

Sustainable business models as successful drivers in equity crowdfunding

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Abstract

Equity crowdfunding is a form of capital market concerning the online offering of private company securities to a group of people for investment. Over the years, it has emerged as a valid financing alternative for sustainability-oriented startups to conventional sources of funding to support their establishment and growth. This research explores the role that the elements of sustainable business models (SBM), which creates, delivers, and captures value for all its stakeholders without depleting the natural, economic, and social resources it relies on, can play as success discriminants of equity crowdfunding campaigns. A configuration approach was selected, and Fuzzy Set Qualitative Comparative Analysis (fsQCA) was used to investigate the causal configurations of 33 crowdfunding campaigns posted on the six most popular Italian equity crowdfunding platforms from 2014 to 2020. The analysis revealed that the SBM elements, and combinations of them, can positively affect the outcome of a campaign. Results also show that negative outcomes may be primarily due to campaign-related features, such as high minimum investment requirements and high funding target.

KEYWORDS

equity crowdfunding, fsQCA, new ventures, success, sustainable business models

1 | INTRODUCTION

Scholars, international organizations, and public opinion agree that the transition to a more sustainable economy is not possible without the contribution of the private sector (Pizzi et al., 2020; Sachs, 2012; Schaltegger et al., 2012). startups have been identified as being particularly suitable to help the transition because of their willingness to adopt new brave visions and approaches and because of their ability to bring disruptive innovations into the life (Zahra & Nambisan, 2012).

These new ventures face great difficulties in attracting financial resources from traditional sources, especially after the global crises, and in recent years, they have increasingly resorted to alternative fundraising systems, such as the crowdfunding (Bartolacci et al., 2020;

Belleflamme et al., 2014; Kuppuswamy & Bayus, 2017; Troise & Tani, 2020). These alternative solutions of funding have the potential to give significant contributions to the cause of sustainability and reduce the existing funding gap.

Crowdfunding is a novel financing tool that provides monetary support for entrepreneurial projects from the crowd bypassing banks, business angels, and venture capitalists (Da Cruz, 2018; Mollick, 2014; Scheaf et al., 2018). It has attracted special attention as an original way for sustainable-oriented ventures to obtain the resources they need (Bento et al., 2019). As such, crowdfunding can be defined as “the efforts by entrepreneurial individuals and groups—cultural, social, and for-profit—to fund their ventures by drawing on relatively small contributions from a relatively large number of

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individuals using the internet, without standard financial intermediaries" (Mollick, 2014, p. 1).

Among the crowdfunding models, equity crowdfunding "represents one of the fastest-growing components of the crowdfunding market" (Walthoff-Borm et al., 2018, p. 514) and it allows entrepreneurs to make open calls for selling equity shares of their startups to the crowd, that is, a large group of investors through the Internet (Ahlers et al., 2015). Entrepreneurs launch equity crowdfunding campaigns through specific platforms that connect them with investors (Kleinert et al., 2021; Pollack et al., 2021) and attract large audiences of small amateur investors (Polzin et al., 2018; Vismara, 2018). This specific crowdfunding model entails backers gaining a stake in the enterprise they support, which is proportionate to the amount of funding they have provided. Several scholars explored the success factors in raising funds through equity crowdfunding campaigns (Ahlers et al., 2015; Ralcheva & Roosenboom, 2019; Vismara, 2018). However, as highlighted by Piva and Rossi-Lamastra (2018, p. 667), "despite the increasing popularity of this model, available empirical evidence suggests that only few entrepreneurs succeed in financing their startups through equity crowdfunding, and we still know little about the drivers of their success."

Recent literature identifies this form of crowdfunding as particularly interesting when considering the issue of financing sustainable businesses due to investors' motivations, firm legitimacy, and risk equivalents (Testa et al., 2019; Vismara, 2019). Yet, in the panorama of studies investigating successful drivers in equity crowdfunding (Mochkabadi & Volkmann, 2020; Troise et al., 2020; Vulkan et al., 2016), the sustainability determinants of the business model subject of the campaign in relation to the success of the funding campaign are still lacking investigation. Sustainable business models (SBMs) are defined in this paper as innovations that either create significant positive impacts for the environment and/or society or significantly reduce the negative ones through changes in the way the organization and its value-network create, deliver value, and capture value (Bocken et al., 2018). Despite the recent importance assumed and the increasing adoption of more SBMs and the research around them (Pizzi et al., 2021; Schaltegger et al., 2016), little is known about their effects in equity crowdfunding contexts, that is, their potential role as successful drivers. In particular, the questions whether and how a SBM is appealing for crowdfunding investors are still being investigated. The study of SBM in crowdfunding that is an emerging and unexplored context under the lens of sustainability (Böckel et al., 2021) represents a promising research strand, in particular, by considering the recent attention on the equity model (Mochkabadi & Volkmann, 2020). Given the studies on the relationship between sustainability and financial performances of small and starting businesses (Bartolacci et al., 2020), we might expect SBMs to have a meaningful, probably positive, effect on equity crowdfunding outcomes. Yet, testing this expectation is fundamental to better understand the role crowdfunding can play in supporting sustainable behaviors in startups.

This study therefore investigates whether and how SBM elements contribute to successful equity crowdfunding campaigns by allowing startups to achieve better campaigns' outcomes. In doing this,

we analyze a sample of 33 equity crowdfunding campaigns conducted in the last 7 years by Italian sustainability-oriented startups. To reach this goal, the Fuzzy Set Qualitative Comparative Analysis (fsQCA) methodology was adopted, a set-theoretic approach that allows to select and categorize significant antecedent conditions into configurational paths that can explain the final outcome (De Crescenzo et al., 2020; Ragin, 2008). By identifying specific configurations of conditions, different for the positive and the negative campaign outcome, this paper helps identify the SBM elements that can determine the success of a sustainability-oriented equity crowdfunding campaign.

The study contributes to the current debate on the successful drivers of equity crowdfunding campaigns, and—at the same time—it sheds some light on the relationship between crowdfunding and sustainability, a novel stream of research in its infancy which needs further evidence (Böckel et al., 2021), in particular in the specific context of equity crowdfunding (Vismara, 2019).

The paper is organized as follows: Section 2 provides a review of existing literature on crowdfunding and sustainability, equity crowdfunding, its application to sustainability-oriented startups, and the discriminants of campaign success identified so far. Section 3 presents the research design, introducing first some details on the Italian equity crowdfunding market for then concentrating on case selection and conditions definition. Section 4 presents the analysis, the results of which are then discussed in Section 5. Section 6 closes the study by presenting the conclusions and limitations.

