

FINANCIAL PROFITABILITY MODEL FOR SUSTAINABILITY IN LATIN AMERICA'S CIRCULAR ECONOMY

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ABSTRACT

A systematic review was carried out on the production and publication of research papers on the study of Financial Profitability Models for Sustainability in the Circular Economy, under the PRISMA approach (Preferred Reporting Items for Systematic reviews and Meta-Analyses). The purpose of the analysis proposed in this document was to know the main characteristics of the publications registered in the Scopus and WoS databases during the year and their scope in the study of the proposed variables, achieving the identification of 31 publications. Thanks to this first identification, it was possible to refine the results through the keywords entered in the search button of both platforms, which were Financial Profitability, Sustainability, and Circular Economy, reaching a total of 19 documents, already excluding duplicates and those that did not meet the analysis criteria. The identified scientific publications were analyzed in the hope of finding out the relationship between the variables, as well as the feasibility in the design of profitable models for organizations, based on sustainability policies linked to the Social Responsibility approach as the backbone of the circular economy approach.

Keywords: Financial Profitability, Sustainability, Circular Economy.

1. INTRODUCTION

Contrary to the Linear Economy, which has traditionally been the most prevalent model in all sectors and is characterized by three steps in its processes which are “take, make and throw away” while the Circular Economy is “restorative and regenerative by design, and aims to always keep products, components and materials at their highest levels of use” (Cerdá & Khalilova, 2016). In Latin America, the principles of Circular Economy have already been contemplated in the design of public policies and even in the performance of private activities, a model that has already been popularized years ago in countries of different regions, in search of sustainability and environmental care through a cleaner production based on the reuse of finished products that start a new production cycle as raw

material. It has become evident the nascent struggle of both public and private sectors to mitigate the effects of the exploitation of natural resources indiscriminately and whose consequences have already been felt for several decades around the world. However, the transition to a cleaner and responsible production with the planet has been slow despite the palpable evidence of the damage that has been done systematically to the environment. The concept of Circular Economy exposed above is based on the Butterfly Model (Figure 1) which suggests the division of material flows into technical and biological by analyzing how they interrelate along the economic processes. This promotes the reuse of finished products and waste by taking them for different processes within the same production line or a different one, that is, changing the vision from waste to raw material being consistent with the objectives of Social Responsibility.

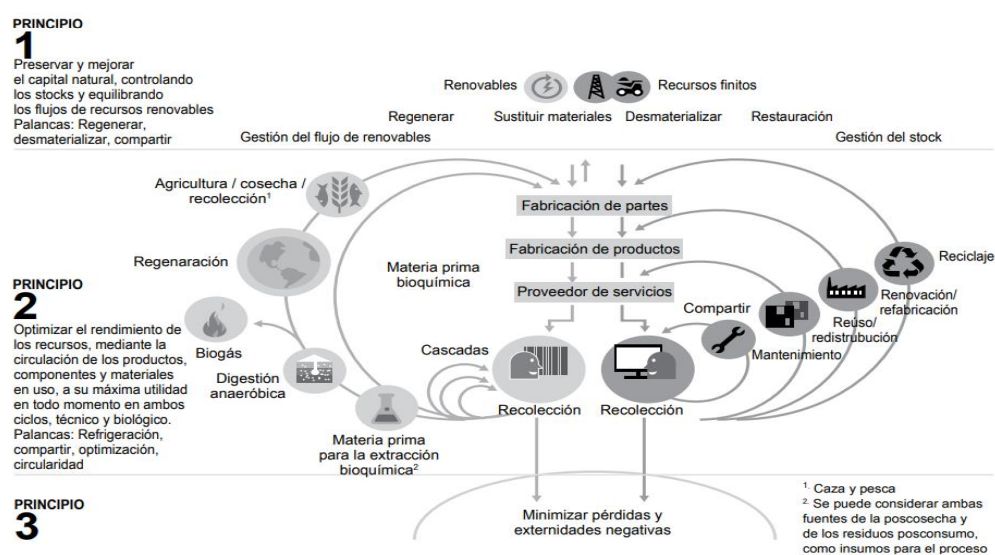


Figure 1. Butterfly model of the circular economy.

Source: (Ellen Macarthur Foundation; SUN and McKinsey Center for Business and Environment., 2015).

