



CRISTINA SANTHIA'

DEPARTMENT OF ECONOMICS AND STATISTICS «COGNETTI DE MARTIIS», UNIVERSITY OF TORINO
cristina.santhia@unito.it



IS IT WORTH CIRCULAR ECONOMY?

EXPLORING THE EFFECT ON CORPORATE FINANCIAL PERFORMANCE



INTRODUCTION

The circular economy (CE) model is expected to foster the transition towards sustainable development by decoupling economic growth from environmental degradation through the introduction of closed resource loops.

The CE has increasingly attracted the attention of governments as a strategic tool for climate change mitigation and long-lasting economic resilience. In 2015 the European Union adopted its first Circular Economy Action plan and still today it is at the forefront to include CE principles in its policy agenda in order to accelerate the green transition (EC, 2019).

Business activities are essential to stimulate and foster the spread of the CE. Different scholars have already proved the benefits for the environment of embedding CE principles in business strategies, products design, production processes, and supply chain management. Conversely, the implications for the corporate financial and market performance have been poorly investigated. However, the evidence on the effect of circular business models on economic sustainability and access to capitals would be key to understand the role that financial sustainability can play in supporting the overtaking of circular business models over the linear ones.

Thus far, the relationship between corporate sustainability and financial performance has been examined focusing on environmental management practices or emissions reduction. Based on this literature background, we extend the analysis to the effect of CE on financial performance by investigating the following research questions:

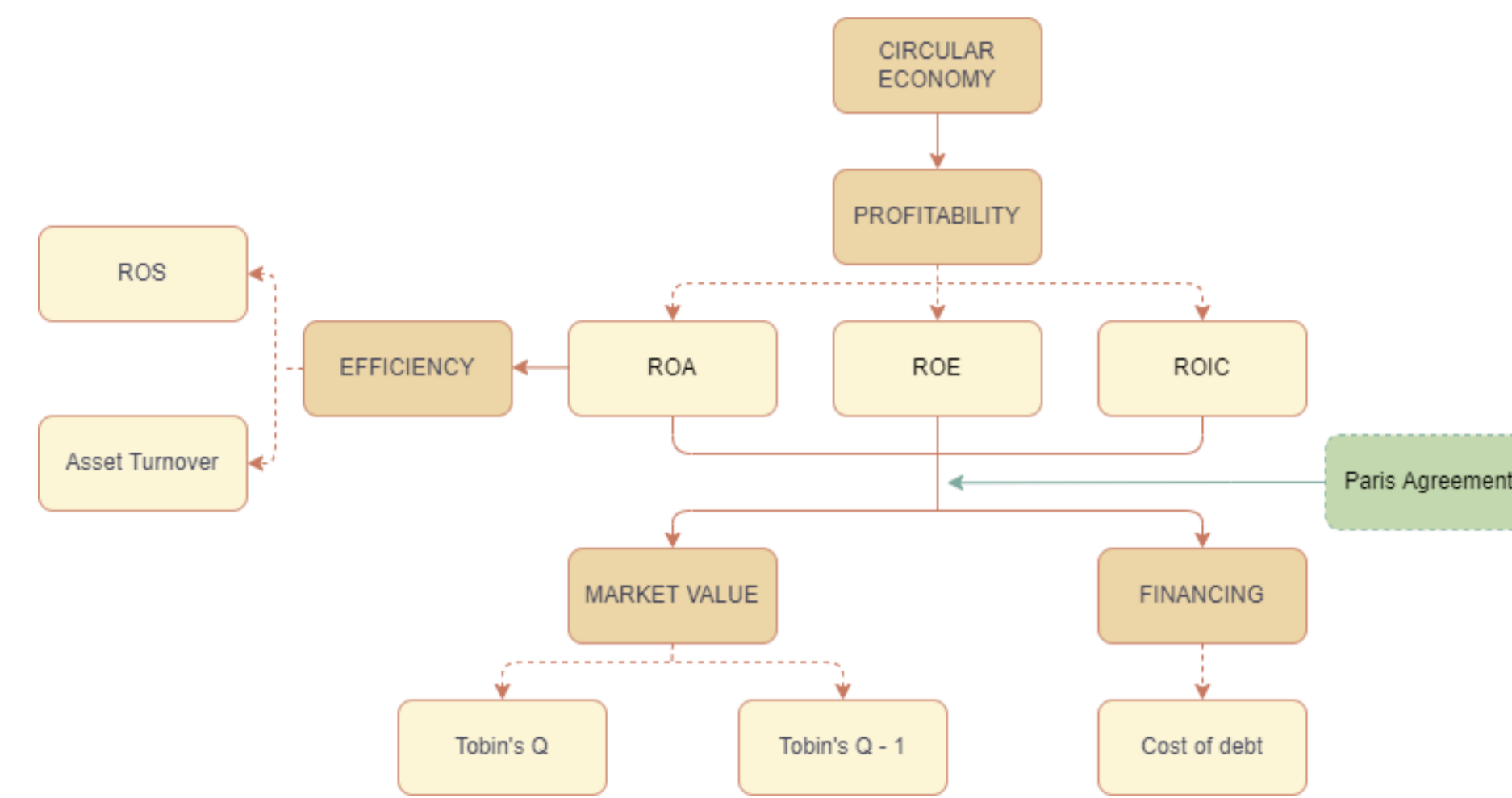
- Hypothesis 1: Firms with a better performance in Circular Economy increase their profitability and operational efficiency.
- Hypothesis 2: Firms with a better performance in Circular Economy face a lower cost of borrowing
- Hypothesis 3: Investors' perception of future market performance and the value of intangible assets are higher for firms with a better performance in Circular Economy.

