

# Circular Economy and Financial Aspects

Subjects: Business, Finance | Environmental Sciences

Contributor: Beatriz Gonçalves

The barriers faced by companies adopting the circular economy in relation to financial performance are defined by (i) the size of the business and the initial investment cost, (ii) difficulties for micro and small companies, (iii) to a more complex structuring of the business, and (iv) greater exposure to risk, as the circular economy is a new concept and is and not as representative as a linear standard system. Thus, there is a need for accounting control of process costs, since resources for different products can have different life cycles. Therefore, factors like financial incentives, subsidies for the projects, and the awareness of nations, companies and consumers are of great importance for the evolution of the circular economy.

Keywords: circular economy ; finance ; accounting ; organization ; financial performance ; sustainability

---

## 1. Introduction

The current economic system is mainly based on a linear logic for obtaining capital: extraction of natural resources, production, consumption, and, finally, disposal <sup>[1][2]</sup>. As long as people live in an economy based on linear production and consumption processes, the destruction of ecosystems, the loss of biodiversity, and consequences such as climate change and water and air pollution will continue causing irreversible changes that render it difficult to sustain life on Earth <sup>[3]</sup>.

An alternative to this model is a system that guarantees a continuous material flow, i.e., a closed loop. In this logic, the concept of circular economy comes into play, as it establishes a connection between the use of resources and waste disposal, thus converting the linear system into a circular system <sup>[4]</sup>. The circular economy can be defined as an economic system based on business models that replace the concept of linear logic through alternatives such as recycling, reuse, use of renewable energy, and product design, operating from the micro sphere to a macro perspective (eco-industrial parks, cities, governments), thus creating a balance between the environment and economic prosperity <sup>[5]</sup>.

A circular economy has been a current practice in several countries. It has been implemented by nations such as China, Germany, Japan, and members of the European Union (EU), through laws that guarantee good waste management, recycling targets, and directives against waste <sup>[6][7][8][9]</sup>. In addition to the benefits to society as a whole, the practice of the circular economy may also result in economic gains to the companies, thus having positive social, environmental, and financial effects <sup>[10][11]</sup>. Adopting sustainable practices is an attractive action; however, many studies report that strategies to implement a circular economy are still in their infancy <sup>[12][13][14]</sup>. In addition, few studies clarify how to develop a circular business model, making it difficult to replicate it in other companies <sup>[15]</sup>. Likewise, the relationship between the circular economy and finance has not yet been fully studied <sup>[16]</sup>, demonstrating the pressing need to analyze the impact of circular economy practices on the companies' economic and financial performance indicators, such as profitability, market value, capital cost, return on investment, production cost, etc. <sup>[17][18]</sup>.

## 2. Theoretical Foundation

Some ecological economists are frequently cited in the debate about the origin of the term "circular economy" due to their strong influence on the construction of the concept over time. Boulding <sup>[19]</sup> points out that humans need to find their place in a cyclic ecological system, even if they are capable of continuously reproducing material, thus proposing a closed-loop system. Pearce and Turner <sup>[20]</sup> base their thoughts on Boulding <sup>[19]</sup> when developing their idea of a cyclical production and consumption system, citing the term "circular economy" when they explain that the term points to the environmental limits of extracting natural resources.

The concept of a circular economy is composed of different fragments, and it is possible to say that it relates to and/or derives from influential ecological concepts, such as cradle to cradle, industrial ecology, industrial symbiosis, sustainable supply chain management, performance-based economy, and blue economy <sup>[21][22]</sup>. As such, it can contain different interpretations. For Yuan, Bi, and Moriguich <sup>[9]</sup>, the three pillars of the circular economy are industrial ecology, clean production, and ecological modernization. The origin of the concept itself comes from the collaboration of several researchers and has a range of meanings. However, it is correct to state that all associations to the term have the understanding of a closed-loop system <sup>[23]</sup>.

As the concept of a circular economy does not have a single definition—it is based on a collection of biases from different areas of study, such as environmental engineering, business, environmental sciences, among others [24][23]—it is still much debated and can be implemented in many ways. As well as the concept, the origin of the term is also studied and cannot be attributed to just one researcher or date. Although the momentum acquired in the 1970s can be registered, it has its own dynamics in different spheres [2].

### 3. Circular Economy and Financial Aspects

Studies that analyze the impact of adopting circular economy practices on the financial performance of companies are still incipient [16][25]. Measuring the financial benefits of the circular economy and the financial profitability of companies that adhere to it are some of the barriers identified with regard to the adoption of the closed system by organizations [26]. The current state of circular business models conveys the idea of a risky venture, in which the main issue is the added value of implementing the system. However, in the long term, a shortage in the supply of natural resources is expected to happen, forcing large companies to adapt to a circular system [27].