An attempt has been made to calculate the economic and financial profitability of implementing Circular Economy practices within the business model, understanding that the main purpose is to care for the environment; however, there is evidence of the profitability caused by the investment in the implementation of resource reuse processes. The opportunities identified in the search for the conservation of natural resources through the latent needs of a consumer society that has been changing its perception of the traditional production of goods and services and has found more environmentally responsible consumption alternatives through the so-called smart consumption have also encouraged companies to migrate their processes towards products whose life cycle is longer and even allows them to be input for the production of others. The above has been identified by the different functional areas of the organization, urging management to use Social Responsibility arguments for marketing campaigns within what is nowadays called Social Marketing, which by its nature covers all areas of interest generated from the definition of the concept of Circular Economy, which is the generation of optimal levels of profitability for companies through a cleaner production where the reuse of products is the main strategy within the fulfillment of organizational objectives. It is necessary, in this case, to know how scientific research has collected information relevant to the topic presented in this article, to establish theoretical support in the construction of new knowledge about the financial profitability perceived through Circular Economy practices in tune with sustainability and Social Responsibility policies.

2. GENERAL OBJECTIVE

To analyze from a bibliographic perspective, the production of high-impact research papers indexed in WoS and Scopus databases, on the variables Financial Profitability, Sustainability and Circular Economy, based on the PRISMA methodology.

3. METHODOLOGY

The present research is of qualitative type, according to Hernández *et al.* (2015), qualitative approaches correspond to researches that perform the procedure of obtaining information to review and interpret the results obtained in such studies; for this purpose, the search for information was carried out in the Scopus and WoS databases employing the words *financial profitability*, *sustainability*, and *circular economy*.

3.1 Research design

The research design proposed for this study was the Systematic Review, which involves a set of guidelines to carry out the analysis of the data collected, which are framed in a process that began with the coding to the visualization of theories (Strauss & Corbin, 2016). On the other hand, it is stated that the text corresponds to a descriptive narrative because it is intended to find out how the levels of the variable affect; and systematic because after reviewing the academic material obtained from the scientific journals, the theories on knowledge management were analyzed and interpreted (Hernández *et al.*, 2015).

The results of this search are processed as shown in Figure 2, which expresses the PRISMA technique for the identification of documentary analysis material. It was taken into account that the publication was published during the period between 2017 and 2021 without distinction of the country of origin of the publication and open to any area of knowledge, as well as any type of publication, namely: Journal Articles, Reviews, Book Chapters, Book, among others.

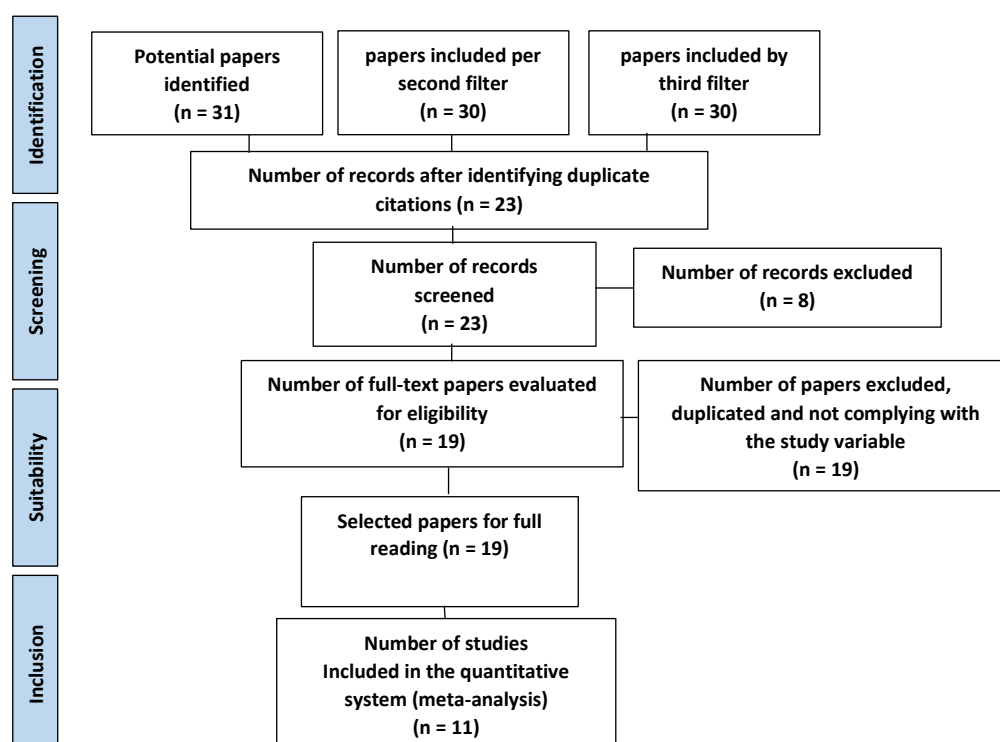


Figure 2. Flow diagram of systematic review performed under PRISMA technique (Moher *et al.*, 2009).