2 | LITERATURE REVIEW

2.1 | Crowdfunding and sustainability

Only a few studies have focused on the intersection of crowdfunding and sustainability (Böckel et al., 2021; Jovanović, 2019; Petruzzelli et al., 2019). These studies show that crowdfunding helps bridge the funding gap for firms and contributes to sustainable development (Hörisch, 2015; Jovanović, 2019; Lam & Law, 2016; Testa et al., 2019; Wehnert et al., 2019). This research stream has a short history, although it shows some signs of growth. For example, Jovanović (2019) discusses sustainability-based crowdfunding as relevant, but only 8% of crowdfunding research refers to sustainability. Reviewing the literature on crowdfunding and sustainability, Böckel et al. (2021, p. 447) rightfully claimed that "the research field at the interface of crowdfunding and sustainability has not yet been extensively studied."

Crowdfunding can play a significant role in supporting research and development of innovative green technology and fostering renewable and sustainable energy projects (Lam & Law, 2016), by increasing societal support thanks to users'/citizens' active involvement in energy systems (Vasileiadou et al., 2016). Recently, the environmental or sustainability orientation of a project was found to increase the success of the campaign (Hörisch & Tenner, 2020). Although, earlier studies did not find significant effects

(Hörisch, 2015; Vismara, 2019). Testa et al. (2020) showed that egoistic/self-centered product attributes play a significant role in facilitating crowdfunding support to sustainability-oriented projects, unless the initiative specifically supported local products. In the context of equity crowdfunding, it was pointed out that sustainability orientation can lead to restricted investors, that is, those pursuing community values (Vismara, 2019). A factor that can explain the contrasting results is the interplay of a relatively small number of “sustainability-oriented” crowdfunding initiatives, and their appeal to specific audiences can influence the relationship with the success of the campaign (Hörisch, 2018).

Troise et al. (2021) showed that equity crowdfunding represents a significant source of knowledge-based inputs for agri-food businesses in pursuing sustainability-oriented innovations and leveraging crowd investors relations to fine-tune efforts on key sustainability-oriented challenges and related changes. Also, Laurell et al. (2019) examined the concept of trust in sustainable products and highlighted how crowdfunding enables consumers to play an active role as both user-citizens and promoters of sustainable products or practices. Crowdfunding can also foster consumer coproduction in the specific context of sustainability (Chaney, 2019).

Despite the recent attention of scholars in exploring the relationships between crowdfunding and sustainability, this emerging field of research highlights the need for further development and in particular the role of the business model in influencing the success of equity crowdfunding campaigns has not been examined in extant literature.

Equity crowdfunding has been indicated as being particularly suitable to be used as financing option for sustainability-oriented firms (Hemer, 2011; Hörisch, 2015; Lehner, 2013). The reasons for this are multifold. First of all, equity crowdfunding allows for a mitigation of the perceived investment risk: each investor, in fact, is expected to only contribute a relatively small sum, and behavioral finance suggests that this makes the risk of loss more tolerable for the person (Vismara, 2019), given that the risk-equivalents for investors remain low (Lehner et al., 2015). Second, crowdfunding allows for a diversification of investors (Signori & Vismara, 2018). Ideas and core values of the enterprise are the aspects that result decisive in the selection of the firm to be funded by the crowd that still pays attention to collaterals and business plans but to a lower extent (Hörisch, 2015; Lehner, 2013). In other words, the crowd “select[s] the social ideas it deems worthy and needed” (Lehner, 2013, p. 6).

This can be explained by Legitimacy Theory, which predicts that disclosing social and environmental information increases the chances to successful resource acquisition attempts (DiMaggio & Powell, 1983). According to Dart (2004), the legitimacy of a sustainability-oriented venture is enhanced by the combination they propose of commercial strategies and social and/or environmental ones. Legitimacy then translates into endorsement, which in turn serves as a signal of the quality of the project and increases the chances of achieving the funding target. Following rational choice theory would suggest that a SBM cannot be considered per se responsible for the success of the equity crowdfunding campaign. However, the behavioral pattern described by rational choice theory is not the

only existing one. For example, collective action theory (Olson, 1989) identifies three behavioral types which, applied to the context of equity crowdfunding, are the following:

- *Cooperators*: people who are moved by community values and would unconditionally back a campaign if they know this provides a collective good;
- *Conditional cooperators*: people who show a tendency to copy the expected behavior of other people;
- *Free riders*: people who represent the typical behavior predicted by rational choice theory.

According to Toxopeus and Maas (2018), collective action theory can help answering the question of why crowdfunding is particularly suited to financing sustainable enterprises. In fact, according to previous research, conditional cooperators make up around half of the population (Frey & Meier, 2004). The respective incidence and visibility of cooperators and free riders will be decisive for driving the behavior of conditional cooperators toward greater or lower cooperation that is greater or lower financial support to sustainability-oriented projects (Toxopeus & Maas, 2018).

2.2 | Sustainability and business models

Given the implications that the previously mentioned theories seem to have when considering equity crowdfunding for sustainability-oriented projects, it is interesting to understand if, in practice, there are some characteristics of the SBM that influence the campaign's outcome in a more positive sense. Taking a business model perspective, it is necessary to consider how sustainability can be accounted for in the business model.

According to Stubbs and Cocklin (2008), sustainable organizations articulate their purpose, vision, and mission in terms of social, environmental, and economic outcomes. However, some other scholars recognize that in order to be sustainable, it is not enough to build the firm around sustainable value, because no sustainable value can be created for customers and shareholders if the wider range of stakeholder is not included in the value creation logic (Schaltegger et al., 2016). Indeed, Schaltegger et al. (2016) argue that the business model for sustainability describes and communicates how the company creates, delivers, and captures sustainable value.

The SBM framework by Bocken et al. (2018) identifies a graphical representation for the SBM, the SBM Canvas. As a new interpretation of the BM canvas developed by Osterwalder and Pigneur (2010), the SBM Canvas divides the value proposition into Profit, People, and Planet, stressing the importance of creating a positive impact on the environment and society and, at the same time, preserving the financial wealth of the firm. While the value delivery part of the canvas remains quite similar to the traditional version, the value creation part of the canvas, instead, is composed of Key Stakeholders, Key activities, and Key resources (Bocken et al., 2018). Finally, the value capture part of the canvas is composed of the Cost structure and Revenue

streams in the original canvas but in a renewed version given that they are considered in a stakeholder system perspective.

2.3 | Discriminants of equity crowdfunding outcome

As pointed out by Walthoff-Borm et al. (2018, p. 514) “most crowdfunding research has focused on reward-based crowdfunding” and the majority of these studies focused on the determinants of crowdfunding success (De Crescenzo et al., 2020). The history of equity crowdfunding research is quite recent, and only starting a few years ago, various scholars have now provided the first evidence on the success factors in this specific context.

