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Sustainability-Oriented Equity Crowdfunding: The Role of Proponents, Investors, and Sustainable Development

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Abstract: This study investigates the factors influencing the success of sustainability-oriented equity crowdfunding campaigns by analyzing a dataset of 771 campaigns from Italian platforms between 2014 and 2021. The findings indicate that while projects with a sustainability focus tend to achieve better outcomes, their success is contingent on variables such as the economic sector of the proposing company and investor concerns regarding misleading claims about environmental, social, and governance practices. Notably, professional investors play a critical role in early-stage financing, initiating information cascades that drive broader investor participation. Furthermore, the COVID-19 crisis appears to have heightened investor interest in sustainability, further solidifying equity crowdfunding as a viable financing tool for ventures with environmental and social objectives. By identifying the key factors that drive the success of sustainability-oriented campaigns, this study offers valuable insights for entrepreneurs, investors, and policymakers seeking to enhance the role of alternative finance in promoting sustainable innovation.

Keywords: equity crowdfunding; entrepreneurial finance; sustainability; alternative finance

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1. Introduction

Crowdfunding has become a key tool for raising seed capital across various industries, distinguishing itself from traditional entrepreneurial finance market segments through its unique microstructures, participant dynamics, and regulatory frameworks [1–3]. In particular, it plays an increasingly vital role in supporting sustainable and green start-ups by providing an alternative financing mechanism to conventional sources such as venture capital (hereafter VC) and bank lending. Entrepreneurs utilize digital platforms to reach a wide investor base, leveraging social networks and community engagement to secure funding [4,5]. This accessibility is particularly valuable for early-stage ventures in high-risk sectors like sustainability and green innovation, which often struggle with financial constraints due to uncertain returns, long investment horizons, and difficulties in demonstrating tangible environmental and social impacts [6,7].

Sustainability-oriented crowdfunding bridges financing opportunities with the ethical and impact-driven objectives of green entrepreneurs [8]. Unlike traditional investors, crowdfunding participants often prioritize non-financial motivations, integrating ethical considerations, environmental impact, and social values into their investment decisions [9,10]. Additionally, crowdfunding functions as a signaling mechanism, enabling start-ups to validate market demand and attract institutional investors [11]. However,

despite the strong influence of ethical considerations, concerns about behavioral biases, greenwashing, and information asymmetry remain prevalent [12,13].

To gain a deeper understanding of these dynamics, theoretical frameworks offer valuable insights. Traditional financial theories, such as the efficient market hypothesis [14] and signaling theory [15], propose that investment decisions are driven by publicly available information and credible quality signals. However, alternative perspectives provide a more nuanced understanding of the motivations behind sustainability-oriented investments. Stakeholder theory [16] argues that firms should account for the interests of all stakeholders—including investors, employees, and society—rather than focusing solely on maximizing shareholder returns [17]. This view aligns with the principles of impact investing, where investors prioritize ventures that generate measurable social or environmental benefits alongside financial returns [18].

From a behavioral finance perspective, post-Keynesian finance [19] emphasizes the role of uncertainty, expectations, and market sentiment in investment decisions, challenging the neoclassical assumption of fully rational investors [20,21]. This perspective aligns with research on social proof in crowdfunding, where early institutional participation influences retail investors' decision-making [22]. Additionally, prospect theory [23] posits that investors are more sensitive to potential losses than to equivalent gains, often leading to underinvestment in green ventures perceived as high-risk [24]. However, socially conscious investors may counteract this bias when sustainability metrics are framed in financial terms [25]. Furthermore, observational learning theory [21] suggests that less-informed investors rely on the decisions of professional investors in the face of uncertainty, reinforcing herd behavior in equity crowdfunding [26].

Equity crowdfunding (hereafter ECF) differentiates itself from other alternative financing mechanisms, such as venture capital (VC) and impact investing. While VC primarily funds high-growth start-ups and provides strategic mentorship and networking opportunities [27], impact investing integrates environmental, social, and governance (ESG) considerations into investment decisions [28]. A key distinction lies in impact measurement—impact investors require quantifiable sustainability outcomes, whereas ECF often lacks standardized metrics for assessing sustainability [29]. This gap raises concerns about greenwashing, where projects exaggerate sustainability claims to attract investors [30]. Furthermore, while VC involves active post-investment engagement, including board participation, ECF investors—unless they are professional backers—typically have minimal influence over company decisions [31]. The emergence of hybrid models, where venture capitalists use crowdfunding platforms to gauge market interest before committing larger investments, underscores the evolving role of crowdfunding as both a financing tool and a market validation mechanism [32].

Impact investing and ECF share a common focus on social and environmental objectives [33]. However, unlike VC, impact investing explicitly incorporates ESG considerations into its decision-making process [28]. A key distinction lies in impact measurement—impact investors require quantifiable sustainability outcomes, often relying on frameworks such as the Global Reporting Initiative (GRI) or Impact Reporting and Investment Standards (IRIS) [34]. In contrast, ECF often lacks standardized sustainability metrics [29], raising concerns about greenwashing, where projects exaggerate their sustainability claims to attract investors [30].

Investment structures also differ. Impact investors provide long-term patient capital, prioritizing sustainability over immediate financial returns [35]. In contrast, ECF typically involves smaller, one-time investments that may not support long-term growth [7]. However, some ECF platforms have begun integrating impact metrics and certifications to better align with impact investing principles [36].

The choice between ECF, VC, and impact investing depends on a venture's characteristics and capital requirements. ECF democratizes access to finance but faces challenges related to due diligence, post-investment engagement, and impact verification. VC offers strategic support but tends to be risk-averse toward sustainability-focused ventures with uncertain returns [37]. Meanwhile, impact investing ensures long-term alignment with sustainability goals but requires rigorous reporting standards, which early-stage startups may find difficult to meet.

Despite growing interest in green crowdfunding, debates persist regarding its scalability and long-term impact. Some consider it a tool for democratizing sustainable finance by expanding access to capital for environmental innovation [38]. Others, however, argue that it remains a niche mechanism, functioning more as a complement than a substitute for traditional funding sources due to the relatively modest investment amounts raised on crowdfunding platforms [29].

Overall, the research presents mixed perspectives on the effectiveness of crowdfunding in financing green ventures. While it has proven successful in mobilizing capital for socially and environmentally impactful projects, concerns persist regarding investor sophistication, project credibility, and its long-term viability as a mainstream funding model.

With the growing role of crowdfunding in financing sustainable ventures, this paper focuses specifically on ECF campaigns and the key factors that drive their success. In particular, it examines sustainability as a determinant of campaign performance by comparing sustainability-oriented projects with other types. By analyzing whether and how sustainability influences fundraising outcomes, this study aims to offer insights into the effectiveness of ECF as a financing tool for green and socially responsible ventures. Specifically, this investigation aims to answer the following research questions:

(1) Does the sustainability orientation of an ECF campaign, in terms of the project's content, influence its success?
(2) Does the sustainability profile of an ECF proponent contribute to the success of the campaign?
(3) Does the participation of professional investors in a sustainability-oriented ECF campaign enhance its likelihood of success?

Using an updated, manually collected dataset, we examined the impact of the COVID-19 pandemic on the studied factors. Research suggests that since the onset of the pandemic, companies with strong sustainability practices and fair stakeholder management have outperformed their counterparts [39–41]. Additionally, studies indicate a growing investor preference for green assets and sustainable products, as market uncertainty has heightened the appeal of sustainability-focused investments [42–45].

Despite growing academic interest in ECF platforms [46–48], research has primarily focused on their role as financial intermediaries facilitating fundraising rather than as independent entities facing distinct strategic, operational, and regulatory challenges. While some studies have explored their impact on market efficiency, investor behavior, and campaign success rates [49], there is still limited understanding of how these platforms evolve, differentiate themselves, and navigate regulatory frameworks to remain competitive.

Similarly, while crowdfunding has played an increasing role in supporting sustainable development [50], research on its specific contributions to sustainability-oriented projects remains limited [51]. Beyond individual investment decisions, crowdfunding platforms actively shape the sustainability landscape. Platforms specializing in green and social impact crowdfunding often implement additional screening mechanisms—such as third-party sustainability certifications, impact measurement tools, and partnerships with non-governmental organizations—to enhance investor confidence and project credibility [52]. However, further research is needed to examine how these platforms develop and

enforce sustainability criteria and whether their interventions effectively drive the broader transition toward sustainable finance. Given these dynamics, exploring the intersection of crowdfunding and sustainability remains a critical area for future research.