Source: Own elaboration; Based on the proposal of the Prisma Group (Moher *et al.*, 2009).

4. RESULTS

Table 1 shows the results after applying the search filters related to the methodology proposed for this research, after recognizing the relevance of each of the referenced works.

No.	TITLE OF THE RESEARCH	AUTHOR/YEA R	COUNTRY	TYPE OF STUDY	INDICATION
1	<i>Islamic blended finance for circular economy impactful smes to achieve sdgs</i>	Khan, T., & Badjie, F. (2022).	UNITED STATES	QUALITATIVE	SCOPUS
	<i>Circular economy: A review from business models and corporate social responsibility</i>	Melendez, J.R., Delgado, J.L., Chero, V., Franco-Rodríguez, J. (2021).	ECUADOR	QUALITATIVE	SCOPUS
	<i>Financial resources for the investments in renewable self-consumption in a circular economy framework</i>	Scarpellini, S., Gimeno, J. Á., Portillo-Tarragona, P., & Llera-Sastresa, E. (2021).	SPAIN	QUALITATIVE	SCOPUS
	<i>Towards a conceptual development of industry 4.0, servitisation, and circular economy: A systematic literature review.</i>	Atif, S., Ahmed, S., Wasim, M., Zeb, B., Pervez, Z., & Quinn, L. (2021).	UNITED KINGDOM	QUALITATIVE	SCOPUS
5	<i>Environmental sustainability and service quality beyond economic and financial indicators: A performance evaluation of Italian water utilities.</i>	León, C. A. A. A., Moreno-Gómez, E., & García-Noguera, L. J. C. (2020).	BELGIUM, ITALY	QUANTITATIVE	SCOPUS

	<i>Analysis of synergies between circular economy and integrated management systems: A bridge to unite sustainable solutions and business efficiency.</i>	Espuny, M., Santos, V., Campos, T., De Oliveira, V., Kurita, A., & Oliveira, O. J. (2021, April).	BRAZIL	QUALITATIVE	SCOPUS
	<i>Cost-benefit analysis of a circular economy project: a study on a recycling system for end-of-life tyres</i>	Gigli, S., Landi, D., & Germani, M. (2019).	ITALY	QUALITATIVE	SCOPUS
	<i>Drivers and barriers to circular economy implementation : An explorative study in Pakistan's automobile industry.</i>	Agyemang, M., Kusi-Sarpong, S., Khan, S. A., Mani, V., Rehman, S. T., & Kusi-Sarpong, H. (2019).	CHINA, GHANA, FRANCE, PAKISTAN, UNITED ARAB EMIRATES, UNITED ARAB EMIRATES	QUANTITATIVE/QUALITATIVE	SCOPUS
	<i>Proposal to foster sustainability through circular economy-based engineering: A profitable chain from waste management to tunnel lighting.</i>	Molina-Moreno, V., Leyva-Díaz, J. C., Sánchez-Molina, J., & Peña-García, A. (2017).	SPAIN, COLOMBIA	QUALITATIVE	SCOPUS
	<i>Assessment of Circular Economy within Portuguese Organizations</i>	Fonseca, L. M., Domingues, J. P., Pereira, M. T., Martins, F. F., & Zimon, D. (2018).	PORTUGAL, POLAND	QUALITATIVE	WOS

	<i>Circular economy innovations, growth and employment at the firm level: Empirical evidence from Germany.</i>	Horbach, J., & Rammer, C. (2020).	GERMANY	QUALITATIVE	WOS
	<i>Exploring the impact of different carbon emission cost models on corporate profitability</i>	Tsai, W. H., Lai, S. Y., & Hsieh, C. L. (2022).	TAIWAN	QUALITATIVE	WOS
	<i>Material flow and sustainability analyses of biorefining of municipal solid waste</i>	Sadhukhan, J., & Martinez-Hernandez, E. (2017).	UNITED KINGDOM	QUANTITATIVE	WOS
	<i>Role of bioenergy, biorefinery and bioeconomy in sustainable development: Strategic pathways for Malaysia</i>	Sadhukhan, J., Martinez-Hernandez, E., Murphy, R. J., Ng, D. K., Hassim, M. H., Ng, K. S., ... & Andiappan, V. (2018).	UNITED KINGDOM, MALAYSIA	QUALITATIVE	WOS
	<i>Green product innovation: A means towards achieving globally sustainable product within biodegradable plastic industry</i>	Moshood, T. D., Nawanir, G., Mahmud, F., Mohamad, F., Ahmad, M. H., AbdulGhani, A., & Kumar, S. (2022).	MALAYSIA	QUALITATIVE	WOS