Ahlers et al. (2015) conducted the first empirical analysis on equity crowdfunding campaigns and identified as success factor the financial roadmaps like initial public offering (IPO) or acquisition exit strategies, the equity retention, the provision of financial forecasts, and some characteristics of the board like the number of board members and their education level. They do not find empirical evidence supporting the stance that formal certifications like patents or governmental grants had significant impact for success (Ahlers et al., 2015).

Vismara (2016) found a positive impact of both social networks and equity retention on the success of equity crowdfunding campaign. Similarly, Ralcheva and Roosenboom (2016) confirm the positive effects of equity retention on campaigns' outcomes and the scholars examined seven certifying signals finding several success factors (e.g., awards, grants, and professional investors). Lukkarinen et al. (2016), instead, found that the determinants of success can be attributed to the characteristics of the campaign and the exploitation of private and public networks; in addition, the scholars highlight that emotional and social drivers may be more important to equity crowdfunding than financial indicators. On a similar page Vulkan et al. (2016) explore campaigns characteristics and highlight some factors positively influencing campaigns success (e.g., largest number of investors or amount pledged and funds raised during the first week of campaign).

Piva and Rossi-Lamastra (2018) show the importance of human capital in the campaigns' success, while other scholars focus on the role of social capital (Troise et al., 2020), formal or informal institutions (Kshetri, 2018), and gender in affecting equity crowdfunding campaigns outcomes (Geiger & Oranburg, 2018; Mohammadi & Shafi, 2018). Other studies have investigated the role of information sharing among investors and found that early backers can play a key role in increasing the chances to the campaign success (Vismara, 2018). Information disclosure and communication strategies are highly relevant in equity crowdfunding context, and several scholars focused on the role of updates, comments, videos, or advertising (Hornuf & Schwienbacher, 2018; Polzin et al., 2018).

Among these papers, none examined SBMs, and further evidence is needed to assess its potential contribution in influencing the success of equity crowdfunding campaigns. This lack of studies is particularly pressing the current literature; in fact, as stated by Mochkabadi and Volkmann (2020, p. 75) “despite ongoing scientific discussions,

equity crowdfunding research is still in its infancy and scholarly knowledge remains limited and fragmented.”

In this research, the success of equity crowdfunding campaigns was investigated by considering the role that elements of SBM outlined by the selected SBM framework can play in affecting an equity crowdfunding campaign outcome. By analyzing the existing literature, we can state that the elements People and Planet are expected to be important for determining the campaigns' outcome, because backers in equity crowdfunding are often driven by different motivations than mere financial considerations. For this reason, also another element that is expected to be crucial in determining the success of sustainability-oriented projects is the one of Key Activities and specifically their ability to produce positive not only for customers but also for the environment and society (Pizzi et al., 2021).

The presence of graduated team members, and specifically of MBA graduates, has been found by some scholars to significantly affect the chances of equity crowdfunding success, whereas the presence of valuable assets like patents does not seem to be relevant (Ahlers et al., 2015; Vismara, 2018). Therefore, the Key Resources, represented by the number of graduates in the board team, were identified as possibly important in determining equity crowdfunding success. However, given the financial nature of equity crowdfunding, we expect that the elements related to the financial wealth of the company will be as crucial in determining success as the one related to the sustainability orientation of the firm.

These elements are “Profits,” measured as the number of financial indicators provided by the firm, and “Revenue Streams.” The former, being a proxy of the financial wealth of the firm, is identified by existing literature as a potential way to increase the campaign chances of success, and, specifically, the more financial provided, the better (Lukkarinen et al., 2016). If the number of financials seems to play a role in determining success, the quality of financials does not (Lukkarinen et al., 2016).

Conversely, Revenue Streams are expected to potentially have an impact on the outcome of the campaigns because the financial wealth of the firm is crucial to ensure long-term well-being of the whole stakeholder network. No specific evidence was found about a potential impact that Key Stakeholders, Cost Structure, Customer relationship, Channels, and Customer can have on the outcome of a crowdfunding campaign.

Due to the nature of the methodology that has been used, the formulation of the research hypotheses will be done at the end of the research process rather than at the beginning (Schneider & Wagemann, 2012).

3 | RESEARCH DESIGN

3.1 | Italian equity crowdfunding and regulatory framework

There are several reasons that led our choice to focus on the Italian equity crowdfunding market. The first reason is related to the

importance of this specific country in the development of this system. Italy, in fact, was the first country in Europe to regulate equity crowdfunding through a specific regulation, namely, Decreto Legge n. 179/2012 (or “Decreto Crescita Bis”), with the scope of encouraging the birth and development of innovative startups, and therefore to allow these kinds of firms to collect funds through nonconventional financing sources. This regulation has been further developed and improved over the years through six regulations provided by the Italian Authority “Consob” (Commissione Nazionale per le Società e la Borsa) (of which the last, dated 2020, is Consob Regulation n. 21259).

This Authority provides a specific registry only for authorized investment-based crowdfunding platforms (Vismara, 2016). This is a peculiarity of a few countries, many in fact do not have specific registers (e.g., Germany and UK) (Rossi et al., 2019), and this favors the study of equity crowdfunding by exploring a cross-platform sample. Another significant characteristic of the Italian context is related to the involvement of accredited investors in raising funding through equity crowdfunding (required by law to the extent of at least 5%), while it is not possible raise crowdfunding capital through debt securities (Rossi et al., 2019).

The last aspect to consider is that the Italian equity crowdfunding market has shown significant positive results in recent years, and it has experienced a significant growth, around 160 million euros of funds raised in 2020 and over 65 million euros in the first half of 2021 (Politecnico di Milano, 2020). With a prevalence of innovative startups, this market has seen since 2012 a total of 831¹ equity crowdfunding campaigns posted in the 51 equity crowdfunding platforms authorized by Consob. According to Politecnico di Milano (2020, p. 11), the Italian equity crowdfunding market is growing more than the others (Politecnico di Milano, 2020, p. 11), although there is still a certain gap with some countries (especially UK market).

3.2 | Methodology

fsQCA was selected as the appropriate methodology for conducting the analysis in this research. fsQCA is a set-theoretic approach that is used to investigate complex causality and therefore allows for the identification of specific combinations of conditions, called configurations, which are mutually nonexclusive and lead to the same outcome (De Crescenzo et al., 2020; Ragin, 2008). fsQCA is considered as a mixed-method technique since it embeds quantitative empirical testing and inductive qualitative reasoning generated by case analysis (Kraus et al., 2018). It allows for a differentiation between the reasons for the outcome occurrence and those for nonoccurrence (Ragin, 2008). Furthermore, the method considers logical complexity by taking under consideration that alternate combinations of characteristics can generate different results when they are combined with different conditions and/or events in an appropriate manner (Pappas et al., 2021).