This study underscores the critical role of both the sustainability-oriented content of a crowdfunding campaign and the sustainability profile of the proponent in determining campaign success. Retail investors often exhibit herd behavior, following the lead of professional investors. The early participation of institutional investors in sustainable crowdfunding campaigns further enhances their chances of success, serving as a strong credibility signal. Additionally, the influence of sustainability on crowdfunding success became even more pronounced with the onset of the COVID-19 pandemic, as investor preferences shifted further toward sustainable ventures. By providing empirical insights into the role of sustainability in ECF and its growing significance during periods of economic uncertainty, this study contributes to the global discourse on sustainable finance.

To the best of our knowledge, this study is the first to examine the relationship between potential investors' willingness to finance sustainable ECF projects and the overall sustainability profile of the project's proposer. This is particularly relevant given rising concerns about greenwashing and ESG-washing [53]. Existing research has yet to explore the connection between the success of sustainability-oriented ECF campaigns and the core business activities of the companies behind them. Furthermore, by leveraging recent data, this study assesses the impact of the COVID-19 pandemic on the financial behavior of both retail and institutional investors in the ECF market.

Methodologically, this study differs from previous research by conducting a cross-platform analysis rather than focusing on a single crowdfunding platform [6,54–56]. This approach mitigates potential biases associated with the unique characteristics of any one platform, ensuring more generalizable findings. Additionally, by analyzing both successful and unsuccessful campaigns, we identify key factors that may contribute to the failure of certain initiatives, providing a more comprehensive understanding of the dynamics influencing ECF outcomes.

Finally, this study examines the Italian crowdfunding market, which was the first in Europe to introduce regulations for ECF through the "Decreto Crescita 2.0" in 2012. Subsequent regulatory reforms in 2018 further broadened the scope of ECF to include limited companies, investment funds, and investment firms supporting innovative startups and SMEs [57]. Despite this regulatory evolution and the sector's rapid growth—highlighted in the 7th Italian Report on Crowdinvesting (Milan Politecnico School of Management, 2022)—Italy remains underexplored in terms of sustainability-oriented ECF campaigns. Our dataset covers approximately 85% of all Italian ECF campaigns conducted between 2014 and 2021, providing a robust foundation for analysis.

Our findings provide valuable practical insights for both startups and crowdfunding platforms. Understanding the key factors that investors perceive as quality signals in sustainability-oriented projects can enhance campaign success and improve overall platform performance. For startups, aligning crowdfunding strategies with investor preferences can increase the likelihood of securing funding. For platform managers, curating and promoting high-quality, sustainable projects can attract more investors, strengthen platform credibility, and drive long-term growth.

The remainder of this paper proceeds as follows: Section 2 provides a literature review and our research hypotheses. Section 3 describes the data collection process and outlines the methodological approach employed in the analysis. Section 4 reports our main results. Section 5 concludes this paper by summarizing its findings and discussing its contributions and policy implications.

2. Literature Review and Hypotheses Development

Sustainability-oriented crowdfunding campaigns tend to attract higher investor engagement as they align with ethical and environmental goals [42,58,59]. The recent literature highlights crowdfunding as a viable alternative to traditional financing, particularly for early-stage ventures in high-risk sectors such as sustainability. Investors in sustainability-focused campaigns place significant emphasis on ESG factors, while institutional backing enhances credibility, boosting investor confidence and participation [18]. However, the extent to which sustainability directly influences the success of ECF remains a topic of ongoing debate.

Research highlights several key factors that influence investor decisions, including sustainability certifications, third-party validation, and the credibility of project proponents [4,60]. Behavioral finance theories suggest that information cascades and herd behavior further amplify the appeal of sustainability-focused campaigns. Early investments by professional backers serve as a strong signal of project legitimacy, fostering confidence among retail investors and encouraging broader participation [61].

Post-funding performance is another critical factor. Research suggests that sustainability-oriented ventures often demonstrate strong post-offering performance, reinforcing the positive relationship between a sustainability focus and long-term success [62]. A systematic review by [63] identifies key trends and gaps in crowdfunding and sustainability research, while [8] explains how a sustainability orientation enhances crowdfunding outcomes by shaping investor decision-making.

Professional investors—such as VC firms, incubators, and financial intermediaries—play a pivotal role in the success of ECF campaigns. Their early involvement enhances perceived legitimacy, driving greater engagement from retail investors [64]. According to observational learning theory, less-informed retail investors tend to follow the lead of professional investors, reinforcing herd behavior [65]. Empirical evidence supports this notion, showing that sustainability-oriented campaigns backed by institutional investors are more likely to exceed their funding targets [17]. This aligns with broader trends in sustainable finance and the increasing integration of ESG factors in investment decisions [60].

The regulatory landscape for sustainable finance has evolved significantly, further accelerating the growth of sustainability-oriented crowdfunding. Key European Union initiatives—such as the EU Taxonomy for Sustainable Activities, the Sustainable Finance Disclosure Regulation (SFDR), and the Corporate Sustainability Reporting Directive (CSRD)—have improved transparency, accountability, and investor confidence in ESG investments [European Commission, 2022]. These regulatory measures have reinforced investor preference for sustainable projects, particularly in alternative finance markets like ECF [66]. Research indicates that crowdfunding campaigns aligned with emerging sustainability regulations attract more investors and achieve higher success rates [12,61]. Moreover, financial innovations such as green bonds and impact investing demonstrate how regulatory support enhances market confidence and channels capital toward sustainability [4].

ECF has emerged as a crucial funding source for sustainable projects, supported by its diverse investor base and decentralized structure. Compared to traditional financial markets, ECF investments are generally smaller, leading to a lower risk-aversion profile among participants [67]. Additionally, many investors derive psychological and social benefits from supporting sustainable initiatives, further reinforcing crowdfunding's role as an accessible tool for impact investing [68].

The existing literature supports the view that crowdfunding serves as a valuable funding source for green initiatives [69], as it aligns financial incentives with commitments to climate action and other sustainability-driven projects. Most studies indicate a generally positive investor attitude toward sustainability-focused crowdfunding campaigns [50,51,70–73]. Ad-

ditionally, research suggests that the creativity of crowdfunding projects partially mediates the direct impact of sustainability orientation on funding success. However, findings on the environmental focus of crowdfunding campaigns remain mixed. For instance, a study analyzing 585 Indiegogo campaigns found no significant relationship between environmental orientation and crowdfunding success [68]. Building on these insights, our study aims to test the following hypothesis:

H1. *Sustainability-oriented ECF campaigns are more likely to be successful than other types of projects*.

As ESG investing continues to expand, concerns over greenwashing and social-washing have become increasingly prominent. These deceptive practices involve exaggerating or misrepresenting sustainability claims to attract investors, ultimately undermining market efficiency and eroding trust [74,75]. ESG-washing, in particular, poses a significant threat to investor confidence, prompting investors to implement more rigorous due diligence processes [30].

A key challenge is distinguishing genuine corporate sustainability from "shelf sustainability", where firms highlight select green or social impact products while maintaining broadly unsustainable operations [76]. This selective approach capitalizes on growing investor demand for sustainability without demonstrating a company-wide ESG commitment [77]. Consequently, investors are increasingly evaluating not only the sustainability of individual projects but also the overall ESG profile of the proposed company [78]. This study investigates whether campaign success is driven more by the project's sustainability narrative or by the broader sustainability orientation of the proponent company. Following these considerations, we propose our second hypothesis:

H2. *Sustainability-oriented ECF projects launched by companies classified as sustainable are more likely to be successful than projects launched by other companies*.

The increasing interest in sustainable initiatives among both retail and institutional investors has been further reinforced by evolving European regulatory frameworks, including the CSRD, SFDR, and EU Taxonomy Regulation. Additionally, amendments to MiFID II now require financial advisors to consider sustainability preferences in their investment recommendations, further driving investor demand for ESG-aligned projects.

From a behavioral finance perspective, observational learning theory suggests that individuals often base their decisions on the actions of more informed investors, particularly in uncertain environments [20,21]. In financial markets, information cascades occur when investors follow the choices of early adopters rather than conducting independent analyses [24]. This effect is especially pronounced in ECF, where retail investors frequently rely on institutional signals to guide their investment decisions [26].

Empirical studies indicate that professional investors—such as venture capitalists, incubators, and financial intermediaries—serve as certification agents, mitigating information asymmetry and enhancing perceived investment security [11]. Early-stage institutional investments significantly strengthen campaign credibility, which, in turn, increases retail investor participation [22,32]. This effect is particularly pronounced in sustainability-oriented crowdfunding, where retail investors face greater uncertainty regarding project viability and the authenticity of impact claims [12].