Corporate sustainability, a long-debated topic, has received more in-depth attention than the circular economy. Sustainable conducts are expected to add value to brands and increase market competitiveness. However, studies that compared the sustainable indexes of stock exchanges in some countries and analyzed the relationships between financial and environmental performance showed that there is no significant financial advantage between companies that adopt socially responsible attitudes and the ones that do not [28][29][30]. So, since profit maximization is one of the companies' objectives to create value and attract investors, would it be feasible to exercise social responsibility and reduce returns? [31]. Other works, however, highlight positive aspects between the association of socially responsible investments, corporate sustainability and finance, stating that this factor does not harm investors' interests. Instead, the researchers state that it provides long-term financial leverage even if it is more sensitive to market variations and has a tendency for financial risks [32][33]. It's important to mention that socially responsible investments are still under investigation, as studies show conflicting results. The results of these surveys depend on the location of the object studied, as the performance of different companies depends on macroeconomic aspects and also on the profile of the investor [32] and/or consumer.

To that end, the study sought to analyze the most relevant articles in the literature in relation to the theoretical pillars, study trends and dimensions of the circular economy in different areas. The circular economy can be used in different ways and at different levels, in industrial processes, organizations, governments, and legislation. It does not have only one form of applicability. When implementing the circular economy in organizations, it is necessary that circular principles are aligned with the company's strategic objectives and organizational culture.

In addition, an important point that hinders the implementation of the circular economy is the lack of financial, organizational, and national indicators to assess the development of different circular businesses. It is important to point out that prior to financial success, the analysis of the product's costs in all its production phases needs to take into consideration resources from different sources (reuse, recycling, product design, etc.). Thus, there is a need for accounting control of process costs, since resources for different products can have different life cycles. Therefore, factors like financial incentives, subsidies for the projects, and the awareness of nations, companies and consumers are of great importance for the evolution of the circular economy.

Once related to the beneficial impact of the circular economy, they can potentially be a catalyst for its development and more widespread adoption.

---

### References

1. Andersen, M.S. An Introductory Note on the Environmental Economics of the Circular Economy. *Sustain. Sci.* 2006, 2, 133–140.
2. EMF. *Towards the Circular Economy: Economic and Business Rationale for an Accelerated Transition*; Ellen MacArthur Foundation: Cowes, UK, 2013; Volume 40, pp. 21–34.
3. WWF. *Living Planet Report—2018: Aiming Higher*; Grooten, M., Almond, R.E.A., Eds.; WWF: Gland, Switzerland, 2018; Volume 108.
4. Bilitewski, B. The Circular Economy and Its Risks. *Waste Manag.* 2012, 32, 1–2.
5. Kirchherr, J.; Reike, D.; Hekkert, M. Conceptualizing the Circular Economy: An Analysis of 114 Definitions. *Resour. Conserv. Recycl.* 2017, 127, 221–232.
6. European Commission, Directorate General For The Environment; Eunomia Research & Consulting Ltd. *Report on the Implementation of the EU Waste Legislation Covering Directive 2008/98/EC on Waste: Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE); Directive 1999/31/EC on the Landfill of Waste; Directive 94/62/EC on Packaging An.* 2015. Available online: [https://www.google.com/search?q=+Report+on+the+Implementation+of+the+EU+Waste+Legislation+Covering+Directive+2008%2F98%2FEC&rlz=1C1CHBD\\_enRS946R:8](https://www.google.com/search?q=+Report+on+the+Implementation+of+the+EU+Waste+Legislation+Covering+Directive+2008%2F98%2FEC&rlz=1C1CHBD_enRS946R:8) (accessed on 28 December 2021).