Given the selection of the conditions and the impact of some of them on the final outcome of equity crowdfunding campaign, success has been variable in previous studies; the choice of an asymmetric mean of analysis may help in clarifying not only the relevant conditions but also the direction of their effect.

3.3 | Case selection

Adopting a qualitative and case-oriented approach, fsQCA requires the researcher to put close attention to the process of selection of the cases to be considered.

For the purpose of this research, 33 equity crowdfunding campaigns were selected; they were performed by Italian startups with a SBM between 2014 and 2020 in the six Consob-authorized equity crowdfunding platforms (Mamacrowd, Crowdfundme, Backtowork, 200crowd, Opstart and Starsup), which resulted to be the most popular in terms of capital collected. Specifically, these platforms have collected over two thirds of the total funds raised by all Italian platforms (over than 190 million euros) and three-quarters of the campaigns posted, that is, 626 campaigns (Politecnico di Milano, 2020). Real estate crowdfunding platforms were purposely excluded because these kinds of projects were considered to be out of the research aim.

The process of case selection is described in Figure 1. The campaigns were selected by using equity crowdfunding platforms categories like “Environment & Green Economy,” “Sharing Economy,” “Green Economy,” “Green,” and “Social Impact” and keywords such as “Cleantech,” “Sustainable,” “Green economy,” “Sharing economy,” “Social Impact,” “Social vocation,” “Environmental sustainability,” and “Circular Economy.”

Given that the success rate of the equity crowdfunding campaigns hosted by the selected crowdfunding platforms is relatively high, the number of firms with a SBM which failed to achieve the funding target is relatively low. This is reflected in a final sample composed of 18 successful equity crowdfunding projects (55%) and 15 unsuccessful campaigns (45%).

Once the 33 campaigns were identified, all the necessary information for the analysis was gathered by hand.

3.4 | Outcomes, conditions, and calibration rules

Following previous studies, the outcome in this research is defined as the result of the crowdfunding campaign, which is measured as the ratio between the amount of funds raised through crowdfunding and the predetermined target amount (Ahlers et al., 2015; De Crescenzo et al., 2020; Troise et al., 2020; Vismara, 2016, 2018).

The conditions that were considered to have a potentially positive impact on the final outcome were those elements of the SBM canvas by Bocken et al. (2018) for which some evidence could be identified in the existing literature that they could be important in determining the outcome of the campaign. No evidence was found that Key Stakeholders, Cost Structure, Customer relationship,

¹Up to the first semester of 2021.

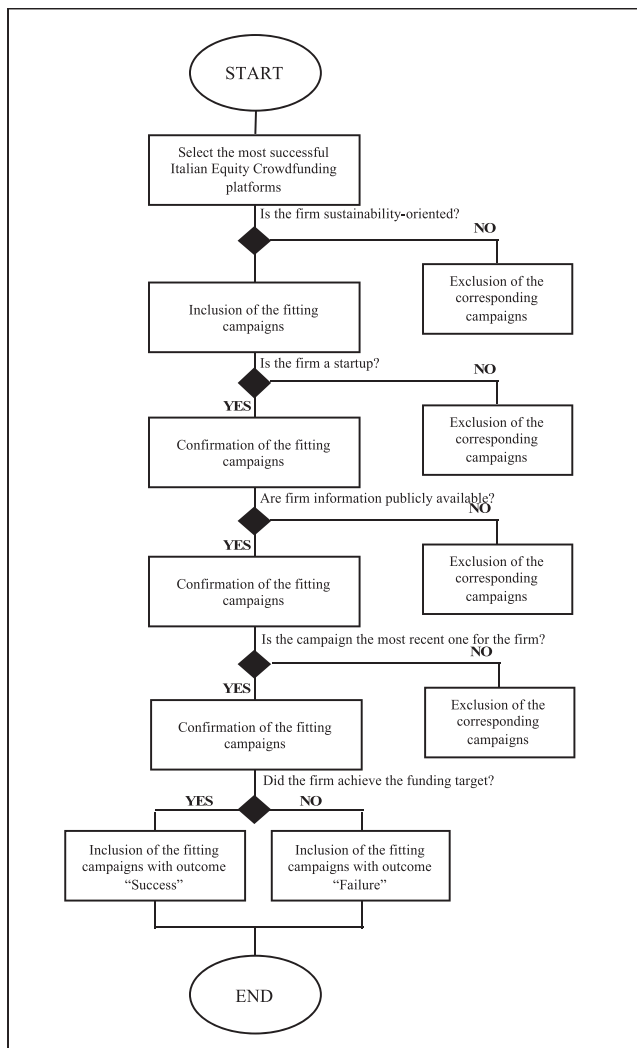


FIGURE 1 Flowchart of the case selection process

Channels, and Customer segment may in any way influence the outcome of a crowdfunding campaign.

This, together with the rule to be applied when using the fsQCA methodology with a relatively small sample of cases is that the number of conditions selected should be substantially lower than the number of cases considered. Therefore, the above-mentioned elements were excluded from the analysis.

On the contrary, the impact of the element “Profits” on the outcome of the crowdfunding campaign was investigated by considering the number of financials (both historical or forecast revenue and profit figures) provided by the startup during the campaign.

The elements of “People” and “Planet,” instead, were summarized into one single variable called “Sustainability” that indicates the presence or absence of official recognitions of the social or environmental value produced by the firm’s products or services. These recognitions may consist in awards, prizes, or governmental grants or even the inclusion of the firm in support projects promoted by incubators.

For what concerns the “Key Resources,” instead, the number of graduates, measured as the percentage of people graduated in the

team, was chosen as a proxy; in fact, they represent the competences and skills possessed by a firm.

“Key Activities” was measured as the degree of positive impact that the startups’ key activities have on the environment and/or society. This variable was built to assume one of three possible values, “low,” “medium,” or “high,” depending on the extent to which the key activities of the business create a positive impact for the value chain while benefiting the society and the environment. As an example, the introduction of a technology that exploits organic material to accumulate energy produced by means of renewables would be considered high impact, while a firm promoting a form of mobility that is partially able to reduce the emissions from commuter transport would be assigned a value of “medium” for this variable. Finally, a printing system that exploits waste materials still has a level of positive impact for the system but considerably lower than other solutions.