Aspects of Circular Economy considered:	
Waste Reduction Initiatives	Resource Reduction \ Improvements
e-Waste Reduction Initiatives	Renewable Energy Use
Take-back and Recycling Initiatives	Policy Water Efficiency
Eco-Design Products	Policy Energy Efficiency



RESULTS

Figure: Conceptual framework



According to our findings:

- A company's commitment to implement CE principles is a lever to increase profitability (positive and significant relationship between CE Score and ROE, ROA, ROIC).
- A circular approach in the production and utilization of resources increases the efficiency with which a company uses its assets to generate revenues, but it does not exert a significant effect on sales expansion or production costs reduction (positive and significant relationship between CE Score and Asset Turnover, no significant relationship between CE Score and ROS).
- A firm's cost of financing is not related to its performance in the CE (no significant relationship between CE Score and COD).
- A firm's involvement in the CE is perceived by the market as a signal of long term growth opportunities, thus increasing the expectations of investors on the firm's ability to generate future economic earnings (positive and significant relationship between CE Score and Tobin's Q, Tobin's Q - 1).

Further evidence:

- Which circular-related strategy plays the major role in generating revenue through greater assets efficiency? Eco-Design products and Take-back and recycling systems have the greatest impact.
- Have investors started to consider differently the CE after the 2015 Paris Agreement? In the aftermath of international climate regulations, improving the circular performance at company level has a payoff on both capital and debt markets.

The study relies on a balanced sample of worldwide listed companies operating in the field of mining, manufacturing, utilities and construction over the period from 2010 to 2019 (10,470 observations). Data are retrieved from Refinitiv DataStream.

CE Score: measure based on 8 environmental indicators strictly related to a rigorous definition of circular business model that captures the extent to which circular business practices are implemented within a company. Empirical strategy: different linear models with accounting-based and market-based measures as dependent variables.

Table: Extract of the econometric analysis results

	ln(Tobin's Q) (1)	Tobin's Q - 1 (2)	COD (3)
CE Score	0.0044*** (0.0009)	0.0069*** (0.0020)	0.0034 (0.0066)
Post 2015	-0.2360*** (0.0478)	-0.4021*** (0.1072)	0.6462* (0.3648)
Size	-0.0425*** (0.0084)	-0.0922*** (0.0195)	-0.2980*** (0.0495)
Leverage	-0.4396*** (0.0857)	-1.0047*** (0.2142)	0.1972*** (0.0522)
Growth	0.0031*** (0.0003)	0.0057*** (0.0007)	
Capital int.	0.5446** (0.2239)	0.9620** (0.4788)	
ROA			0.0029 (0.0139)
Working cap.			1.6277** (0.7336)
CE Score x Post 2015	0.0043*** (0.0009)	0.0091*** (0.0021)	-0.0231*** (0.0068)
Constant	0.9209*** (0.1287)	1.9302*** (0.3048)	8.7445*** (0.8263)
Year effect	YES	YES	YES
Region effect	YES	YES	YES
Observations	10,470	10,470	10,470
Adjusted R ²	0.1603	0.1119	0.1547
F Statistic	112.0397***	74.2581***	107.4591***

Robust standard errors clustered by firm are in parentheses. ***, **, * represent significance levels at p < 0.01, p < 0.05 and p < 0.10, respectively.



CONCLUSIONS

Considering that the transition towards a CE model will appear more favourable to businesses if they perceive it as an opportunity for higher positive economic outcomes, a shortcoming of this evidence in the CE research landscape is critical.

This study reveals that, at a company level, a proactive behaviour towards the circular transition generates a financial return and is rewarded by the capital market participants. It is noteworthy that lenders start to incorporate companies' attitude to circularity by making lending conditions for companies engaged in CE more favourable only after 2015.

The risk of operating in a linear and extractive economic model goes along with the best-known climate risk, and CE is perceived by stockholders as a way to manage and mitigate a firm's exposure to these risks.

Hence, firms that minimize their exposure to global warming through CE practices also seize new opportunities for profit and benefit from more favourable lending conditions, since financial institutions have become more prone to provide support to business activities integrating circularity thinking.

Our results are thereby indicative of the effectiveness of supranational and national policies in prompting investors to address sustainability concerns in their portfolios.

This study's results encourage managers to undertake initiatives within the CE domain as an incentive for firm value enhancement, and capital providers to sustain the circular transition to align their portfolios to regulatory requirements of sustainability.

Industrial policies designed to scale up the impact of circular economy should rely on a systemic view of CE, which can foster innovation at product and process level. This approach includes interventions at every stage of the product's life cycle, from its design for durability to the resource recovery and the streamlining of production and distribution.



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