

# Equity and Reward Crowdfunding: A Multiple Signal Analysis

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## Abstract

This paper aims to analyse the success signals of initiatives through equity and reward crowdfunding, the two typologies most used by start-ups and SMEs. This article discusses and compares these two models, highlighting the main differences and similarities, by analyzing the factors that influence the success of initiatives through crowdfunding, measured both in terms of amount of funding raised and number of investors that funded the initiatives. The focus is on three sets of signals, venture quality (human capital, information about the establishment and the status of the initiatives), the level of information the company provides to reduce the degree of uncertainty and campaign quality. Using two distinct datasets, one of 235 equity-model initiatives and one of 274 reward-model initiatives, in both cases analyzing projects that have reached (or exceeded) the funding goal, it turns out that venture quality affects in both types, though distinctly, in particular in the reward model play an important role the awards, in addition to the rounds and the tutors (the latter two also present in the equity model), which constitute the status information of the company, while the information about the establishment and the human capital affects only the equity model. Equally for the equity model affects the level of information to reduce uncertainty, while campaign quality in both types seems to have a very slight impact.

**Keywords:** equity crowdfunding, funding, investors, multiple signal analysis, reward crowdfunding, SMEs, start-up

## 1. Introduction

### 1.1 Background the Problem

The “crowdfunding phenomenon” has had a significant impact on the world economy and significant implications for traditional funding systems and a multitude of stakeholders.

After the banking system crash in 2008 (Yamen & Goldfeder, 2015), general economic health had an impact on small-business finance (Cumming, 2012).

Crowdfunding has begun to receive the attention of world institutions in the post-crisis period and the resulting contraction in credit supply, so-called *credit crunch*<sup>1</sup> (De Buysere, Gajda, Kleverlaan, & Marom, 2012; Giudici, Nava, Rossi Lamastra, & Verecondo, 2012). This mechanism has begun to be seen as a concrete source of funding in response to the scarcity of funds by small and medium-sized enterprises, and especially the increasing difficulties, particularly for young start-ups, in obtaining financial resources from banks, venture capitalist and business angel.

In recent years, alternative finance is playing an important role as an opportunity to boost economic recovery, highlighting particularly significant numbers, as evidenced by the world’s leading benchmarks and reports: in America (Wardrop, Rosenberg, Zhang, Ziegler, Squire, Burton, Hernandez, & Garvey, 2016) there is an increase in transaction volume through online alternative financial platforms of \$ 36.49 billion, an increase of 212% over 2014 (\$11.68 billion), while in Europe (Wardrop, Zhang, Raghavendra Rau, & Gray, 2015) amounted to € 3 billion (precisely €2.957) in 2014 (+144% compared to 2013), and in particular it is noted that alternative financing in the UK, including crowdfunding, is estimated has provided working capital in 2014 for 7.189 SMEs, equivalent to 2,4% of bank lending to businesses (Bone & Baeck, 2015).

Crowdfunding sometimes also identified as a new form of microfinance (Bradley & Luong, 2014), is pushing the traditional banking system (Vassallo, 2014) and represents a new trend in alternative finance (Manchanda & Muralidharan, 2014). The financial innovation represented by this form of funding through the crowd (Brüntje & Gajda, 2016) has encouraged the birth and development of several start-ups that have found a favorable ground.

This new type, through an open call on online platforms (Mollick, 2014; Kleemann, Voß & Rieder, 2008), has a key role in start-up financing (Ley & Weaven, 2011), being a particularly relevant tool in the pre seed and seed stage (Manchanda & Muralidharan, 2014).

Through crowdfunding portals, entrepreneurs can propose projects and require the necessary funds without having to seek venture capital or other traditional sources of investment (Mollick, 2014) and without the need for traditional financial intermediaries, being able to receive support directly from the crowd of funders (crowdfunders).

Technological advances are undermining the traditional European banking model (Vassallo, 2014), and in this context, this “new” mechanism, potentially disruptive compared to traditional funding systems (Cordova, Dolci, & Gianfrate, 2015), is emerging as an increasingly widespread model used by such entrepreneurs or aspirants.

This paper looks at successful funded initiatives through equity-based and reward-based crowdfunding types launched by companies already set up and potential start-ups that aim at becoming enterprises in the short term. In fact, due to their nature, these two crowdfunding models, unlike donation-based and lending-based models, are the most used methods of start-ups both in launching and expanding or consolidating. Below is a classification of the above four typologies, making a suitable matrix (Tab.1). It is related to the growth rate on the market of the different types of crowdfunding and the ability of the same four forms to support innovation.