The participation of professional investors in sustainability-oriented ECF campaigns serves as an investment accelerator, alleviating concerns about greenwashing and increasing campaign success rates [30]. Building on these observations, we propose our third hypothesis, divided into H3A and H3B:

H3A. *Sustainability-oriented ECF projects are more likely to attract professional investors due to the perceived credibility and long-term viability of sustainable projects.*

H3B. *The early involvement of professional investors in sustainability-oriented ECF campaigns increases the campaign's likelihood of success by triggering information cascades and reinforcing investor confidence.*

3. Data and Methodology

3.1. Data Collection

This study utilizes a cross-platform dataset of 771 ECF campaigns launched on Italian platforms between 2014 and June 2021. The dataset includes campaigns from all CONSOB-registered ECF platforms, ensuring a comprehensive representation of the Italian crowdfunding market. Data were systematically collected from multiple sources, including platform websites, regulatory filings, and industry reports, to ensure completeness and reliability.

The data collection process involved manually reviewing campaign descriptions, financial disclosures, and investor engagement metrics available on platform websites. When necessary, we supplemented this information with publicly available financial reports, sustainability statements, and company filings. To ensure accuracy, we cross-checked the data against CONSOB records and annual reports from Italian crowdfunding industry associations. Any inconsistencies or missing information were resolved by consulting platform representatives or verifying through secondary databases.

To construct a representative dataset, we included all 33 Italian ECF platforms that were actively hosting campaigns as of 30 June 2021. Platforms that had ceased operations or had no recorded campaigns during the study period were excluded to ensure relevance. Our sample encompasses both generalist platforms and those with a specific focus on sustainability-related projects.

As of 30 June 2021, CONSOB had authorized 51 ECF portals in Italy, of which 33 were actively running campaigns. These platforms include 200Crowd, Action Crowd, Back To Work 24, Build Around, Cofyp, Concrete Investing, CrowdFundMe, CrowdInvest Italia, Doorway, Ecomill, EquityStartup, Extrafunding, Forcrowd, Fundera, Hensoo, House4Crowd, Idea Crowdfunding, Investi-Re, LifeSeeder, Lita.co, Mamacrowd, Muum Lab, MyBestInvest, Nest-Money, Next Equity, OpStart, Smarthub, Stars Up, Start Funding, TheBestEquity, UnicaSeed, Walliance, and We Are Starting.

Table 1 presents a list of these active Italian ECF platforms, along with their locations and the year each platform was founded.

Sustainability-oriented ECF campaigns were identified through a content analysis of project descriptions combined with a keyword-based classification approach. Specifically, we focused on explicit references to terms such as "green", "environment", "environmental", "social", "societal", "sustainable", "sustainability", and "ESG". This process yielded a subset of 373 campaigns classified as sustainability-oriented.

To further validate classification accuracy, we reviewed campaign descriptions to ensure consistent and unbiased identification of sustainability-focused projects. By implementing a rigorous data collection methodology and clearly defining platform selection criteria, this study ensures transparency and reliability in analyzing the success factors of sustainability-oriented ECF campaigns.

Table 1. Crowdfunding platforms.

Platform	City	Foundation Year	Registration Date
200 Crowd—Two-Hundred	Brescia	2014	18 June 2014
Action Crowd	Milan	2012	26 February 2014
BackToWork (ex Equinvest)	Milan	2014	14 January 2015
Build Around	Milan	2018	12 December 2018
Cofyp	Macerata	2016	14 April 2016
Concrete Investing	Milan	2018	24 April 2018
CrowdFundMe	Milan	2013	30 July 2014
CrowdInvest Italia	Prato	2018	10 July 2018
Doorway	Bologna	2018	28 November 2018
Ecomill	Milan	2014	29 October 2014
EquityStartup	Milan	2016	16 June 2016
Extrafunding	Udine	2018	5 July 2018
Forcrowd	Milan	2019	12 July 2019
Fundera	Milan	2014	10 September 2014
Hensoo	Milan	2019	31 October 2019
House4crowd	Milan	2018	17 July 2018
Idea Crowdfunding	Rome	2017	29 November 2017
Investi-RE	Milan	2015	28 January 2015
Lifeseeder	Rome	2018	28 June 2018
LITA.co Italy (ex 1001PACT.com)	Torino	2018	31 May 2018
Mamacrowd	Milan	2014	6 August 2014
Muum Lab	Lecce	2015	6 August 2014
MyBestInvest	Bologna	2019	18 September 2019
Next Equity	Macerata	2014	16 July 2014
OpStart	Bergamo	2015	11 November 2015
Smarthub	Milan	2014	12 April 2014
StarsUp	Livorno	2013	18 October 2013
Startfunding	Lecce	2019	4 June 2019
The Best Equity	Milan	2018	14 March 2018
UnicaSeed	Genova	2013	5 December 2013
Walliance	Trento	2017	30 March 2017
We Are Starting	Bergamo	2014	16 December 2014

Note: This table reports the active ECF platforms in Italy.

3.2. Explanatory Variables

To build our dataset, we systematically gathered information on ECF campaigns directly from the platforms' websites. This method ensures a comprehensive and current dataset that includes key characteristics of each campaign, such as financial metrics, project descriptions, and investor engagement.

Our empirical analysis evaluates campaign success using four key variables. Drawing from prior research [11,22,36,79], we define success through the following measures: (1) Number_of_Investors, representing the total number of investors who contributed by the end of the campaign; (2) Professional_Investors, indicating the number of certified sophisticated investors who participated; (3) Amount_Raised, reflecting the percentage of the target capital successfully raised; and (4) Success, a binary variable indicating whether the campaign met or exceeded its minimum funding goal. These variables serve as proxies for assessing the factors that influence crowdfunding success.

We incorporate explanatory variables aligned with crowdfunding literature [11,17,26,55], considering both issuer company-related and campaign-related factors.

Our first hypothesis (H1) seeks to determine whether sustainability-oriented ECF campaigns are more likely to succeed than other projects. To test this, we use Sustainability as a key variable, represented by a dummy variable that equals 1 for sustainability-oriented projects and 0 for others.

As corporate and investor attention to environmental issues grows, so do concerns about greenwashing and social-washing. To test our second hypothesis (H2), we introduce the Type variable, which is assigned a value of 1 if the project is proposed by a company classified as sustainable and 0 otherwise. In the Italian context, Type is determined based on the ATECO code assigned to each company's economic activity. We then evaluate whether these codes align with the EU Taxonomy for Sustainable Activities, which classifies businesses based on their engagement in environmentally sustainable operations as defined by European legislation.

To examine whether green projects from companies classified as sustainable under the ATECO system have a higher likelihood of success, we create the interaction term Sustainable_type, which combines our two key variables: Sustainability (a campaign-related variable) and Type (a company-related variable).

To further investigate the impact of sustainability on ECF success, we test Hypothesis H3A, which explores whether sustainability-oriented projects attract more professional investors than other types of campaigns. Additionally, Hypothesis H3B examines whether the early participation of professional investors in green projects acts as a catalyst, encouraging retail investor involvement and ultimately increasing the campaign's overall success.

To evaluate H3A, we use the Sustainability variable to assess whether professional investors are more likely to invest in sustainability-oriented campaigns, considering whether they view these projects as more credible or aligned with long-term financial and impact-driven goals.

For H3B, we analyze the impact of professional investors on retail investor participation. Using Number_of_Investors as a proxy for overall campaign success, we introduce the interaction term Early_Invest, which combines Sustainability (indicating whether a project is sustainability-oriented) with Professional_Investors (measuring the number of professional investors supporting the campaign). This approach allows us to assess whether professional investors act as credibility signals, triggering information cascades that enhance retail investor participation in sustainability-focused projects.

Beyond sustainability factors, the success of ECF campaigns is influenced by entrepreneurs' ability to convey credible signals, the quality of the start-up, and the reliability of the information disclosed to investors [4]. To account for these factors, we include several control variables in our model to capture key campaign and company characteristics. For instance, we consider Target_capital to control for the minimum fundraising goal, representing the amount of capital the company aims to raise. While higher funding targets may signal ambitious growth plans, they can also increase perceived risk, potentially affecting investor participation [67,80]. Additionally, we include Equity_offered, which reflects the percentage of ownership allocated to investors in exchange for their financial contributions. Previous studies suggest that offering more equity can attract investors by increasing their ownership stake, but excessive dilution may raise concerns about the founders' confidence in the business and their commitment to long-term engagement [29,81].

