circular economy, and the relationship between the two concepts will be addressed. In the discussions & conclusion section, the findings of the research will be discussed, delving into the impact of whether incorporating circular economy strategies and practices will change the ESG performance of businesses.

Methods

Methodologically, this research will be conducted through a literature review perspective. Literature review involves the evaluation and discussion of the pre-existing research, offering an unbiased and holistic interpretation of the research. As such, this paper aims to contribute an unbiased examination on the topic of ESG and circular economy based on the pre-existing body of research. Databases like Google Scholars, Research Gate, Science Direct, etc. were used and sourced throughout the paper for the review. This literature review's objective is to explore and provide a perspective on the two concepts of ESG, circular economy and how they relate. Delving deeper into how the principles of circular economy, specifically the environmental dimension, affect a company's overall ESG performance. Research papers that contribute and evolve around the research question "How do circular economy business practices impact the ESG performance of businesses" will be used and included throughout the paper. The databases were searched by means of a keyword search that involves the following search string: *(ESG OR Sustainability OR Environment*) AND (Circular Economy OR Business Model OR Recycling)*. Results of the search yielded 100 papers, which were subject to an abstract and title screening for inclusion. The selection procedure yielded papers that address the ESG and environmental aspects of circular business practices, which were subject to subsequent in-depth analysis.

Results

In the evolving landscape of modern business, Environmental, Social, and Governance (ESG) ratings have emerged as a pivotal benchmark for assessing corporate responsibility and sustainability. The concept of ESG starts to become more prominent, and many companies start to adhere to the ESG ratings. This ongoing trend impacts how businesses are viewed and evaluated, many companies rely on ESG performances as a way to self-evaluate and use as a guide for long-term goals.

Running parallel to these advancements is the emerging concept of the circular economy, which champions a systemic transition towards sustainability through its core principles of resource efficiency, waste reduction, and the regeneration of natural systems². Circular economy is able to extend and present sustainable practices and developments, challenging the linear model of 'take-make-dispose' into a more cyclic model⁴.

Through diving into the different literature that discusses the concepts of ESG and circular economy and linking them together, their relationship should become evident. Circular economy practices have particularly large impacts on the environmental aspect of ESG. There is a sufficient amount of research on the interrelation between CE and the environmental aspect of ESG, but it is inconclusive and therefore requires

reconciliation or synthesis. While the circular economy should have some impact on social and governance indicators, research currently lacks in proving a relationship.

Theoretical Framework

ESG: ESG is a framework system that encompasses three main factors: environmental, social, and governance⁵. The environmental side focuses on how the company performs through a sustainable perspective. The social side focuses on the relationship and safety between the employees. The governance side focuses on how the company is organized and governed, or whether it is stable or not. ESG is measured on a numbered scale, with all companies or businesses referring to the same ESG metric. Each dimension of ESG interconnects with each other, a concept arising from the notions of responsible investment⁵. Not only does ESG pertain to responsible investment, it also aligns to the broader concept of sustainability. ESG consistently adds to sustainable development, encouraging a more sustainable performance with companies becoming more socially responsible, environmentally aware, and a cooperative government⁵. It is further emphasized that ESG is able to serve as a baseline that helps to imply and influence future financial behaviors, performances, and decision-making. Similarly, companies with higher ESG ratings perform better risk management and higher profitability, enhancing competitiveness⁶. According to Oldani⁶, companies with a superior ESG profile are able to better develop long-term business plans. Linking ESG to current life examples, the effect of ESG in China during Covid-19 proves a positive relationship with reduced financial risk. With the Covid-19 financial crisis that struck China, global equity values fell significantly, and it was shown through multiple databases that ESG performance had a positive correlation with the short-term returns during the crisis⁷. In other words, stronger ESG ratings resulted in a more favorable short-term return. Many findings support that having a higher ESG portfolio is more beneficial, specifically when it is used to evaluate future risks and helps with financial improvements. These advantages endorse the importance and benefits that ESG evaluations bring, showing how ESG ratings are becoming more prominent within businesses and companies.