	<i>An integrated sustainable biorefinery concept towards achieving zero-waste production</i>	Ullah, H. I., Dickson, R., Mancini, E., Malanca, A. A., Pinelo, M., & Mansouri, S. S. (2022).	DENMARK, PAKISTAN	QUANTITATIVE	WOS
	<i>Economic and Environmental Assessment of Plastic Waste Pyrolysis Products and Biofuels as Substitutes for Fossil-Based Fuels</i>	Pacheco-López, A., Lechtenberg, F., Somoza-Tornos, A., Graells, M., & Espuña, A. (2021).	SPAIN, UNITED STATES	QUALITATIVE	WOS
	<i>Life cycle cost analysis of tomato production in innovative urban agriculture systems</i>	Peña, A., Rovira-Val, M. R., & Mendoza, J. M. F. (2022).	SPAIN	QUALITATIVE	WOS
	<i>Economic and environmental analysis of waste-based bioenergy integration into industrial cassava starch processes in Africa</i>	Padi, R. K., Chimphango, A., & Roskilly, A. P. (2022).	SOUTH AFRICA, UNITED KINGDOM	QUALITATIVE	WOS

Table 1. List of articles analyzed**Source:** Own elaboration.

The 19 documents listed in Table 1 correspond, as mentioned above, to the search carried out in the Scopus and Wos databases, without distinction of the country of origin of the publication or area of knowledge. It is important to emphasize that before the elaboration of Table 1, arguments of competence and relevance were taken into account for the subsequent individual analysis of each text.

4.1 Co-occurrence of words

Figure 2 shows the relationship between the keywords used for the search of the material for the elaboration of the systematic analysis proposed for the present research.

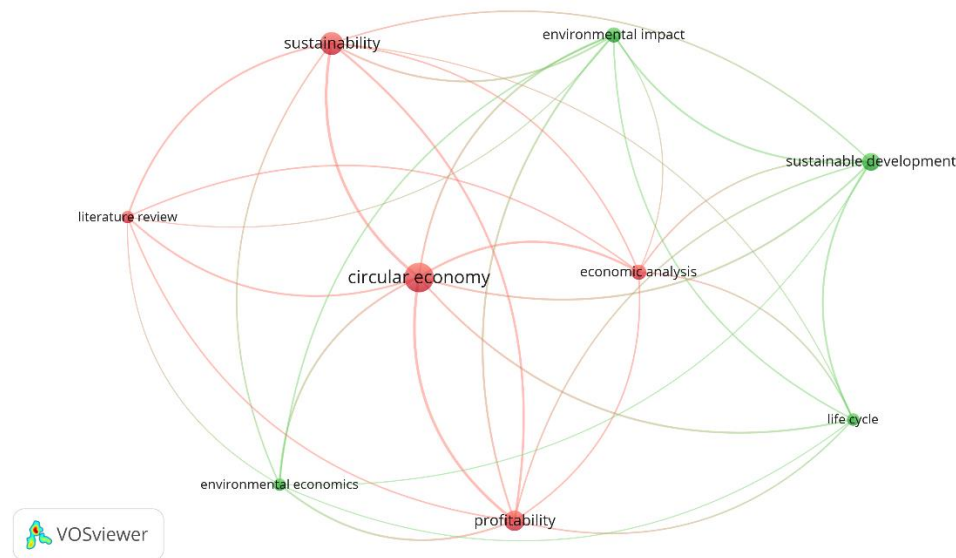


Figure 2. Co-occurrence of keywords.

Source: Own elaboration

The Circular Economy variable was the most used keyword in the generation of research works related to the study topic proposed for the development of this article. Its concept was associated with the development of theories around Environmental Economics, Life Cycle, and Sustainability, which allow confirming the relevance of the publications analyzed in this document. Likewise, in their research, the authors addressed issues related to Sustainable Development and Environmental Impact, from the point of view of Social Responsibility policies. It is worth noting that the effort of companies currently trying to reduce the impact on their environment has had a positive impact from a strategic and financial point of view, since consumers today are more cautious with the products and/or services they purchase, taking into account how socially responsible the companies they consume from are. From this perception derive the Social Marketing strategies that are so popular today and that are responsible for basing a whole set of marketing strategies on their work as socially responsible companies, highlighting the actions that involve aspects ranging from a change in production models, as evidenced in the migration of processes from the Linear Economy to the Circular Economy, to the evaluation of the environment in search of improvement in the quality of life of each stakeholder.

