



Perspective

Private financing and the circular economy

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ABSTRACT

Circular economy-based investments remain modest when compared to sustainability investments. Private investors interested in the circular economy currently have limited choices. To advance the transition to a circular economy, understanding private funding motivation, options, and outcomes are research directions that need to be pursued. Interdisciplinary researchers from environmental sustainability, ecological economics, and finance communities are urged to explore private financing options for the circular economy.

Investment in the circular economy (CE) continues to grow—with this funding reflecting a heightened focus on sustainability, resource efficiency, and waste minimization. Multiple key stakeholders are involved – the government, for-profit corporations, and the private financial sector. However, private financial investments in CE remain relatively modest (\$15 billion¹ in 2021) compared to other areas of sustainable finance (\$8.4 trillion in 2021²). We believe that a successful transition to CE requires private investment, and understanding the relationship between private investment and CE transition needs is a major gap in the sustainability finance field. This issue motivates our perspective paper.

Several factors may have contributed to this paucity of CE investment—challenges in implementing CE practices, uncertainty about investment outcomes, and a lack of awareness and understanding of the potential benefits among investors. Only a few studies have delved into CE financing. Aranda-Usón et al. (2021) analyze the financial resources allocated to circular activities within companies, while a second study³ investigates the financial resources available for investments in renewable self-consumption. Another researcher⁴ explores the risks and benefits associated with CE financing for financial institutions and the potential impact of central bank digital currency on the CE transition.

Additionally, Ghisetti and Montresor (2020) investigate the relationship between CE practices adopted by small- and medium-sized enterprises (SMEs) and their financing decisions. Other research has focused on specific organizations or products and *making the business case* of return on investment or *business model* in general (e.g., Cullen and De Angelis, 2021). However, none of the studies have researched the private investment options available in the financial market.

This article attempts to fill this gap. It provides a practical overview of current CE investment options available to private investors, including their risk, return, and sustainability characteristics. This initial evidence is then used to suggest areas for research on private investment for CE transition goals — an important and understudied area in the sustainable finance community.

Currently, multiple options exist for investors and funders. They can: (1) invest directly in firms actively involved in CE practices, such as recycling, renewable energy, sustainable materials, and waste management; (2) use mutual funds or exchange-traded funds (ETF) to invest in publicly listed CE-engaged companies; (3) invest in startups and early-stage private companies developing CE innovation solutions through CE venture capital funds; and (4) seek private equity funds to invest in established private CE companies.

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E-mail address: ffang@clarku.edu (F. Fang).¹ See Lawlor, Eilis, and Spratt, Stephen, 2021. Circular Investment: A Review of Global Spending and Barriers to Increasing It. Working paper, Chatham House.² See 2022 Report on US Sustainable and Impact Investing Trends from the US-based Forum for Sustainable and Responsible Investment (US SIF).³ Scarpellini, Sabina, Gimeno, José Ángel, Portillo-Tarragona, Pilar, and Llera-Sastresa Eva, 2021. Financial Resources for the Investments in Renewable Self-Consumption in a Circular Economy Framework. *Sustainability* 13(12), 1–17.⁴ Ozili, Peterson K., 2021. Circular Economy, Banks, and Other Financial Institutions: What's in It for Them? *Circular Economy and Sustainability* 3, 787–798; and Ozili, Peterson K., 2021. Circular Economy and Central Bank Digital Currency. *Circular Economy Sustainability* 2, 1501–1516.

Many CE funds have been launched over the past six years—most as parts of larger sustainability funds. Some key facts about private financing are reported in Table 1, including fund type, inception date, domicile, size, annual fee, the Morningstar sustainability ratings,⁵ and the Morningstar Low-Carbon designation.⁶

Some highlighted mutual funds include:

- BlackRock, the world's largest asset manager, launched the BlackRock Circular Economy Fund in October 2019. The fund started with \$20 million in seed capital (Dewick et al., 2020) and has since grown to become the largest mutual fund in CE in 2023 with \$1663 million in assets. It invests in large and growth CE stocks in all industry sectors.
- Anima Investimento Circular Economy 2025 Fund is a fixed-income mutual fund founded in January 2020 with total assets of \$435 million.
- An early CE equity fund is the Decalia Circular Economy Fund, founded in May 2018, which funds companies that are likely to benefit from the CE transition. The fund is relatively small, at \$40 million.

CE mutual funds tend to invest in equities and in developed countries across various sectors, including industrials, technology, consumer cyclical, consumer defensive, and basic materials. These funds charge higher annual fees.⁷ They typically carry higher risks and underperform their benchmarks (see Fang and Parida, 2024). They are rated

sustainable or low-carbon.