On the other hand, Halbritter⁸ provides another perspective on ESG. While previous research suggests and indicates that businesses with higher ESG ratings had better performance, concerns regarding abnormal returns may not be expected when trading with different ESG aspect ratings⁸. While Li⁵ did mention ESG's impact on the economy, Li also acknowledged many limitations such as the use of various databases, different levels of subjectivity, and standards can cause ratings to be fragmented and disorganized⁵.

Circular Economy: The circular economy entails a regenerative system where products, materials, and resources get

refurbished and recycled². The objective of the circular economy business model is to establish a closed, circular loop where materials are constantly recycled and reused again, thereby promoting a more sustainable economic model. The main motivation is to optimize use of resources and eliminate resources leaking out of the system².

Building upon this, Jawahir⁹ provides a more in-depth understanding of the circular economy. Jawahir describes that while the circular economy is a method to achieve economic growth, its fundamental essence is the technological capability for a sustainable value creation. Jawahir⁹ also identified the six key components of a circular economy model: reuse, recover, recycle, redesign, reduce, and remanufacture. Furthermore, there are many successful cases which show positive economic development when implementing the circular economy business practices. In San Francisco, USA, they achieved the goal of becoming a zero waste city by implementing a closed-loop waste system, in other words, a circular economy. It successfully led waste to become recycled and sorted, leading to significant reduction in waste sent to landfills⁴. Similarly, in Scotland, with the implementation of a circular economy, up to 44,000 new jobs could be possibly created, 40% of waste was reduced and 30% of energy consumption was reduced⁴.

However, with the presented benefits and opportunities, the circular economy model also faces several challenges and limitations. With the circular economy being a new trend in the business field, there is a lack of comprehensive and detailed understanding of the circular economy itself¹⁰. Krichherr¹⁰ highlights how different conceptualizations of circular economy leading to various definitions can result in a possible twist of the concept. Korhonen¹¹ further supports this through underscoring the limitations within the circular economy model concept, and pointing out unanswered questions about the nature of circular economy. Adding on, there are many drawbacks and barriers when incorporating circular economy practices. Takacs¹² identified six barriers when the circular economy business model was allocated: risk aversion, short-term orientation, economically dominated thinking, unwillingness to engage in trade-offs, shortage of resources and lack of knowledge. This further shows how a circular economy may be sustainable yet there are many drawbacks and limitations regarding the implementation of it. These identified challenges and barriers regarding the concept of circular economy impact the feasibility and effectiveness of incorporating the concept in a diverse business context. While the concept may sound appealing, with the lack of full understanding of the concept itself, it is hard to implement and obtain its full potential within the context of business. There are no comprehensive methods or steps as to how to implement a circular economy business model and it takes more of a trial-and-error process, affecting its feasibility.

Connecting ESG and Circular Economy

Both the circular economy and ESG (Environmental, Social, and Governance) have been clearly defined in the preceding sections. ESG is a standard or rating that analyzes how a company operates from an environmental, social, and governance standpoint. Circular economy is a circular model in which products and materials are being recycled and refurbished into reusable objects, ensuring that waste is minimized. As such, circular economy practices can be argued to have significant influence on the environmental performance of a business.

Environmental: Fatimah¹³ presents evidence on how ESG based sustainable circular economy e-business models can improve and enhance ESG performances for business development. Through the implementation of circular economy e-business models, it can help a business achieve higher ESG performances, particularly in terms of environmental impact. Furthermore, ESG and circular economy are two concepts that interconnect and effectively apply to each other. ESG factors are important for ensuring whether a company is performing responsibly, while circular economy is a principle that helps achieve goals set by ESG through reducing waste and unused materials¹⁴. The principles underlying the circular economy exhibit common dedication to addressing environmental risks and emphasize the significance of sustainable development trajectories. Sustainability is defined as practice guiding the use of resources in the most efficient manner, ensuring that resources are available and sufficient to meet needs in the present and future¹⁵. Sustainability and circular economy share the same global perspectives; both concepts enhance disciplinary approaches to better incorporate non-economic aspects into the role, including system design and innovations². As sustainability directly relates to the “e” component in ESG, the concept of circular economy will accordingly affect ESG ratings as well. Circular economy delves into the environmental factor of ESG, creating a more eco-friendly and responsible way to consume materials and resources, pushing more sustainable practices, thereby improving the ESG rating as a whole.