Table 1. Matrix of the four kinds of crowdfunding

		GROWTH RATE ON THE MARKET	
		<i>Low</i>	<i>High</i>
SUPPORT FOR INNOVATION	<i>High</i>	<b>EQUITY</b>	<b>REWARD</b>
	<i>Low</i>	<b>DONATION</b>	<b>LENDING</b>

Equity-based and Reward-based forms have a high degree of sustainability towards innovation, understood as the ability to support and promote the spread of innovations (Tani, Papaluca & Sasso, 2019). The two models, in fact, represent considerable support for start-uppers both in the market launch of their business or test of the idea and subsequent developments of the business initiative. The two types are well-suited to supporting the innovative process by the founder, who can, for example, make prototypes or offer innovative outputs / pre-sale products (rewards) or develop new technologies and expand the company (equity). Moreover, the equity-based model, depending on the country of reference, can pursue the purpose of innovative start-up support. Instead, donation and lending models have a low ability to support innovation as they pursue other goals (donations for solidarity and interest-rate loans, respectively). As for the growth rate of the market, instead, as reported by the main statistics and global reports, the lending model and the reward model have experienced significant growth in recent years, particularly the first has also become the most representative in terms of market volume of the four types (with over \$25 billion in 2015). Growth is still slow compared to the other two types, equity crowdfunding, which more and more countries are considering introducing with specific regulations.

Two distinct datasets have been used in this paper, one for projects funded through the equity-model, consisting of 235 initiatives proposed on two platforms, and one for projects funded through the reward-model, consisting of 274 initiatives proposed on just one platform. The focus is on the factors that have influenced both the total amount of funding obtained and the number of final funders. Three sets of information and signals from the initiative were analyzed, venture quality, the level of information (to reduce the degree of uncertainty) and campaign quality, in order to evaluate their impact on the final funding and investors. The hypotheses have been developed and tested in relation to each type of information, as will be explained below in the following paragraphs, and finally a comparison of the initiatives funded through the two types of crowdfunding in question was made. The purpose of this work is to present an empirical analysis of both equity-crowdfunding and reward-crowdfunding, contributing to the current debate on the signals and attributes of initiatives.

### 1.2 Prior Literature

An increasing number of academics have recently begun to be interested in alternative sources of funding, including crowdfunding. This mechanism of fundraising, although not yet very simple in its use and with strong

criticism, has become a highly regarded tool by entrepreneurs and enterprises, who increasingly resort to it. This has attracted attention from economics and entrepreneurial scholars, given the implications of new venture creation and business growth.

In fact, several authors have highlighted the importance of crowdfunding for start-ups launching, representing a new paradigm in start-up financing (Manchanda & Muralidhara, 2014; Ley & Weaven, 2011) able to fill the *funding gap* for the initial stages (Lavinsky, 2010; Ley & Weaven, 2011).

Crowdfunding is relatively recent and the main contributions to the literature on this subject are still exiguous and exploratory. Equity Crowdfunding (Vismara, 2016; Vulkan, Åstebro, & Sierra, 2016) represents a constantly evolving field.

Most studies are the first empirical attempts and have analyzed the determinants of the success or failure of crowdfunding campaigns (Mollick, 2014; Ahlers, Cumming, Günther, & Schweizer 2015; Cordova et al., 2015). Other scholars focused on the geographical location of the projects (Agrawal, Catalini, & Goldfarb, 2011, 2015), on the various types of crowdfunding (Belleflamme Lambert & Schwienbacher, 2013, 2014; Cholakova & Clarysse, 2015; Pierrakis & Collins, 2013), and business models of platforms (Cumming, Leboeuf, & Schwienbacher, 2014; Troise, 2019a).

With regard to the equity model, recent contributions have placed emphasis on favorite options for entrepreneurs in the field of Equity Crowdfunding rules, analyzing *trade off* regulation - deregulation (Cumming & Johan, 2013), and legislative scenarios (Hopkins & Hopkins, 2013; Dorff, 2014; Figliomeni, 2014; Hogan, 2014).

Belleflamme et al. (2014) analyzed reward (pre-ordering) and equity (profit-sharing) models, comparing utility and benefits for users, while a recent contribution by Cordova et al. (2015) highlighted the determinants of the success (or failure) of crowdfunding reward campaigns focusing exclusively on technology projects.