7. Morioka, T.; Tsunemi, K.; Yamamoto, Y.; Yabar, H.; Yoshida, N. Eco-Efficiency of Advanced Loop-Closing Systems for Vehicles and Household Appliances in Hyogo Eco-Town. *J. Ind. Ecol.* 2005, 9, 205–221.
8. Su, B.; Heshmati, A.; Geng, Y.; Yu, X. A Review of the Circular Economy in China: Moving from Rhetoric to Implementation. *J. Clean. Prod.* 2013, 42, 215–227.
9. Yuan, Z.; Bi, J.; Moriguchi, Y. The Circular Economy: A New Development Strategy in China. *J. Ind. Ecol.* 2008, 10, 4–8.
10. Ruiz-Real, J.L.; Uribe-Toril, J.; Valenciano, J.D.P.; Gázquez-Abad, J.C. Worldwide Research on Circular Economy and Environment: A Bibliometric Analysis. *Int. J. Environ. Res. Public Health* 2018, 15, 2699.
11. Agrawal, R.; Wankhede, V.A.; Kumar, A.; Upadhyay, A.; Garza-Reyes, J.A. Nexus of Circular Economy and Sustainable Business Performance in the Era of Digitalization. *Int. J. Product. Perform. Manag.* 2021. ahead of print.
12. Bocken, N.M.P.; de Pauw, I.; Bakker, C.; van der Grinten, B. Product Design and Business Model Strategies for a Circular Economy. *J. Ind. Prod. Eng.* 2016, 33, 308–320.
13. Elia, V.; Gnani, M.G.; Tornese, F. Measuring Circular Economy Strategies through Index Methods: A Critical Analysis. *J. Clean. Prod.* 2017, 142, 2741–2751.
14. Geissdoerfer, M.; Savaget, P.; Bocken, N.M.P.; Hultink, E.J. The Circular Economy—A New Sustainability Paradigm? *J. Clean. Prod.* 2017, 143, 757–768.
15. Lewandowski, M. Designing the Business Models for Circular Economy—Towards the Conceptual Framework. *Sustainability* 2016, 8, 43.
16. Aranda-Usón, A.; Portillo-Tarragona, P.; Marín-Vinuesa, L.; Scarpellini, S. Financial Resources for the Circular Economy: A Perspective from Businesses. *Sustainability* 2019, 11, 888.
17. Goyal, S.; Chauhan, S.; Mishra, P. Circular Economy Research: A Bibliometric Analysis (2000–2019) and Future Research Insights. *J. Clean. Prod.* 2021, 287, 125011.
18. Sassanelli, C.; Rosa, P.; Rocca, R.; Terzi, S. Circular Economy Performance Assessment Methods: A Systematic Literature Review. *J. Clean. Prod.* 2019, 229, 440–453.
19. Boulding, K.E. *Environmental Quality in a Growing Economy*; Johns Hopkins University Press: Baltimore, MD, USA, 1966; pp. 3–14.
20. Pearce, D.W.; Turner, R.K. *Economics of Natural Resources and the Environment*. *Land Econ.* 1991, 67, 272–276.
21. EMF. *Towards a Circular Economy: Business Rationale for an Accelerated Transition*; Ellen MacArthur Foundation: Cowes, UK, 2015.
22. Kalmykova, Y.; Sadagopan, M.; Rosado, L. Circular Economy—From Review of Theories and Practices to Development of Implementation Tools. *Resour. Conserv. Recycl.* 2018, 135, 190–201.
23. Murray, A.; Skene, K.; Haynes, K. The Circular Economy: An Interdisciplinary Exploration of the Concept and Application in a Global Context. *J. Bus. Ethics* 2017, 140, 369–380.
24. Korhonen, J.; Honkasalo, A.; Seppälä, J. Circular Economy: The Concept and Its Limitations. *Ecol. Econ.* 2018, 143, 37–46.
25. Scarpellini, S.; Marín-Vinuesa, L.M.; Aranda-Usón, A.; Portillo-Tarragona, P. Dynamic Capabilities and Environmental Accounting for the Circular Economy in Businesses. *Sustain. Account. Manag. Policy J.* 2020, 11, 1129–1158.
26. Ritzén, S.; Sandström, G.Ö. Barriers to the Circular Economy—Integration of Perspectives and Domains. *Procedia CIRP* 2017, 64, 7–12.
27. Aboulamer, A. Adopting a Circular Business Model Improves Market Equity Value. *Thunderbird Int. Bus. Rev.* 2018, 60, 765–769.
28. Farias, K.T.R. *A Relação Entre Divulgação Ambiental, Desempenho Ambiental e Desempenho Econômico Nas Empresas Brasileiras de Capital Aberto: Uma Pesquisa Utilizando Equações Simultâneas*. Doctoral Dissertation, Universidade de São Paulo, Ribeirão Preto, Brazil, 2008.
29. Lee, D.D.; Faff, R.W.; Langfield-Smith, K. Revisiting the Vexing Question: Does Superior Corporate Social Performance Lead to Improved Financial Performance? *Aust. J. Manag.* 2009, 34, 21–49.
30. Macedo, M.; Sousa, A.; Sousa, A.; Cípola, F. Análise Comparativa Do Desempenho Contábil-Financeiro de Empresas Socialmente Responsáveis. *Pensar Contábil* 2009, 11, 15–23.
31. Friedman, M. The Social Responsibility of Business Is to Increase Its Profits. *The New York Times Magazine*, 13 September 1970; 31–35.
32. Charlo, M.J.; Moya, I.; Muñoz, A.M. Sustainable Development and Corporate Financial Performance: A Study Based on the FTSE4Good IBEX Index. *Bus. Strategy Environ.* 2013, 24, 277–288.
33. DiSegni, D.M.; Huly, M.; Akron, S. Corporate Social Responsibility, Environmental Leadership and Financial Performance. *Soc. Responsib. J.* 2015, 11, 131–148.