4.2 Discussion

The purpose of this article is to analyze, from a systematic perspective, the contribution of the authors through their publications, to the study of the development of Financial Profitability Models for Sustainability based on the Circular Economy. In this way, it is possible to affirm that the publications indicated in the body of this document, have carried out research at different levels whose findings contribute to the generation of new knowledge regarding the variables proposed for the present study, this is how great contributions are identified as contemplated in the article entitled “Financial resources for investments in renewable self-consumption in a circular economy framework” (Scarpellini *et al.*, 2021), whose objective was to offer a characterization of the financial resources applied to self-consumption from an economic-financial approach to decision-making investors in a case study in Spain from a novel approach to the subject. The authors were able to determine that alternative financial channels and bank intermediation of renewables are topics of interest to promote the energy transition towards a low-carbon economy. The above, taking into account that, for the European case, investment in renewable solutions for self-consumption does not enjoy greater popularity thanks to the perception of low levels of profitability and difficulties in accessing financing in some regions of that region. Reaffirming the medium and long-term usefulness of promoting self-consumption policies based on Circular Economy models, it is found that in the article “Green product innovation: a means to achieve a global sustainable product within the

biodegradable plastic industry” (Moshood, et al., 2022) whose purpose was to gain a deeper understanding of the motivations behind, strategies and problems of incorporating sustainable development issues in biodegradable plastic product innovation, understanding that this type of material may be able to replace traditional petroleum-based plastic in a whole range of products which in itself already represents a great contribution to environmental conservation as one of the main objectives of the Circular Economy.

Among the main findings of the research, it is found that environmental rules can provide possibilities for risk mitigation, profitability and image preservation, and the establishment of new businesses and be a source of restrictions and regulatory compliance. This is taking into account that companies are interested in cleaner production by evaluating the perception of consumers who are motivated to purchase products marked as friendly to the planet or derived from production lines that demonstrate that they are not detrimental to natural resources in the preservation of the quality of life of all their stakeholders. A clear example of this trend is evidenced in the article entitled “Economic and environmental analysis of the integration of waste-based bioenergy in cassava starch industrial processes in Africa” (Padi *et al.*, 2022), whose purpose was to evaluate the economic and environmental performance of bioenergy generation from cassava waste in cassava starch facilities using cassava stems and cassava starch wastewater in the contexts of seven leading cassava growing countries in Africa (Angola, Cameroon, DR Congo, Ghana, Malawi, Nigeria, Tanzania). The economic evaluation included a profitability analysis for alternative bioelectricity price scenarios. The study was able to demonstrate that bioenergy generation from cassava residues and austere sustainable energy policies could be promising for improving sustainability in agriculture, which means a great opportunity for cassava producers to increase profit margins through cost reduction based on a Circular Economy model.

5. CONCLUSIONS

This review article concludes by highlighting the importance of knowing the updated state of the literature published in databases such as Scopus or WoS, regarding the study of the development of Financial Profitability models for Sustainability in the Circular Economy, since from this information it is possible to measure the real impact that models based on reuse and cleaner production have had not only on environmental care but also on the economy of companies in all sectors.

From the above it was possible to infer through the position of the authors cited here, that the profitability perceived through the application of policies and practices based on Circular Economy strategies, can be higher compared to the traditional ones based on the Linear Economy, evaluating from the preparation and disposal of raw materials that in the first case may derive from finished products from another production line or even the same, taking into account that this is one of the principles of the Circular Economy, the reuse and utilization of waste for the implementation of a new production batch. This practice achieves, according to the authors, a positive impact in terms of the exploitation of natural resources, since it reduces the demand for raw materials extracted directly from nature. Undoubtedly, the cost of production is perceived as lower through the reuse of products. On the other hand, the creation of marketing strategies based on the work carried out as a company around Social Responsibility policies, turned out to be even more profitable thanks to the corporate image that the client perceives about the organization since nowadays responsible consumption has become popular among clients who now seek that within the satisfaction of their needs, sustainability policies for the care of the environment are also included.

The above represents a great opportunity for the emerging economy in Latin America since it is proven that financial profitability is greater through the implementation of practices based on Circular Economy models, therefore, it is expected that through research work such as the one presented in this document, the generation of new knowledge on the topic discussed above will be increasingly encouraged and will be for the scientific community, a topic with great potential in the evaluation of new alternatives for companies and their strategies based on sustainability and Social Responsibility.

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