Eventually, the element “Revenue Streams” was measured as the total number of revenue streams that the startup presents to the potential investors.

A summary of the outcome and conditions is available in Table 1.

As already mentioned, a different set of conditions were selected for investigating the determinants of the failure of a campaign and a second iteration of the analysis was performed. Specifically, some peculiar characteristics of the campaign were identified: partly inspired by the observation of cases selected for the analysis, the conditions that were considered in the second round of analysis were the funding target, minimum investment to participate to the campaign, the number of financials provided, and the number of social networks in which the firm is present according to what it declared in the campaign (Table 2).

3.5 | Hypotheses formulation

Given the qualitative nature of fsQCA, the hypotheses formulation is done at the end of the research process rather than at the beginning (Schneider & Wagemann, 2012). These hypotheses cannot be considered the same as those formulated traditional statistical hypothesis testing. Indeed, fsQCA hypotheses usually are plausible accounts that the researcher formulates on the outcome of interest given the theoretical evidence she/he finds from the literature review and given the empirical evidence derived from a first screening of the selected cases (Schneider & Wagemann, 2012). Also, it is often true that fsQCA hypotheses assume that different combinations of conditions can lead to the same outcome (Schneider & Wagemann, 2012).

Clearly, this is in stark contrast with the practice for statistical hypothesis testing. Consequently, the hypotheses used in this research are different *in nature* than hypotheses formulated in statistical hypothesis testing. However, with this difference clear in mind, it is still possible for the researcher to formulate some accounts on the basis of existing theoretical and empirical knowledge and call them “hypotheses” (Schneider & Wagemann, 2012). Therefore, the theoretical and empirical evidence collected was translated into two main hypotheses.

TABLE 1 Description of outcome and conditions for the first iteration of fsQCA

| Type | Name | Description | Codification |
|-----------|-----------------------------|---|--------------|
| Outcome | <i>Crowdfunding outcome</i> | Ratio between the amount raised and the target amount | Fuzzy value |
| Condition | <i>Profits</i> | N of financials provided | Fuzzy value |
| Condition | <i>Sustainability</i> | Recognition of social or environmental value creation | Crisp value |
| Condition | <i>Key resources</i> | % of graduated in the team | Fuzzy value |
| Condition | <i>Key activities</i> | Degree of positive impact of key activities on environment and/or society | Fuzzy value |
| Condition | <i>Revenue streams</i> | N of revenue streams | Fuzzy value |

Abbreviation: fsQCA, Fuzzy Set Qualitative Comparative Analysis.

TABLE 2 Description of outcome and conditions for the second iteration of fsQCA

| Type | Name | Description | Codification |
|-----------|---|---|--------------|
| Outcome | <i>Crowdfunding outcome (success/failure)</i> | Ratio between the amount raised and the target amount | Fuzzy value |
| Condition | <i>Social networks</i> | N of social networks in which the firm is present | Fuzzy value |
| Condition | <i>Minimum investment</i> | Minimum investment required to become shareholder | Fuzzy value |
| Condition | <i>Funding target</i> | Minimum funding target for campaign success | Fuzzy value |
| Condition | <i>Number of financials</i> | Number of financial indicators provided by the firm | Fuzzy value |

Abbreviation: fsQCA, Fuzzy Set Qualitative Comparative Analysis.

Hypothesis 1. The elements of SBM and specifically some of them (i.e., Profits, Planet, People, Key Resources, Key Activities, and Revenue Streams) are relevant to the success of equity crowdfunding campaigns.

Hypothesis 2a. Distinct sets of conditions are associated with the success or failure of equity crowdfunding campaigns.

Hypothesis 2b. Crowdfunding campaign's characteristics (i.e., the Social Media Network, the Funding Target, the Minimum Investment required, and the Number of Financials) are relevant to the failure of equity crowdfunding campaigns.

3.6 | Calibration

To understand how the selected conditions causally combine and contribute to the outcome, data must be transposed into fuzzy values. This process is called Calibration; in the calibration phase, set membership scores (ranging from 0 to 1) are assigned to cases on the basis of calibration rules, which reflect the extent cases are members of the sets of the outcome and the conditions; this is only possible by observing external substantive knowledge (Schneider & Wagemann, 2012).

To calibrate the data, the direct method of Ragin (2008) was used as proposed by De Crescenzo et al. (2020). The direct method prescribes to select three qualitative anchors to perform calibration, which are the threshold for full membership, for full nonmembership, and the cross-over point (Ragin, 2008). The cross-over point is the value of the variable that is considered to possess the maximum ambiguity as to whether a case is more in or more out of the target set (Ragin, 2008).

For this analysis, we used the value of 1 for full membership, the value of 0.05 as threshold for full nonmembership, and 0.5 as cross-over anchor. Ragin (2008) argued that the establishment of calibration rules must be supported by substantial theoretical knowledge. Given that the use of fsQCA in the field of equity crowdfunding is still in its infancy, previous studies in highly ranked journals were taken as reference in basing the calibration rules on percentiles of the sample; this choice was justified by the absence of substantive theoretical knowledge (De Crescenzo et al., 2020).

The calibration was performed thanks to the software fsQCA 3.1b developed by Ragin and Davey. The calibration thresholds for outcome and conditions were therefore computed according to the 90th, 50th, and 10th percentiles of the sample. The resulting thresholds are reported in Table 3.

Note that the condition “Sustainability” is a dichotomous variable that can assume either value 1 when a public and relatively official recognition is made to the firm for its environmental or social value produced or 0 on the contrary. Therefore, no calibration was necessary.

| | Threshold | | |
|----------------------------|-----------------|------------------|--------------------|
| | Full membership | Cross-over point | Full nonmembership |
| Crowdfunding outcome (OUT) | 3.85 | 1.01 | 0.07 |
| Profits (PR) | 5.6 | 2 | 1.04 |
| Sustainability (S) | 1 | | 0 |
| Key resources (KR) | 0.89 | 0.43 | 0 |
| Key activities (KA) | 1 | 0.5 | 0 |
| Revenue streams (KA) | 5.6 | 2 | 1 |

TABLE 3 Calibration for outcome and conditions (first iteration)

4 | RESULTS

In this research, fsQCA was used to identify configurations of conditions that lead to the success or to the failure of equity crowdfunding campaigns launched by Italian startups with a SBM.

The proposed models for the success and failure of these campaigns are, respectively:

- Model 1: Success equity crowdfunding = $f(\text{PR}, \text{S}, \text{KR}, \text{KA}, \text{RS})$
- Model 2: Success equity crowdfunding = $f(\text{SN}, \text{MI}, \text{FT}, \text{NF})^2$

4.1 | Analysis of necessary conditions

The first step of the analysis is to inspect the necessary conditions for the presence and absence of the outcome. The result of this analysis is reported in Table 4.