All the CE ETFs included in Table 1 are equity ETFs located in Europe. These ETFs track indices prioritizing environmental, social, and governance (ESG) criteria, offering exposure to companies involved in recycling, resource efficiency practices, and those positioned to benefit from CE transitions. These ETFs invest primarily in industrials, consumer cyclical, technology, basic materials, and consumer defensive, mostly in developed countries. CE ETFs charge higher fees and have high sustainability or low-carbon holdings.

We also include four CE private equity and three CE venture capital funds, and two of these PE funds are not open to the public, as shown in Table 1. These funds are in developed countries. Some are more general, while others focus on specific materials or industries.

Given the variety of private financial options, it's essential to critically analyze their effectiveness in advancing CE goals. The question can also target the other side of the investment equation—investors would want to know what CE practices have the highest potential for delivering a good return on investment with lower risk. This issue may start to shift some of the CE practices adopted by organizations as the market makes it clear where investments will flow. Whether shifts in targeted CE practices and transition occur as private investment increases is an important policy concern as well. In this case, tax benefits may be used to incentivize investments in funds that support CE practices.

We have alluded to a few questions for study in this realm of private financing for CE. However, many open research questions still exist for exploration. The following are some we consider.

Table 1
Key private funding facts.

	Type	Inception Date	Domicile	Size (millions)	Annual Fee	Morningstar Sustainability (Globe) Rating	Morningstar Low-Carbon Designation
Mutual Funds							
BlackRock Circular Economy Fund	Equity	10/02/2019	Luxembourg	\$1663	1.81%		
Candriam Sustainable Equity Circular Economy Fund	Equity	06/03/2020	Luxembourg	\$456	1.94%		
Decalia Circular Economy Fund	Equity	05/30/2018	Luxembourg	\$42	1.40%		
Anima Investimento Circular Economy 2025 Fund	Bond	01/02/2020	Italy	\$435	1.36%		No Designation
ETFs							
BNP Paribas Easy ECPI Circular Economy Leaders UCITS ETF	Equity	04/24/2019	Luxembourg	\$938	0.30%		
VanEck Circular Economy ETF	Equity	10/21/2022	Ireland	\$6	0.40%		No Designation
Rize Circular Economy Enablers UCITS ETF	Equity	05/24/2023	Ireland	\$2	0.45%	—	No Designation
Private Equities (PEs)/Venture Capitals (VCs)							
Closed Loop Venture Fund	VC				2017		US
Closed Loop Leadership Fund	PE (closed)				2019		US
Circular Innovation Fund	VC				04/21/2022		Canada
Circulate Capital Ocean Fund I-B	PE				2021		US
Taaleri Circular Economy Fund	PE (closed)				03/2016		Finland
Future of Plastics Fund	VC				2022		UK
Circularity Capital	PE				2015		UK

⁵ See https://www.morningstar.com/content/dam/marketing/shared/research/methodology/744156_Morningstar_Sustainability_Rating_for_Funds_Methodology.pdf

⁶ See <https://community.morningstar.com/s/article/Understanding-the-Low-Carbon-Designation>.

⁷ See *Investment Company Institute. 2023 Investment Company Fact Book* for average fees in the mutual fund industry.

An important initial question for financial investment firms and the sustainable finance community is what contributes to the current underperformance of CE mutual funds. This issue needs to be addressed to better understand and adjust CE practices—including research that can identify practices benefiting ESG and basic financial measures.

There are stakeholder concerns beyond the shareholders and organizations. Regulatory challenges, public awareness, and CE fund choice of industries can affect investment levels and directions. Understanding

the challenges related to social and governmental concerns portends broader consumer and policy studies focusing on stakeholder initiatives that can increase private CE funding.

Specific private investors can support CE projects and businesses, but what motivates or deters investors from seeking CE investment opportunities needs to be identified and addressed. Do organizations within particular sectors or industries seek CE private financing, and how effective are they in getting private investment to support their CE transitions?

An interesting question is whether opportunities (low-hanging fruits) exist given the relatively small investments in this market; alternatively, do investors shy away, realizing there is too much uncertainty and risk? Consequently, studies on risk assessment of CE practices are needed. This inquiry likely underscores the necessity of enhancing risk assessment and mitigation strategies to attract more private investment in CE projects. Whether this situation will hold is a fundamental research question.

Answers to these concerns from the perspectives of private investment firms, policymakers, investors, organizations, and communities will profoundly influence the long-term success of CE transitions. By deepening their understanding of these issues, researchers can enable stakeholders to work towards facilitating a significant infusion in funding for a global transition to a CE and a more sustainable, equitable, and environmentally friendly future.

CRediT authorship contribution statement

Fei Fang: Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Data curation, Conceptualization.

Sitikantha Parida: Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Conceptualization. **Joseph Sarkis:** Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

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