The methodologies employed in this reviewed research about the connection between circular economy and ESG were all literature review. The benefits of adopting a literature review are that there is a variety of existing research papers that are being analyzed, which can lead to a better understanding of the topic. On the other hand, the literature may be slanted towards the positive side of the environmental indication and impact it has on ESG and circular economy. While opposing ideas are brought up, most of the literature evolves around the positive outcomes, which may lead to potential biases and limitations.

Social: While the circular economy contributes to the environmental aspect in ESG, it also relates to social aspects. The social aspect of ESG involves factors such as the relationships and security of an employee. Linking this, the circular econ-

omy is able to benefit society through the specific strategies and principles it entails, specifically as it relates with employment, health and safety, and engagement¹⁶. With circular economy practices adopting more sustainable methods, it can create a more facilitative environment and involve the community which fosters and strengthens health systems and capacities¹⁶.

Gaps & Limitations: While there is some research that shows resemblance between the two concepts, there are also many drawbacks and shortcomings. Even though the relevance of circular economy to the “e” factor and “s” factor of the ESG score was mentioned and acknowledged, direct evidence that shows how circular economy can influence higher stock returns remains absent. However, with the corporate strategies the circular economy facilitates, there could be a rise in stock performance in the future, indicating some relevance between the two concepts¹⁷. With concerns about the two concepts, there should be more advanced and robust research in the future on ESG and the circular economy¹³. There is also a need to quantify the impact of circular strategies and models on ESG ratings.

It should be noted that the concept of a circular economy does not always result in positive environmental, social, and governance (ESG) outcomes. In certain cases, there are examples where circular economy practices fail to contribute or show inconsistency in achieving outcomes. Katelin has gathered qualitative and quantitative information, reviewing 138 reports from 95 European companies on the incorporation and influence the circular economy section had within their sustainability report. During content analysis, it was found that only 7% of the companies implemented circular economy comprehensively throughout the report, and less than one third of the companies included specific indicators and goals related to circular economy¹⁸. This suggests that the implementation of circular economy information in sustainability reports is largely inconsistent and surface-level, proving that circular economy does not guarantee a positive ESG outcome. It is also important to acknowledge that there was a limited number of reports reviewed from European companies throughout this quantitative data research, this can highlight potential limitations in this existing research, since only a limited set of reports were critically analyzed.

Circular economy is recognized for its contribution to the environmental aspect of ESG. At the same time, it is important to note that circularity does not guarantee overall sustainability. There are cases where increased circularity may inadvertently lead to lower environmental sustainability performance. While the idea of circular economy is to be environmentally friendly while maintaining economic prosperity, it is crucial to understand that the sustainability indicator is overlooked when implementing it¹⁹.

The social indicator encompasses diverse factors such as work, fairness, social equity, social norms, and narratives. How-

ever, the concept of circular economy lacks many of these dimensions. Specifically, circular economy supply chains do not guarantee improved working conditions or equal opportunities for all, which may undermine the social factor. Moreover, circular economy practices involve using infrastructure, technology, and machinery, which may pose challenges to places without these specific advancements. The working requirements and conditions associated with circular economy may limit opportunities for people will excess education, affecting the social aspect as a whole²⁰. While circular economy overall shows a positive social impact, there are undermining dimensions in which circular economy lacks.

A specific “Governance” section was not included due to the lack of available research within this indicator of ESG and the connection with the circular economy model. It was evident through research that areas regarding governance had limited amount of useful information of whether circular economy can impact this factor.