According to Schneider and Wagemann (2012), necessary conditions can be considered so if their consistency value is higher than 0.9. For the first iteration of the analysis, only one condition exceeds this consistency threshold, the Key Resources, which are therefore found to be necessary for the presence of the outcome, that is, a successful campaign. On the contrary, no necessary condition was found in this first iteration of analysis for the absence of the outcome, that is, for the failure of the campaign. The result of the necessity analysis for the second iteration is presented in Table 5. The necessary condition identified by the second iteration of the analysis for the absence of the outcome is the absence of condition “Social Networks.”

4.2 | Analysis of sufficient conditions

The results of the analysis of sufficient conditions are reported in Tables 6–8 using the notation established by De Crescenzo et al. (2020). The consistency cut-off adopted both in the case of presence and absence of the outcome is 0.8 as suggested by Ragin (2008), whereas the frequency threshold was set at 1 (Li et al., 2020). As far as the presence of the outcome is concerned, this study focuses on the intermediate solution.

TABLE 4 Analysis of necessary conditions first iteration

| | Presence of the outcome | | Absence of the outcome | |
|-----|-------------------------|----------------------|------------------------|-----------|
| | Cons.Nec ^a | Cov.Nec ^b | Cons.Nec | Cov.Nec |
| PR | 0.646341 | 0.559975 | 0.544071 | 0.644500 |
| S | 0.638450 | 0.468421 | 0.529906 | 0.531579 |
| KR | 0.959111 | 0.546607 | 0.668416 | 0.520850 |
| KA | 0.733142 | 0.530909 | 0.653200 | 0.646753 |
| RS | 0.720230 | 0.616708 | 0.558237 | 0.653563 |
| ~PR | 0.589670 | 0.486103 | 0.628541 | 0.708457 |
| ~S | 0.361550 | 0.360000 | 0.470094 | 0.640000 |
| ~KR | 0.159254 | 0.259953 | 0.418153 | 0.933255 |
| ~KA | 0.512195 | 0.519273 | 0.526233 | 0.729454 |
| ~RS | 0.595409 | 0.496412 | 0.672613 | 0.5766746 |

^aCons.Nec = consistency of the necessary condition.

^bCov.Nec = coverage of the necessary condition.

TABLE 5 Analysis of necessary conditions second iteration

| | Absence of the outcome | |
|-----|------------------------|----------------------|
| | Cons.Nec ^a | Cov.Nec ^b |
| SN | 0.271346 | 0.534572 |
| MI | 0.662651 | 0.676471 |
| FT | 0.612886 | 0.838109 |
| NF | 0.563646 | 0.662970 |
| ~SN | 0.917758 | 0.751609 |
| ~MI | 0.570980 | 0.762238 |
| ~FT | 0.579361 | 0.580882 |
| ~NF | 0.650079 | 0.740012 |

^aCons.Nec = consistency of the necessary condition.

^bCov.Nec = coverage of the necessary condition.

The resulting model shows solution consistency higher than the suggested threshold of 0.8 and a solution coverage of 0.5. The two measures of fit suggest that the configurations are informative.

Both configurations, individually considered, can be considered sufficient for the outcome, given that they present a consistency much higher than the threshold of 0.8, them being 0.927 and 0.995.

²The symbol (~), in logical terms, means negation. In this case, it indicated the absence of the outcome. If put before a condition, the symbol indicates the absence of the condition.

TABLE 6 Analysis of sufficient conditions for the first iteration—Presence of the outcome

| Configuration no. | Presence of the outcome | |
|----------------------|-------------------------|----------|
| | 1 | 2 |
| PR | ■ | |
| S | ■ | ■ |
| KR | ■ | ■ |
| KA | | ■ |
| RS | ■ | ■ |
| Raw coverage | 0.329986 | 0.39957 |
| Unique coverage | 0.982783 | 0.167862 |
| Consistency | 0.927419 | 0.994643 |
| Solution coverage | 0.497848 | |
| Solution consistency | 0.948087 | |

Note: Based on the notation adopted by De Crescenzo et al. (2020), the symbol “○” denotes the absence of a condition whereas the symbol “■” represents the presence of a condition. Blank cells indicate that the presence or absence of the condition is not relevant for the outcome.

TABLE 7 Analysis of sufficient conditions for the first iteration—Absence of the outcome

| Configuration no. | Absence of the outcome | | |
|----------------------|------------------------|----------|----------|
| | 3 | 4 | 5 |
| PR | | ○ | |
| KR | ○ | | |
| KA | | ○ | ■ |
| RS | | | ○ |
| Raw coverage | 0.418153 | 0.392445 | 0.5 |
| Unique coverage | 0.112277 | 0.143757 | 0.227702 |
| Consistency | 0.933255 | 0.851936 | 0.802864 |
| Solution coverage | 0.846275 | | |
| Solution consistency | 0.845831 | | |

Note: Based on the notation adopted by De Crescenzo et al. (2020), the symbol “○” denotes the absence of a condition whereas the symbol “■” represents the presence of a condition. Blank cells indicate that the presence or absence of the condition is not relevant for the outcome.

In terms of unique coverage, instead, the first configuration seems to be more relevant for the outcome, given the high coverage value point toward a configuration that explains a large proportion of the outcome (De Crescenzo et al., 2020). Therefore, we argue that configurations 1 and 2 represent paths to successful equity crowdfunding campaigns for sustainability-oriented startups.

According to configuration 1 (consistency level of 0.927), almost 33% of cases suggest that equity crowdfunding campaigns are successful when the following factors are simultaneously present:

- a relatively high number of financial indicators are presented to the public of potential investors,
- a public and relatively official recognition of the environmental or social value of the startup has been made,

TABLE 8 Analysis of sufficient conditions for the second iteration—Absence of the outcome

| Configuration no. | Absence of the outcome | |
|----------------------|------------------------|----------|
| | 6 | 7 |
| SN | ○ | ■ |
| MI | ■ | ○ |
| FT | ■ | ○ |
| NF | ○ | ■ |
| Raw coverage | 0.358303 | 0.176008 |
| Unique coverage | 0.0283395 | 0.1011 |
| Consistency | 0.971591 | 0.8 |
| Solution coverage | 0.459403 | |
| Solution consistency | 0.904124 | |

Note: Based on the notation adopted by De Crescenzo et al. (2020), the symbol “○” denotes the absence of a condition whereas the symbol “■” represents the presence of a condition. Blank cells indicate that the presence or absence of the condition is not relevant for the outcome.