We also consider the minimum investment amount required to participate in a campaign (Min_Invest). Research suggests that lower minimum investment thresholds can broaden access to crowdfunding by attracting a wider pool of small investors [4]. Conversely, higher minimum investment requirements may create a sense of exclusivity, appealing to wealthier and more sophisticated investors [82]. Min_Invest is a critical control variable in ECF, as it shapes both the composition of investors and the level of participation. Previous studies [11,36] indicate that lower thresholds enhance accessibility for retail investors, whereas higher thresholds signal exclusivity and may attract more experienced investors. This factor is particularly relevant in sustainability-focused crowdfunding, where investor engagement is influenced by both financial and non-financial motivations [10]. By incorporating this control variable, we account for differences in investor accessibility and commitment, ensuring a more comprehensive analysis of the factors driving crowdfunding success.

In the ECF landscape, an entrepreneur's gender can significantly influence the success or failure of a campaign [83]. Research indicates that female entrepreneurs often encounter structural barriers in accessing traditional financing, yet crowdfunding has emerged as a more inclusive alternative where social and ethical factors, such as gender diversity, shape investor decision-making [84]. Prior studies suggest that female founders tend to attract more impact-oriented and sustainability-focused investors, as gender diversity is frequently associated

with ethical business practices and corporate social responsibility [85,86]. Sustainability-minded investors may perceive female-led ventures as more aligned with pro-social and environmentally responsible values, leading to greater engagement in ECF campaigns [87,88]. However, gender bias persists in investment decisions, with female founders sometimes being perceived as less financially competent than their male counterparts [89].

To capture the role of human capital and its intersection with sustainability considerations, we include Female_founders as a control variable. This dummy variable is assigned a value of 1 if the lead founder is a female entrepreneur, as indicated on the "Team" page of each project. By incorporating this variable, we account for potential gender effects in sustainability-oriented ECF campaigns, recognizing both the advantages and challenges female entrepreneurs may face in the alternative finance ecosystem.

The success of ECF campaigns is influenced by multiple factors, including campaign visibility, effective communication, and the social capital of the founders. Research indicates that sustainability-oriented projects particularly benefit from strong communication strategies, as investors in these campaigns often prioritize transparency and seek credible signals of environmental and social impact [90,91].

A key component of effective communication in crowdfunding is the use of multimedia tools, with video pitches serving as a powerful way to engage investors and clearly convey a project's mission and value proposition [92]. Videos enable entrepreneurs to present their ideas in a compelling and accessible manner, reducing information asymmetry and fostering investor trust [93]. In sustainability-focused crowdfunding, the role of video content is even more critical, as it helps founders visually articulate their environmental or social mission, enhancing credibility and increasing investor engagement [94]. To account for this factor, we include Video as a control variable, defined as a dummy variable equal to 1 if a video is present in the campaign pitch and 0 otherwise.

Another key factor influencing the success of ECF campaigns is the social capital of the founders (Social_capital), which we measure by the number of LinkedIn connections of the entrepreneurs leading the campaign. Social capital plays a crucial role in crowdfunding, as a strong professional network can facilitate early-stage investment and improve the dissemination of information among potential backers [95].

Empirical research (e.g., [71]) indicates that entrepreneurs with well-established professional networks are more likely to attract investors, particularly when their projects align with sustainability goals. A robust network serves as a credibility signal, reducing information asymmetry and fostering trust among backers. This is especially relevant for sustainability-oriented campaigns, where investors may be concerned about greenwashing—the practice of exaggerating or misrepresenting a project's environmental or social impact. Founders with extensive professional connections can help mitigate these concerns by demonstrating a long-term commitment to sustainability, thereby strengthening investor confidence in the project's authenticity and potential impact [96].

Prior studies (e.g., [11,22]) suggest that well-connected founders are more likely to attract both retail and professional investors due to their perceived legitimacy and access to strategic resources. By including LinkedIn-based social capital as a control variable, we ensure a more precise assessment of investor engagement, accounting for the role of an entrepreneur's network while isolating other critical factors that influence crowdfunding success.

Finally, providing detailed information about potential risks and uncertainties is a crucial credibility signal. Transparency in financial disclosures significantly influences the likelihood of funding success by reducing information asymmetry between entrepreneurs and investors [97]. Investors are more likely to engage with projects that offer clear financial insights, as this lowers uncertainty and enhances trust in the campaign.

To account for this factor, we include Financial_Info as a control variable, defined as a dummy variable equal to 1 if financial information about the company is available on the platform and 0 otherwise.

Table 2 presents the list of variables along with their definitions.

Table 2. Variable definitions.

Variable	Description
	Dependent variables
Amount_Raised (%)	The total amount raised at the end of the campaign
Number_of_Investors	The number of investors at the end of the campaign
Professional_Investors	The number of certified sophisticated investors that have funded the campaign
Success	Dummy variable is equal to 1 if the funding amount is reached and 0 otherwise
	Explanatory variables
Sustainability	Dummy variable is equal to 1 equal to 1 if the project is sustainability-oriented and 0 otherwise
Type	Dummy variable is equal to 1 if the project was launched by a company classified as sustainable based on the list of economic activities included in the taxonomy of the ATECO sector and an evaluation of the inclusion of each ATECO code in the EU Taxonomy for sustainable activities and 0 otherwise
Early_invest	The number of professional investors who financed the focal sustainability-oriented project in the first 10 days after its launch
	Control variables
Equity_offered (%)	Percentage of equity offered
Social_capital	Number of proponent's LinkedIn connections
Financial_info	Dummy variable is equal to 1 if financial information on the company is available on the platform and 0 otherwise
Target_capital (EUR)	Target capital to be raised
Min_Invest (EUR)	The minimum amount required to invest
Female_founders	Dummy variable is equal to 1 if the founder is a female entrepreneur
Video	Dummy variable is equal to 1 if there is a video in the campaign pitch and 0 otherwise

Note: This table shows the variables used in this paper, distinguishing the dependent, explanatory, and control variables.

Table 3 presents the descriptive statistics for the sample, providing an overview of the characteristics and performance of the analyzed ECF campaigns. Among the 771 campaigns, 76% (588 campaigns) successfully reached their funding target, while 24% (183 campaigns) did not. This success rate is higher than that reported in previous studies on Italian ECF platforms [66], likely due to the expansion of active platforms authorized by CONSOB and the increasing adoption of crowdfunding as an alternative financing method for companies [65,98,99]. As of 30 June 2021, the total capital raised by the 588 successful campaigns amounted to EUR 286.73 million.

On average, the funds raised at the end of a campaign amounted to 184.9% of the initial target, indicating that many campaigns exceeded their fundraising goals. Each campaign attracted an average of 76 investors, including approximately 20 professional investors. Among the successful campaigns, 373 (48.3%) were sustainability-oriented, focusing on environmental or social objectives. Additionally, 39% of the companies behind these sustainable projects were classified as operating within a greener economy based on their ATECO classification and alignment with the EU Taxonomy for Sustainable Activities.

Early participation from professional investors was also notable, with an average of 4.16 professional investors contributing within the first 10 days of the campaign's launch. Regarding ownership structure, companies in the sample offered an average of 10% equity to investors, leaving founders with approximately 90% ownership. The average target capital set by companies was EUR 194,734.50, while the minimum investment required from investors averaged EUR 578.35.

Table 3. Descriptive statistics.

	Mean	Std. Dev.	Min	Max
Dependent variables				
Amount_Raised	184.935	142.735	0	357
Number_of_Investors	75.812	80.725	0	2132
Professional_Investors	19.9467	13.847	0	24
Success	0.7631	0.435	0	1
Explanatory variables				
Sustainability	0.484	0.518	0	1
Type	0.393	0.497	0	1
Early_Invest	4.168	3.121	0	6
Control variables				
Equity_offered	9.847	8.935	0.02	47
Social_capital	472.634	523.725	1	9264
Financial_Info	0.573	0.484	0	1
Target_capital	194,734.5	173,745.4	18,000	3,500,000
Min_Invest	578.354	325.56	0	500,000
Female_founders	0.396	0.418	0	1
Video	0.693	0.527	0	1

Note: This table shows the descriptive statistics of the sample of crowdfunding campaigns launched on Italian platforms between 2014 and June 2021. Amount_Raised and Equity_offered are expressed as percentages, while Target_capital and Min_Invest are expressed in Euros. Success, Sustainability, Type, Financial_Info, Female_founders, and Video are binary variables that take the value of 1 if the qualitative attribute is present. Number_of_Investors, Professional_Investors, and Early_Invest are expressed in absolute terms. Social_capital is calculated as the sum of the number of the project proposers' LinkedIn connections. The dataset includes 771 observations for all variables.