Discussion

The literature review reveals that the circular economy contributes to and impacts the ESG performance of businesses to a certain extent. Supported by various articles and research papers, it is widely acknowledged that the circular economy has a substantial influence on the environmental factor of ESG performance. The definition of circular economy being a circular loop chain of materials being refurbished and recycled fosters a more responsible consumption and production of products. By promoting sustainable development practices and fostering the concept of sustainability into businesses, the circular economy plays a crucial role in enhancing the environmental aspect of ESG. The environmental aspect of ESG ratings rely on the concept of sustainability. The principle of circular economy is to efficiently use materials and produce at its greatest capacity, ensuring that no additional materials are going to waste. Circular economy emphasizes on a circular loop, as opposed to a linear one, resembling a more eco-friendly method that enables waste and materials to be reused, creating a new purpose. As the objective of a circular economy promotes sustainability, it also enhances the environmental factor of ESG, and correspondingly increases ratings. Overall, the existing research shows that there is a strong alignment between the circular economy and ESG with the theoretical framework. The theoretical framework supports that circular economy can positively impact the environmental aspect of ESG. While there is contrasting evidence, the majority of research suggests that adopting the circular economy business model can in fact improve ESG ratings, especially the “e” dimension. This highlights the significance that companies can consider implementing circular economy practices as a way to improve their sustainable development and environmental aspect.

Circular economies can create a supportive environment and foster health systems, which significantly contributes to the social factor of ESG ratings¹⁶. However, while some aspects of the social dimension have been explored, the literature review indicates a lack of attention to other various social dimensions and governance aspects. Many social aspects were not touched upon with the circular economy². In conclusion, there is evidence to suggest that circular economy practices partially contribute to the social dimension of ESG. Although it was mentioned how the social relationship between circular economy and ESG lacks resonance and needs further research to support, it is notable that circular economy has shown a closer resemblance with the social aspect than expected. While taking circular economy practice into consideration for integration, it is apparent that it has some impact on the social factor, but further exploration is needed.

From a governance perspective, there is no clear connection with how implementing a circular economy model can improve the governance structure within a company. There is no clear research that explores how circular economy practices can impact a company's governance structure or its stability.

These potential gaps and limitations between the circular economy and ESG ratings, specifically in the social and governance aspects, suggest the need for further research and literature reviews to develop a more comprehensive understanding. Future studies should aim to investigate and narrow these potential gaps one by one. While existing reviews suggest a positive relationship between the two concepts, additional research is required to confirm this relationship conclusively.

Conclusion

Through reviewing and examining various streams of literature on the concepts of circular economy and ESG, it is found that researchers use different methodologies to approach this core question. Quantitative and qualitative research, along with case studies and literature reviews, have been used to conduct research and conclude findings. Through addressing different methods, results will differ, thereby leading to a more comprehensive understanding of the interplay between ESG and circular economy. Each review cuts in the concepts of ESG and circular economy differently, with some focusing on the environmental indicator, social indicator, sustainability, and more. With the variability between each research, it ensures that the findings regarding the influence of circular economy practices on ESG performances will be more thorough and diverse.

At the outset of this paper, the question of whether incorporating circular economy strategies and practices will change the ESG performance of businesses was raised. This paper was able to summarize and provide a comprehensive overview into the similarities and interconnections between the concepts of ESG and circular economy, with particular emphasis on envi-

ronmental and social dimensions of ESG. Both concepts strive for a more eco-friendly business practice, exerting a positive influence on sustainability and the environment. Furthermore, there are indications that show how a circular economy promotes a safer social environment for employees, contributing to the social aspect of ESG.

However, while interconnections between circular economy and ESG are identified, it is important to acknowledge the existing limitations regarding circular economy and ESG performances. More specifically, further research should indicate how the structure of circular economy may affect the relationship and security between employees within the company. Whether implementing a circular economy business model can influence the organization and governance of the entire company, and lead to more stability. Addressing these limitations requires further research on this topic, adopting various research methods beyond literature review. Thorough research on these specific gaps can enhance and contribute to the overall understanding of the relationship between circular economy and ESG. It can provide evidence to support to refute the argument that the circular economy can positively contribute to ESG ratings of a business. By gaining these insights, further evaluation on the concept of circular economy and ESG should be more explicit.

In summary, with the existing research papers that focus on circular economy and ESG, it is demonstrated that the implementation of circular economy strategies can lead to a positive change regarding ESG performance of businesses, particularly in the environmental and social aspect of ESG ratings. At the same time, more research should be conducted to further justify this finding. It is important to dive deeper into the relationship between the two concepts, unweaving deeper relationships between the circular economy and ESG.

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