- the majority of people being part of the team is graduated,
- the firm present more than two revenue streams.

According to configuration 2 (consistency level of 0.995), almost 40% of the cases suggest that equity crowdfunding campaigns are successful when the following factors are simultaneously present:

- a public and relatively official recognition of the environmental or social value of the startup has been made,
- the majority of people being part of the team is graduated,
- the key activities of the firm demonstrate to bring a relatively high positive impact for the environment and society,
- the firm present more than two revenue streams.

For what concerns the absence of the outcome, both the impact of business model elements and that of the campaign characteristics were investigated.

In the first case, the intermediate solution was quite complex and not very indicative for the purposes of this study. In fact, no substantive knowledge was found to support the predictions necessary for obtaining this kind of solution. Therefore, the parsimonious solution was considered, which is the simplest solution we could obtain that is useful to grasp a superficial idea about how the considered conditions may affect the absence of the outcome.

This model returns a consistency of 0.846 and a solution coverage of 0.846, both above the recommended thresholds. Three configurations are found, and all three proved to have a consistency value higher than 0.8. This means that they can be considered paths to unsuccessful crowdfunding campaigns.

According to configuration 3 (consistency level of 0.933), almost 42% of the cases suggest that equity crowdfunding campaigns fail in the absence of a high number of graduated people in the team.

According to configuration 4 (consistency level of 0.852), 39% of cases suggest that equity crowdfunding campaigns fail when both no

financials are provided and the impact on the environment and/or society of key activities is low.

Finally, according to configuration 5 (consistency level of 0.803), 50% of the cases suggest that the presence of a high positive impact of key activities of the startup in combination with the absence of more than one revenue stream leads to the failure of the campaign.

In the second iteration of the analysis for the absence of the outcome, the intermediate solution was considered. The resulting model returns values beyond the recommended thresholds, given that the solution consistency (0.904) is much higher than the solution consistency threshold of 0.8 suggested by the literature and also solution coverage (0.46) can be considered good.

The configurations are informative, and the analysis of sufficient conditions identifies two configurations which represent paths to unsuccessful equity crowdfunding campaigns for sustainability-oriented startups.

According to configuration 6 (consistency level of 0.972), almost 36% of cases suggest that equity crowdfunding campaigns are not successful when both the minimum investment required and the financing target are high (presence of the conditions), but the conditions relative to social networks and financials are absent.

Instead, according to configuration 7 (consistency value of 0.8), almost 18% of cases suggest that equity crowdfunding campaigns are not successful when both the presence of the firm is high in social networks and a relatively high number of financials is provided, but the minimum investment required and the financing target are relatively low.

5 | DISCUSSION

This research aimed at examining how the selected elements of a SBM (Profits, Planet, People, Key Resources, Key Activities, and Revenue Streams) positively affect an equity crowdfunding campaign outcome and whether the opposite result may be caused by a different set of campaign-related conditions (Social Networks, Minimum Investment, Funding target, and Number of Financials). Leveraging the information gathered thanks to the literature review, some configurations of conditions were identified that may lead to the success or failure of equity crowdfunding campaigns.

The configuration that explains the largest portion of the sample shows that successful campaign happens in startups that have received in their young lives a public and relatively official recognition of the value they produce for the environment or society, that have a team composed for the greater part of graduated people, that produce a relatively high positive impact for the environment or society thanks to their key activities, and that still pose great attention to the financial aspect of the firm, by diversifying their revenue streams and explaining them to the public.

Indeed, this result is in line with the legitimacy theory predictions that enterprise core values play a central role in the process of selection of the campaign to be funded by backers in crowdfunding (Lehner, 2013; Vismara, 2018, 2019). As the analysis confirms, the

increased legitimacy coming from the sustainability orientation, coupled with a formal recognition of legitimacy coming from authoritative sources like incubators and prizes, translates into a successful level of contributions from backers. Also, the significance of the condition Key Resources and Revenue Streams is in line with existing literature (Bocken et al., 2018).

However, also the other configuration explains a relatively large portion of the sample and reflects more evidently than the other solution the importance of the financial sustainability of the firm. This is completely in line with the very basic idea of equity crowdfunding, that is, to provide equity stakes to the backers who invest in a venture. Even though they may be less interested in the typical investors' indicators of performance, crowdfunding backers still aim to receive some kinds of financial benefits from their contribution.

Given that the raw coverage of these solutions is relatively high, we can argue that the theoretical insights mentioned so far do apply in practice and significantly represent the reality observed in the sample cases.

For what concerns the negative outcome, several configurations present sound measures of fit and, consequently, can be considered sufficient for the outcome. In the first iteration, three different paths were found that may lead to the failure of the campaign. In the first instance, the absence of a single condition, that is, a high number of graduated people in the team, seems to lead to failure in equity crowdfunding, whereas in the second solution (configuration 4) equity crowdfunding campaigns fail when both no financials are provided and the impact on the environment and/or society of key activities is low. All this can be said to be at least expected, given the importance that the literature puts on these parts of the SBM.

However, among the three configurations found in this first iteration, configuration 5 is the one that explains the largest portion of the sample and it predicts that the simultaneous presence of a high positive impact of key activities and of the absence of more than one revenue stream leads to the failure of the campaign. This is another piece of evidence in favor of the theoretical stance that environmental and social sustainability cannot be achieved without financial sustainability. In fact, adopting a SBM does not imply to give up profits; rather, incorporating environmental and social values in the core business allows to exploit economic opportunities and to achieve a long-term competitive advantage (Bartolacci et al., 2020; Pizzi et al., 2021). The results of the analysis show that this is clearly understood also by stakeholders.

The analysis of necessary condition in the first iteration for the negative outcome outlined that, among the conditions considered, no one is necessary for the outcome. Even though this cannot be considered indicative, we can say that it is at least in line with the hypothesis that the absence of the outcome may be better explained by another set of conditions that relate to the campaign characteristics rather than to the characteristics of the business model.

Looking at the second iteration of the analysis, in fact, two configurations were found to respect the consistency parameter of fit, showing on the one hand that failed equity crowdfunding campaigns are imputable to the presence of high minimum investments and

financing targets and to a low degree of social network presence and a low number of financials, whereas in the other suggesting that the unsuccessful outcome of a campaign happens when both the presence of the firm in social networks is high and a relatively high number of financials is provided, but the minimum investment required and the financing target are relatively low. However, the raw consistency of the configuration exactly coincides with the value of the consistency threshold.

Given that the results of the fsQCA truth tables have to be analyzed by bringing back the solution obtained to the cases object of analysis, we argue that configuration 7 is not really informative and that configuration 6 is the one that better reflects the empirical reality and theoretical knowledge.