The social capital of the founders, measured by their LinkedIn connections, also emerged as a key factor. On average, entrepreneurs in the sample had 473 LinkedIn connections, highlighting the importance of professional networks in crowdfunding success.

Regarding gender representation, only 39.6% of the founders were women, reflecting the relatively low female presence in the ECF sector.

In terms of transparency and communication, 57% of companies disclosed financial information on the platform, contributing to investor trust and reducing information asymmetry. Additionally, 69.26% of campaigns included a video pitch, underscoring the role of multimedia content in engaging investors and enhancing campaign performance.

3.3. Statistical Model

We perform our econometric analyses using multiple proxies for campaign success, selecting the appropriate method based on the nature of each variable and drawing on methodologies from previous studies [11,36]. Specifically, to test our hypotheses, we employ a standard negative binomial regression to model the number of investors and professional investors who contributed to each project. In detail,

$$\Pr(Y = y_i|\mu_i, \alpha) = \frac{\Gamma\left(y_i + \alpha^{-1}\right)}{\Gamma(\alpha^{-1})\Gamma(y_i + 1)}\left(\frac{1}{1 + \alpha\mu_i}\right)^{\alpha^{-1}}\left(\frac{\alpha\mu_i}{1 + \alpha\mu_i}\right)^{y_i}$$

$$\mu_i = \exp((\ln(t_i) + \beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_k x_{ki})$$

where *xki* represents all our independent variables.

Then, following [55], we run the following Tobit regression using the amount of capital raised for a project at the end of the campaign as a percentage of the set goal:

$$\Pr[Y_i = 0|X_i] = \Pr[X_i\beta + \varepsilon_i \leq 0|X_i] = \Pr[\varepsilon_i \leq -X_i\beta|X_i]$$

$$= \Pr\left[\frac{\varepsilon_i}{\sigma} \leq -\frac{X_i\beta}{\sigma}\middle| X_i\right] = \Phi\left(-\frac{X_i\beta}{\sigma}\right)$$

$$\Pr[Y_i > 0|X_i] = 1 - \Phi\left(-\frac{X_i\beta}{\sigma}\right)$$

where *Xi* contains the set of all the regressors used in our analysis.

Finally, we run the following logistic regression using a dichotomous measure of campaign success equal to 1 for campaigns reaching or exceeding their capital goals [11,22,36] and zero otherwise:

$$\Pr[Y_i = 1] = F(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_k x_{ki}) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_k x_{ki})}}$$

where *Xi* is the set of all the independent variables used in empirical analysis.

Year and platform fixed effects are included to account for unobserved heterogeneity, capturing temporal shifts in crowdfunding legitimacy and variations in platform-specific growth potential. To minimize platform selection bias, we exclusively considered platforms with active campaigns during the study period, omitting dormant or inactive ones. However, we acknowledge that differences in platform policies, investor engagement levels, and sustainability focus may introduce bias. For instance, platforms specializing in sustainability-oriented campaigns may attract a more ESG-conscious investor base, potentially inflating success rates. To address this, we have incorporated platform fixed effects into our regression models to control for variations in platform characteristics.

In all the model specifications, we winsorize the variables at the 3rd and 97th percentiles because many of our variables have large positive and negative outliers (for a similar approach, see [36,66,74,88]).

4. Results

Our empirical analysis investigates the relationship between sustainability orientation and the success of ECF campaigns. As shown in Table 4, the results confirm that sustainability-focused campaigns outperform other types of projects, supporting Hypothesis H1. This finding aligns with previous research (e.g., [8,29,68]), which suggests that crowdfunding investors—particularly those driven by social and environmental considerations—are more likely to support sustainability-oriented initiatives.

From a statistical perspective, the Sustainability variable consistently exhibits a positive and significant effect across all models, indicating that campaigns with a sustainability focus attract more investors and achieve a higher percentage of their funding goals. These results reinforce earlier studies suggesting that sustainability serves as a quality signal, reducing information asymmetry and enhancing investor confidence [4].

One possible explanation for these findings is the close connection between fundraising success and the principles of sustainable development. In line with this, the Italian crowdfunding market reflects increasing investor sensitivity to sustainability issues. Consequently, projects with a strong sustainability orientation are perceived as more legitimate—not only in financial terms but also from moral and ideological perspectives. This observation aligns with the behavioral finance literature, which emphasizes that intrinsic motivations, such as contributing to the social good, play a crucial role in driving crowdfunding participation [10,67].

Investor decisions in ECF are influenced by multiple factors, with financial returns being a primary motivation. However, in the Italian context, sustainability-related considerations are crucial in determining project success. This finding aligns with previous research (e.g., [42,58,59]), which suggests that sustainability-oriented crowdfunding campaigns attract higher investor engagement due to their alignment with ethical and environmental goals.

Our results support the idea that investing in sustainability-driven projects provides not only economic benefits but also social and environmental values. Beyond financial returns, investors derive a sense of pride from contributing to a more sustainable future for generations to come.

Consistent with prior research (e.g., [36,55]), our findings indicate a negative correlation between the percentage of equity offered (Equity_offered) and key measures of

campaign success, including the amount of capital raised, the number of investors, and the likelihood of reaching the fundraising goal. Specifically, the regression results show that the coefficient for Equity_offered is consistently negative and statistically significant across all models, suggesting that a higher percentage of equity offered is associated with lower capital raised, fewer investors, and a reduced probability of campaign success.

Table 4. Empirical analyses (H1).

	Model 1	Model 2	Model 3
Variables	**Amount Raised (%)**	**Number of investors**	**Success**
Sustainability	0.546 ** (0.153)	0.623 ** (0.140)	0.512 *** (0.126)
Equity_offered	−0.547 *** (0.016)	−0.498 *** (0.014)	−0.453 *** (0.027)
Social_capital	0.334 *** (0.003)	0.253 *** (0.003)	0.343 *** (0.001)
Financial_Info	0.278 ** (0.074)	0.202 ** (0.121)	0.112 * (0.042)
Target_capital	0.856 * (0.037)	0.387 ** (0.060)	0.899 * (0.042)
Min_Invest	−0.121 * (0.032)	−0.233 ** (0.043)	−0.176(0.040)
Female_Founders	0.563 *** (0.030)	0.423 ** (0.035)	0.398 *** (0.063)
Video	0.312 ** (0.031)	0.355 * (0.039)	0.564 ** (0.062)
Constant	13.34 *** (0.329)	2.142 ** (0.111)	10.26 *** (0.381)
Observations	771	771	771
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.400	0.599	0.397

Note: This table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the amount raised by the focal company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficients of a logit regression in which the dependent variable is Success, a binary variable that identifies the success of ECF projects. The key independent variable is Sustainability, which indicates sustainability-oriented projects. All variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Previous studies (e.g., [11]) suggest that founders with strong confidence in their venture's potential typically retain as much equity as possible, whereas those with lower confidence are more inclined to offer larger equity stakes to attract investors. Consequently, significant equity dilution may signal uncertainty about the company's future prospects, influencing investor decisions and reducing campaign success rates.

Social_capital plays a crucial role in the success of crowdfunding campaigns. The results show a positive and statistically significant coefficient across all models, confirming that a larger network is associated with higher capital raised, a greater number of investors, and an increased likelihood of campaign success. Consistent with previous studies [4,5,36,100,101], our findings suggest that strong professional networks enhance investor trust and help mitigate information asymmetry.

Similarly, aligning with prior research (e.g., [66,67]), our results indicate that including financial data in a crowdfunding campaign pitch acts as a credibility signal, strengthening investor confidence in the company's prospects. Campaigns that disclose financial information tend to secure more funding than those lacking transparency, highlighting the critical role of financial disclosures in attracting investor support.

Our analysis of control variables indicates that female founders have a positive impact on the success of ECF campaigns, reinforcing previous research (e.g., [83,102,103]) that identifies gender diversity as a key factor in building investor trust and engagement. Additionally, both target capital and the presence of a video significantly influence campaign outcomes. Higher funding targets attract more investors, consistent with signaling theory [11], as they suggest strong growth potential and business credibility.

Similarly, as noted in the literature (e.g., [26,58,60,81,104]), video content enhances investor engagement by improving transparency, reducing information asymmetry, and fostering trust—an effect further supported by research on visual storytelling in crowdfunding [92]. However, a higher minimum investment requirement (Min_Invest) negatively affects investor participation and the total funds raised. This finding aligns with behavioral

finance theories, which suggest that larger financial commitments may discourage smaller investors and limit portfolio diversification opportunities [5].

As shown in Table 5, our findings strongly support Hypothesis H2, indicating that companies classified as sustainable are more likely to launch successful sustainability-oriented crowdfunding campaigns. The Type variable, which identifies firms engaged in environmentally sustainable activities, is consistently and positively correlated with the amount raised, the number of investors, and overall campaign success.

Table 5. Empirical analyses (H2).

	Model 1	Model 2	Model 3
Variables	**Amount Raised (%)**	**Number of Investors**	**Success**
Type	0.246 *** (0.213)	0.312 ** (0.151)	0.298 *** (0.144)
Sustainability	0.628 ** (0.148)	0.725 ** (0.169)	0.698 *** (0.131)
Sustainable_type	0.735 *** (0.365)	0.799 *** (0.149)	0.724 *** (0.152)
Equity_offered	−0.578 *** (0.012)	−0.475 *** (0.013)	−0.341 *** (0.022)
Social_capital	0.455 *** (0.001)	0.399 *** (0.003)	0.496 *** (0.001)
Financial_Info	0.419 ** (0.047)	0.309 ** (0.016)	0.118 ** (0.040)
Target_capital	0.698 * (0.037)	0.459 ** (0.060)	0.954 ** (0.042)
Min_Invest	−0.218 * (0.017)	−0.354 ** (0.027)	−0.276(0.035)
Female_Founders	0.439 ** (0.031)	0.403 ** (0.028)	0.386 *** (0.060)
Video	0.343 ** (0.029)	0.287 * (0.037)	0.599 ** (0.053)
Constant	12.11 *** (0.375)	2.472 ** (0.105)	11.25 *** (0.253)
Observations	771	771	771
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.3812	0.5725	0.3862

Note: This table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the target amount raised by the company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficients of a logit regression in which the dependent variable is Success, a binary variable that denotes the success of the ECF projects. The key independent variables are Sustainability and Type, which indicate the sustainability of the focal campaign and of the corresponding company, respectively. Sustainable_type is the interaction term between Sustainability and Type. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

This result aligns with signaling theory [29], which suggests that companies adopting sustainable practices send positive signals to investors, reducing information asymmetry and enhancing credibility. Moreover, as investor awareness of ESG-washing and greenwashing risks continues to grow, our findings reveal that sustainability-oriented campaigns led by genuinely sustainable firms outperform those initiated by companies without a strong environmental commitment. This is consistent with prior research [30], which emphasizes that investors increasingly assess not only the sustainability claims of individual projects but also the broader corporate commitment to environmental and social responsibility.

Our findings also indicate that the interaction between a company's sustainability classification and the sustainability orientation of the campaign (Sustainable_type) has a greater impact on funding success than either factor alone. Investors are more likely to trust sustainability-focused projects when they are launched by companies with a proven track record of environmental responsibility, supporting research on ESG signaling and legitimacy theory [17,64].

This suggests that investors evaluate not only the sustainability narrative of a campaign but also the long-term credibility of the company behind it. Consistent with the findings in Table 4, the control variables align with prior research on ECF, further reinforcing the robustness and reliability of our results.

To test H3A, we analyze the number of investors and professional investors participating in campaigns. The results presented in Table 6 indicate that sustainability-oriented projects attract a higher number of professional investors, supporting the notion that sustainability serves as a positive quality signal [29].

This finding suggests that while professional investors remain primarily focused on financial returns, they are also influenced by long-term value creation and forward-looking factors such as sustainability commitments and ESG principles. This aligns with the existing

literature (e.g., [18]), which highlights the growing integration of ESG considerations in investment decision-making.

Table 6. Empirical analyses (H3A).

	Model 1	Model 2
Variables	**Number of Investors**	**Professional Investors**
Sustainability	0.623 ** (0.140)	0.995 *** (0.187)
Equity_offered	−0.498 *** (0.014)	−0.374 *** (0.017)
Social_capital	0.253 *** (0.004)	0.295 *** (0.004)
Financial_Info	0.202 ** (0.121)	0.214 ** (0.144)
Target_capital	0.387 ** (0.060)	0.276 ** (0.040)
Min_Invest	−0.233 ** (0.043)	−0.195 * (0.036)
Female_Founders	0.423 ** (0.035)	0.328 * (0.038)
Video	0.355 * (0.039)	0.314 * (0.048)
Constant	2.142 ** (0.111)	2.736 *** (0.243)
Observations	771	771
Year Fixed Effect	YES	YES
Platform Fixed Effect	YES	YES
Adj. R-squared	0.599	0.604

Note: This table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and 97th percentiles. Models 1 and 2 report the coefficients of a negative binomial regression of Number of Investors and Professional Investors on the chosen explanatory variables, respectively. The key independent variable is Sustainability, which denotes sustainability-oriented projects. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

For H3B, we investigate whether early participation by professional investors influences campaign success through an information cascade effect. The results presented in Table 7 indicate that early investments from professional investors significantly enhance campaign performance, increasing the amount raised, the number of backers, and the overall likelihood of success.

This finding aligns with observational learning theory [21] and prior research [22,103], which suggest that retail investors often follow the lead of institutional investors, interpreting their early involvement as a credibility signal. Additionally, these results highlight the broader role of sustainability-oriented ECF in mobilizing capital for green innovation, reinforcing the previous literature (e.g., [68]) that positions crowdfunding as a key tool for sustainable finance. The control variables remain consistent, further supporting the robustness of our findings.

Table 7. Empirical analyses (H3B).

	Model 1	Model 2	Model 3
Variables	**Amount Raised (%)**	**Number of Investors**	**Success**
Early_Invest	0.838 *** (0.175)	0.786 *** (0.158)	0.686 *** (0.162)
Equity_offered	−0.514 *** (0.015)	−0.367 *** (0.012)	−0.412 *** (0.032)
Social_capital	0.328 *** (0.004)	0.368 *** (0.002)	0.272 *** (0.003)
Financial_Info	0.217 * (0.055)	0.264 ** (0.096)	0.243 * (0.044)
Target_capital	0.759 * (0.028)	0.595 ** (0.070)	0.772 * (0.039)
Min_Invest	−0.228 * (0.030)	−0.184 * (0.038)	−0.264(0.040)
Female_Founders	0.453 *** (0.020)	0.418 ** (0.052)	0.360 *** (0.047)
Video	0.353 ** (0.027)	0.360 ** (0.037)	0.496 ** (0.063)
Constant	14.28 *** (0.213)	2.403 ** (0.204)	11.85 *** (0.328)
Observations	771	771	771
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.403	0.619	0.383

Note: This table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the target amount raised by the focal company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficients of a logit regression in which the dependent variable is Success, a binary variable that denotes the success of the ECF projects. The key independent variable is Early_Invest, calculated as the number of professional investors that have financed the project during the first 10 days after the opening day. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

The COVID-19 pandemic and subsequent lockdown measures had a profound impact on economic activity and significantly reshaped investor behavior in ECF. Specifically, the regression results indicate that the coefficient is positive and statistically significant across all models, suggesting that campaigns launched during the pandemic raised more

capital, attracted more investors, and had a higher likelihood of success compared to those launched before the crisis.

Traditionally, sustainability-oriented companies have faced difficulties in securing external seed capital [7]. However, alternative financing mechanisms like crowdfunding have played a crucial role in bridging this funding gap, providing green ventures with essential financial resources [29]. To assess whether the pandemic accelerated this shift, we introduce a COVID-19 dummy variable (covid) to distinguish campaigns launched during the crisis. Additionally, we analyze interaction terms (Sustainability_covid and Type_covid) to determine whether investor preferences shifted toward sustainable projects.

The findings in Table 8 indicate that sustainability-oriented campaigns, as well as those led by companies classified as sustainable, achieved significantly greater success during the pandemic. Both Sustainability and Type positively influenced the amount raised, the number of investors, and overall campaign success, highlighting the increasing relevance of sustainability in ECF.

Notably, the interaction terms (Sustainability_covid and Type_covid) show a substantial increase in value, suggesting that the pandemic further intensified investor interest in sustainable ventures. These results align with broader trends, demonstrating a growing demand for green investments during periods of economic uncertainty [30].

Overall, the findings suggest that COVID-19 accelerated the shift toward sustainability-driven investment strategies, reinforcing ECF's role as a vital financing tool for environmental and social innovation.