To make clear our overall stance regarding the failure of equity crowdfunding campaigns, we claim that the reasons for failure are primarily due to the campaigns' characteristics like the minimum investment and funding target. In fact, a high minimum investment requires a degree of commitment and capabilities in evaluating investment opportunities that many nonprofessional investors may not have as well the cost to perform due diligence could be high for them; the fact that financial motivations are not the primary drivers of nonprofessional investors does not imply that they are willing to invest consistent sums in one company and bear such a high risk. Furthermore, the literature observes that giving backers the possibility to invest relatively small sums contributes to mitigate their perception of the investment risk (Lukkarinen et al., 2016).

For what concerns the high funding target, an issue of legitimacy and expectations may be raised; in fact, the higher the funding target, the higher the expectations of the crowd. If the presentation of how the startup is going to make use of the funds collected is not convincing (because the firm does not seem to be able to make a fruitful use of the money or if it has expectations which go far beyond its capabilities), then the crowd is likely not to trust the firm in the first place.

Nonetheless, the characteristics of the firm cannot be considered completely irrelevant for the negative outcome of campaigns. The absence of internal capabilities of financial soundness or of a significant sustainability orientation still can cause the campaign to be unattractive. To conclude, we can say that the first hypothesis is confirmed by the empirical evidence collected and that the first model assumes the following form:

$PR^*S^*KR^*RS + S^*KR^*KA^*RS \rightarrow \text{Success equity crowdfunding.}$

Where “*” stands for logical AND, “+” stands for logical OR and “ \rightarrow ” is logical link.

The second hypothesis is also confirmed, and makes the second model assume the following form:

$\sim SN^*MI^*FT^* \sim NF \rightarrow \sim \text{Success equity crowdfunding}$

Where “ \sim ” stands for logical NOT.

6 | CONCLUSIONS

The rapid spread of equity crowdfunding regulations and the growth of its market allow an increasing number of entrepreneurs to raise

funds for their startups; however, previous studies highlight that only few of them succeed in financing their startups through this tool (Piva & Rossi-Lamastra, 2018; Troise et al., 2020, 2021). Our study has important practical implications for entrepreneurs. It is crucial for them to understand which elements of SBM and the characteristics of the campaign influence the success of entrepreneurial projects. Knowing the best configurations of conditions that guide investor participation in startup financing through equity crowdfunding allows entrepreneurs to define specific strategies for both their companies' business model and the design of the campaigns.

Our study aims to explore the key role assumed by SBM for the success of equity crowdfunding campaigns, an aspect that has been neglected in the current literature. This paper contributes both to the debates on the success drivers of equity crowdfunding campaigns and to the growing intersection between crowdfunding and sustainability (Böckel et al., 2021; Mochkabi & Volkmann, 2020).

This research aimed at examining how the selected elements of a SBM (Profits, Planet, People, Key Resources, Key Activities, and Revenue Streams) positively affect an equity crowdfunding campaign outcome and whether the opposite result may be caused by a different set of campaign-related conditions (Social Networks, Minimum Investment, Funding target, and Number of Financials). Leveraging the information gathered thanks to the literature review, some configurations of conditions were identified that may lead to the success or failure of equity crowdfunding campaigns. Generally, the results of the analysis of conditions affecting both successful and unsuccessful campaigns resulted to be in line with the existing literature and the predictions made thanks to them. Acquiring knowledge on the factors affecting the success or failure of a crowdfunding campaign is important to allow startups with SBM to better understand how to improve campaign success rates and be able to make full use of this type of alternative financing option. In fact, given the structural issues affecting the Italian entrepreneurial environment (e.g., startups and SMEs funding gap, insufficient levels of state aid for entrepreneurship), equity crowdfunding may represent an important tool to be exploited by sustainability-oriented firms in Italy, as well as in other countries.

This field of research is still very limited, and this research aims to bring a contribution to it. The results of this study offer insightful models that may inform the practice of fundraising via this alternative source of funds. Our results may provide practical implications for entrepreneurs aimed at launch equity crowdfunding campaigns and also for platform managers promoting the best conditions for projects in their platforms. The latter, given the core business of the platforms, aims to ensure that published campaigns can be effective and successful. Hence, they pay particular attention to the successful drivers and to guide entrepreneurs in the definition of the elements to disclose in their projects to increase their performance during the campaign.

Finally, our results may prove interesting to policymakers, governments, and public agencies. These stakeholders are actively involved in supporting the sustainable practices of companies and in defining specific policies to increase their adoption by companies. The importance of SBM elements assumed in equity crowdfunding reveals that

these actors could further stimulate the adoption of sustainable practices and encourage companies to embrace sustainability. In this sense, they may promote more dedicated programs focused on sustainability to guide the future trajectories of companies.

6.1 | Limitations and avenues for future research

This study is subject to some research limitations which represent opportunities for future research. First, it is important to highlight that the number of available and eligible cases traceable in the Italian equity crowdfunding market is quite limited. Indeed, the phenomenon of firms with SBMs is a relatively young one and some more time may have to pass to substantially increase the empirical evidence about them. As more data become available, we aim to extend this research to confirm our results by focusing on larger samples and—at the same time—the investigation of other countries represents an interesting opportunity to compare the results with other contexts where equity crowdfunding is relevant. Second, even though the methodology adopted is appropriate for the number of cases considered, a larger number of cases may allow for a more accurate analysis. In fact, a requirement for employing the fsQCA methodology is to consider several conditions that are significantly lower than the number cases considered. That is why a larger sample of cases may allow for the study of a larger number of variables and may lead to more accurate results. Another limitation of the study lies in that the research is based on data publicly available in the selected equity crowdfunding platforms; as noted by De Crescenzo and colleagues, “available” data are not always the most relevant data for addressing research questions especially if not accompanied by additional data coming from interviews or questionnaires (De Crescenzo et al., 2020). Finally, fsQCA does not allow to find possible causal sequencing among the antecedent conditions related to the relevant outcomes (De Crescenzo et al., 2020). Therefore, as it was done in the case of the negative outcome of a campaign, any ordering of causes can only be guessed.

ACKNOWLEDGEMENTS

Open Access Funding provided by Università degli Studi di Trento within the CRUI-CARE Agreement.

CONFLICT OF INTEREST

The authors have declared no conflict of interest.

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How to cite this article: Caputo, A., Schiocchet, E., & Troise, C. (2022). Sustainable business models as successful drivers in equity crowdfunding. *Business Strategy and the Environment*, 31(7), 3509–3522. <https://doi.org/10.1002/bse.3102>