Sustainability-oriented ECF is poised for continued growth beyond the immediate effects of the pandemic, as both investors and entrepreneurs increasingly recognize its long-term impact potential. Heightened awareness of ESG issues during the pandemic has underscored the need for financing mechanisms that promote sustainable development. The growing demand for ESG-aligned projects, coupled with rising regulatory measures, suggests that sustainability crowdfunding will maintain a significant role in the alternative finance market. However, its long-term success will hinge on the platform's ability to build credibility, incorporate advanced sustainability metrics, and establish partnerships with institutional investors.

Table 8. Empirical analyses. Impact of COVID-19.

	Model 1	**Model 2**	**Model 3**
Variables	**Amount Raised (%)**	**Number of Investors**	**Success**
Type	0.238 *** (0.224)	0.298 ** (0.157)	0.279 *** (0.143)
Type_covid	0.287 *** (0.213)	0.387 *** (0.149)	0.317 *** (0.138)
Sustainability	0.602 ** (0.141)	0.714 ** (0.155)	0.688 *** (0.129)
Sustainability_covid	0.713 ** (0.139)	0.787 *** (0.157)	0.723 *** (0.132)
Equity_offered	−0.564 *** (0.011)	−0.401 *** (0.013)	−0.311 *** (0.022)
Social_capital	0.566 *** (0.001)	0.436 *** (0.002)	0.514 *** (0.0014)
Financial_Info	0.415 ** (0.046)	0.301 ** (0.016)	0.101 ** (0.038)
Target_capital	0.687 * (0.036)	0.448 ** (0.058)	0.912 ** (0.043)
Min_Invest	−0.214 * (0.013)	−0.346 ** (0.025)	−0.226(0.033)
Female_Founders	0.458 ** (0.035)	0.435 ** (0.023)	0.417 *** (0.056)
Video	0.367 ** (0.026)	0.260 * (0.035)	0.614 ** (0.059)
Constant	11.38 *** (0.318)	2.394 ** (0.127)	11.65 *** (0.293)
Observations	771	771	771
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.398	0.595	0.401

Note: This table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the amount raised by the focal company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficients of a logit regression in which the dependent variable is Success, a binary variable that denotes the success of the ECF projects. The key independent variables are Sustainability_covid and Type_covid, which are interaction terms between Sustainability, Type, and COVID-19. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Our empirical analysis confirms that sustainability-focused campaigns outperform other types of projects, supporting our hypothesis. However, these findings should be

interpreted with caution, as potential risks related to greenwashing, investor behavioral biases, and regulatory challenges may influence the results.

Despite the positive correlation between sustainability orientation and crowdfunding success, concerns remain regarding project credibility and the reliability of sustainability claims. Greenwashing, in which projects exaggerate their environmental or social impact, poses a significant risk by potentially misleading investors and undermining the credibility of crowdfunding platforms. Enhancing transparency through third-party certifications and standardized impact assessments could help mitigate this issue.

Investor behavior in sustainability-oriented crowdfunding is also shaped by psychological biases. Behavioral finance research highlights that retail investors often engage in herd behavior and information cascades, where early investments by institutional backers create overly optimistic expectations, potentially leading to inflated valuations and irrational investment decisions. Additionally, sustainability claims can attract investors who prioritize ethical considerations over financial fundamentals, raising concerns about the long-term viability of these projects.

From a regulatory perspective, sustainability-oriented crowdfunding operates within a dynamic and evolving legal framework. European regulations, such as the EU Taxonomy, the Sustainable Finance Disclosure Regulation (SFDR), and the Corporate Sustainability Reporting Directive (CSRD), have enhanced transparency. However, their implementation remains inconsistent across jurisdictions, leading to uncertainties for both investors and crowdfunding platforms. Greater regulatory harmonization and the adoption of enhanced due diligence mechanisms could improve market stability and strengthen investor protection.

Ultimately, ECF should be viewed as a complementary rather than a standalone financing mechanism for sustainability-oriented ventures. While crowdfunding provides an accessible funding avenue, many projects require additional financial support from VC firms, impact investors, or government grants to ensure long-term viability and growth.

As a robustness check, we apply the Heckman approach to account for potential self-selection bias. Across all models, our findings remain consistent, and the overall conclusions remain unchanged, confirming the reliability of our results. Detailed robustness test results are provided in Appendix A.

5. Conclusions

This study investigates the success factors of sustainability-oriented ECF campaigns using a dataset of 373 campaigns from Italian platforms. By analyzing campaign characteristics, investor behavior, and external influences, we examine the conditions under which sustainability enhances crowdfunding performance. Our findings suggest that while sustainability orientation can positively impact campaign outcomes, its effectiveness depends on specific factors rather than serving as a universal driver of investment success.

Our results indicate that sustainability-oriented campaigns tend to achieve better outcomes when launched by companies with a strong sustainability profile. Investors evaluate not only the sustainability focus of individual projects but also the broader environmental commitment of the proposing company, emphasizing the role of corporate credibility and legitimacy in investment decisions.

The involvement of professional investors significantly enhances the success of sustainability-focused campaigns. Institutional backers serve as credibility signals, triggering information cascades that encourage retail investor participation. However, this effect is most pronounced when professional investors engage early in the campaign, highlighting that sustainability alone is not sufficient—validation by experienced investors plays a critical role in building confidence in these projects.

Our findings also suggest that sustainability-oriented investments gained momentum during the COVID-19 pandemic, likely fueled by heightened awareness of social and environmental resilience. The increasing investor preference for green projects during times of crisis indicates that external shocks may amplify the attractiveness of sustainability-driven investments. However, it remains uncertain whether this trend will persist in more stable economic conditions.

Beyond their academic contributions, these findings provide valuable practical insights for entrepreneurs, investors, and policymakers. Entrepreneurs should prioritize transparency, effectively communicate their sustainability credentials, and engage professional investors early to enhance credibility. As scrutiny over sustainability claims increases, businesses must demonstrate genuine commitment through third-party certifications and impact measurement tools.

Investors, in turn, should remain cautious of ESG-washing and rely on verifiable sustainability indicators to inform their decisions. Professional investors play a crucial role in shaping retail investment behavior, as their early involvement serves as a strong credibility signal, fostering greater investor confidence and participation.

Policymakers and crowdfunding platform managers can enhance sustainability-related investment frameworks by enforcing stricter disclosure requirements, improving impact measurement standards, and implementing more rigorous due diligence processes. ECF platforms can further strengthen investor confidence by introducing sustainability verification mechanisms and establishing partnerships with regulatory bodies and third-party certifiers to reduce information asymmetry.

Our findings offer actionable insights for key stakeholders in sustainability-focused ECF. Entrepreneurs should establish a credible sustainability profile by presenting measurable and verifiable outcomes rather than relying on vague claims. Securing early participation from professional investors can enhance campaign legitimacy, while transparent financial disclosures, comprehensive risk assessments, and clear return projections can help mitigate investor skepticism and encourage broader participation. Additionally, leveraging digital storytelling tools, such as videos and infographics, can effectively convey the sustainability impact of a project and engage potential backers.

Investors should adopt a strategic approach to mitigating ESG-washing risks. Institutional investors play a crucial role in reducing information asymmetry and enhancing the credibility of sustainability-driven projects. Meanwhile, retail investors should conduct thorough due diligence by assessing third-party certifications, analyzing past financial performance, and considering sector-specific benchmarks.

Crowdfunding platforms can further strengthen investor confidence by implementing sustainability verification mechanisms, encouraging early institutional participation, and curating high-quality, verifiable sustainability projects. Collaborating with sustainability-focused organizations can enhance project credibility and ensure alignment with investor expectations.

Policymakers should strengthen sustainability investment frameworks by enforcing stricter disclosure requirements, enhancing impact measurement standards, and reinforcing due diligence processes. Standardized environmental and social impact reporting, aligned with regulations such as the EU Taxonomy and SFDR, can help mitigate concerns about misleading sustainability claims. Additionally, incentive mechanisms, such as tax benefits or co-investment programs, could further promote sustainable investments.

While our study provides valuable insights, it has certain limitations. First, our analysis focuses on Italian ECF platforms, which operate within a distinct regulatory and cultural context. As a result, the generalizability of our findings to other crowdfunding markets with different regulatory frameworks and investor behaviors requires further investigation.

Second, although we apply statistical methods such as propensity score matching and the Heckman approach to mitigate self-selection concerns, our dataset does not fully capture investor motivations and decision-making processes. Consequently, while our findings—supported by multiple empirical approaches and extensive robustness checks to address endogeneity—demonstrate a strong positive correlation between sustainability orientation and crowdfunding success, we acknowledge that unobserved factors may still influence this relationship.

Future research could employ experimental or qualitative approaches to gain deeper insights into how investors interpret and respond to sustainability signals in crowdfunding campaigns. Additionally, while this study focuses on campaign success during fundraising, it does not analyze long-term firm performance. Future studies should explore post-funding outcomes to assess whether sustainability-oriented ventures achieve both financial returns and impact goals over time.

Overall, this study contributes to the expanding discourse on sustainable finance and alternative investment mechanisms by providing insights into the complex relationship between sustainability, investor behavior, and crowdfunding success. However, as the landscape of sustainable investing continues to evolve, further research is needed to explore the specific conditions under which sustainability enhances crowdfunding performance.

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Appendix A

To further validate the robustness of our main findings, we apply propensity score matching (PSM) using a radius approach, which sets a tolerance level (caliper) for the maximum allowable distance between propensity scores. Only units within this radius are selected for matching. Following the methodology of [41,82], we match projects based on goal category and campaign start date. Consequently, the sample size is reduced from 373 campaigns to 312, and this refined dataset is used for the robustness check.

The presence of potentially endogenous regressors raises significant concerns for both the identification strategy and the interpretation of results, as unobserved variables may simultaneously influence a project's sustainability orientation and the characteristics of its proposer. This interdependence complicates the isolation of their effects.

To address this issue, we conducted a Durbin–Wu–Hausman endogeneity test, using a mimicking variable as an instrumental variable, which is exogenous by definition. Following the approach outlined by [41], the mimicking variable is defined as the reference variable—sustainability in this case—and is measured as the average of all equity offerings within the same industry in the previous year for each company.

Mimicking variables are widely used in various fields, including finance studies on IPOs [64] and crowdfunding research [72], particularly in legitimacy strategy assessments [97]. In this context, since investment decisions in ECF are unlikely to be directly influenced by the sustainability orientation of past campaigns, the frequency of sustainability-oriented campaigns in the prior year serves as a reasonable and effective instrumental variable for addressing endogeneity concerns.

The output reported in Tables A1–A4 leads to a strong rejection of the null hypothesis by confirming all our evidence.

Table A1. Empirical analyses (H1).

	Model 1	Model 2	Model 3
Variables	**Amount Raised (%)**	**Number of Investors**	**Success**
Sustainability	0.423 ** (0.142)	0.521 ** (0.131)	0.412 ** (0.101)
Equity_offered	−0.497 *** (0.015)	−0.357 *** (0.012)	−0.322 *** (0.025)
Social_capital	0.301 *** (0.003)	0.225 *** (0.003)	0.321 *** (0.002)
Financial_Info	0.236 * (0.061)	0.197 ** (0.111)	0.115 * (0.040)
Target_capital	0.723 * (0.029)	0.323 * (0.063)	0.746 * (0.047)
Min_Invest	−0.133 * (0.046)	−0.295 ** (0.035)	−0.122(0.035)
Female_Founders	0.483 *** (0.029)	0.383 ** (0.032)	0.357 *** (0.059)
Video	0.297 * (0.029)	0.335 * (0.036)	0.534 ** (0.059)
Constant	13.45 *** (0.467)	2.012 ** (0.134)	10.65 *** (0.372)
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.410	0.582	0.389
Durbin–Wu–Hausman (*p*-value)	0.000	0.000	0.000

Note: The table reports the results of regressions using a sample of 312 ECF campaigns. The coefficients of our empirical analysis with all variables winsorized at the 3rd and the 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the amount raised by the company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficient of a logit regression in which the dependent variable is Success, a binary variable that identifies the success of ECF projects. The key independent variable is Sustainability, which indicates sustainability-oriented projects. All variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A2. Empirical analyses (H2).

	Model 1	Model 2	Model 3
Variables	**Amount Raised (%)**	**Number of Investors**	**Success**
Type	0.231 *** (0.216)	0.295 ** (0.147)	0.254 *** (0.159)
Sustainability	0.659 ** (0.137)	0.674 ** (0.189)	0.648 *** (0.163)
Sustainable_type	0.754 *** (0.386)	0.784 ** (0.165)	0.694 *** (0.137)
Equity_offered	−0.558 *** (0.013)	−0.454 *** (0.011)	−0.322 *** (0.022)
Social_capital	0.469 *** (0.001)	0.486 *** (0.004)	0.455 *** (0.002)
Financial_Info	0.397 ** (0.045)	0.287 ** (0.015)	0.101 ** (0.040)
Target_capital	0.666 * (0.033)	0.427 * (0.057)	0.857 ** (0.043)
Min_Invest	−0.206 * (0.013)	−0.351 * (0.025)	−0.266(0.034)
Female_Founders	0.574 ** (0.033)	0.476 ** (0.028)	0.392 *** (0.060)
Video	0.331 ** (0.027)	0.255 * (0.038)	0.467 ** (0.053)
Constant	12.77 *** (0.388)	2.576 ** (0.145)	11.29 *** (0.264)
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.392	0.567	0.392
Durbin–Wu–Hausman (*p*-value)	0.000	0.000	0.000

Note: The table reports the results of regressions using a sample of 312 ECF campaigns. The table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and the 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the amount raised by the company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficient of a logit regression in which the dependent variable is Success, a binary variable that identifies the success of ECF projects. The key independent variables are Sustainability and Type, which indicate the sustainability of a campaign and of a company, respectively. Sustainable_type is the interaction term between Sustainability and Type. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A3. Empirical analyses (H3A).

	Model 1	Model 2
Variables	**Number of Investors**	**Professional Investors**
Sustainability	0.644 ** (0.143)	0.911 *** (0.198)
Equity_offered	−0.527 *** (0.017)	−0.399 *** (0.020)
Social_capital	0.225 ** (0.003)	0.276 *** (0.003)
Financial_Info	0.197 ** (0.187)	0.212 ** (0.159)
Target_capital	0.355 ** (0.060)	0.252 ** (0.049)
Min_Invest	−0.246 ** (0.040)	−0.185 ** (0.035)
Female_Founders	0.476 ** (0.037)	0.337 * (0.036)
Video	0.370 * (0.049)	0.325 * (0.052)
Constant	2.254 ** (0.144)	2.638 *** (0.252)
Year Fixed Effect	YES	YES
Platform Fixed Effect	YES	YES
Adj. R-squared	0.618	0.625
Durbin–Wu–Hausman (*p*-value)	0.000	0.000

Note: The table reports the results of regressions using a sample of 312 ECF campaigns. The table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and the 97th percentiles. Models 1 and 2 report the coefficients of a negative binomial regression of Number of Investors and Professional Investors on the chosen explanatory variables, respectively. The key independent variable is Sustainability, which indicates sustainability-oriented projects. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table A4. Empirical analyses (H3B).

	Model 1	Model 2	Model 3
Variables	**Amount Raised (%)**	**Number of Investors**	**Success**
Early_Invest	0.745 *** (0.195)	0.712 *** (0.163)	0.634 *** (0.181)
Equity_offered	−0.414 *** (0.016)	−0.332 *** (0.018)	−0.375 ** (0.027)
Social_capital	0.311 *** (0.003)	0.343 *** (0.003)	0.252 *** (0.003)
Financial_Info	0.214 * (0.057)	0.223 * (0.095)	0.231 * (0.044)
Target_capital	0.687 * (0.025)	0.565 ** (0.066)	0.752 * (0.036)
Min_Invest	−0.243 * (0.022)	−0.165 * (0.046)	−0.233(0.038)
Female_Founders	0.431 *** (0.016)	0.442 ** (0.048)	0.317 ** (0.048)
Video	0.299 * (0.026)	0.347 ** (0.035)	0.478 ** (0.064)
Constant	13.96 ** (0.256)	2.375 ** (0.258)	12.77 *** (0.359)
Year Fixed Effect	YES	YES	YES
Platform Fixed Effect	YES	YES	YES
Adj. R-squared	0.414	0.626	0.396
Durbin–Wu–Hausman (*p*-value)	0.000	0.000	0.000

Note: The table reports the results of regressions using a sample of 312 ECF campaigns. The table reports the coefficients of our empirical analysis with all variables winsorized at the 3rd and the 97th percentiles. Model 1 reports the coefficients of a Tobit regression of Amount Raised, i.e., the percentage of the amount raised by the company at the end of the campaign, on the chosen explanatory variables. Model 2 reports the coefficients of a negative binomial regression of Number of Investors on the chosen explanatory variables. Model 3 reports the coefficient of a logit regression in which the dependent variable is Success, a binary variable that identifies the success of ECF projects. The key independent variable is Early_Invest, calculated as the number of professional investors that have financed the project in the first 10 days from the opening day. The variable definitions are in Table 2. All the model specifications include year and platform fixed effects. Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

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