In literature there are different contributions that, through the *signaling theory* (Spence, 1973), have analyzed the signals that push investors to fund determined entrepreneurial initiatives. The types of information that guide the funders in their choices vary depending on the nature of the company and the type of investor. The main references in the literature have focused attention on start-up signals, characterized by a young age and a high infant mortality rate, that induce business angels and venture capitalists to fund them (Cosh & Cumming, 2009; Robb & Robinson, 2014). There is little knowledge, instead of the signals that drive small investors, which unlike the two categories mentioned above, have no experience or even the tools needed to properly evaluate projects, or that would require high costs (Agrawal et al., 2011), and therefore there is a high risk of financing initiatives in a less rational way sometimes without considering economic and financial parameters.

There are little contributions to the signals in the context of crowdfunding are limited to the equity-based type, (i.e. Ahlers et al., 2015; Lukkarinen, Teich, Wallenius, & Wallenius, 2016; Piva & Rossi-Lamastra, 2018; Block, Hornuf & Moritz, 2018; Polzin, Toxopeus, & Stam, 2018; Vismara, 2018; Troise, 2019b). And also the number of contribution that have examined the signals with reference to start-ups funded by a reward based model (i.e. Mollick, 2014; Frydrych, Bock, Kinder, & Koeck, 2014; Kromidha & Robson, 2016; Courtney, Dutta, & Li, 2017; Kunz, Bretschneider, Erler, & Leimeister, 2017; Steigenberger, 2017) are little.

In equity crowdfunding, in particular, a further aspect that has been investigated concerns the motivations and incentives (financial and non) underlying the decisions to invest in a context of equity crowdfunding, whose financial returns play a primary role (Cholakova & Clarysse, 2015).

Ahlers et al. (2015) analyzed the effectiveness of the signals used by entrepreneurs, which affect the success probabilities of fundraising. The authors focus on *venture quality*, such as human capital, social capital and intellectual capital, and the level of uncertainty that induce investors to engage financial resources in a system such as equity crowdfunding. This recent contribution highlights the importance of the level of uncertainty for potential investors and the importance of human quality, while the remaining two categories (intellectual and social capital) have shown a minimal or not significant impact.

Starting from pre-existing literature, this paper is aimed at identifying the signals that affect the funding raised and the investors involved and is also the first to refer to start-ups funded through reward-based crowdfunding. The analysis continues with the identification of information channels and the study of signals both in the reward-based and equity-based contexts, and by comparing the two types.

### 1.3 Hypotheses Development

The financing of projects is characterized by high *information asymmetries* and possible *adverse selection* and *moral hazard* problems (Belleflamme et al., 2014). In fact, entrepreneurs have information about the initiative

that they might not reveal to the funders. This is mainly the case with small investors, as in the case of *crowdfunders*, since the gathering of information about the initiatives and their status are particularly difficult to find and above all to be evaluated. Another problem emerging in funding contexts through crowdfunding is the lack of clarity on the progress and subsequent steps of the initiatives after being funded. Trying to limit some problems related to transparency and clarity, various crowdfunding platforms, both equity and reward based, are asking for more information to proponents of projects, such as the use of funds, timing for rewards (in the case of reward-model) and the status of the company (in the case of equity-model). Some regulators, of some countries, have imposed some obligations on due diligence or information (i.e. Consob, the Italian regulator) which has provided for the obligation of a Business Plan for companies that intend to offer a public offering through an on-line portal, thus providing a useful tool for external investors.

In the case of equity crowdfunding, entrepreneurs have often been able to raise substantial sums of funding through various portals (such as ASSOB), as analyzed by Ahlers et al. (2015), highlighting how investors have somehow managed to interpret information and venture quality signals. With regard to reward crowdfunding, it is often noticed that companies do not have an adequate level of information (Courtney et al., 2017) and this is often translated into a limited number of successfully funded projects, as can be seen, for example, by analyzing the “technology” category, used in this type of study because these projects aim at becoming long-lasting potentially enterprises (Cordova et al., 2015). In fact, considering the data of the major reward-based platforms at international level such as Kickstarter (one of the first in the United States) and Ulule (one of the first in Europe), there is a success rate in the Technology category, respectively below 20% (precisely 19.70%) and 43%.

In this uncertainty situation, the signals deriving from the observable features of the companies play a significant role for the funders (Stuart, Hoang, & Hybels, 1999; Ahlers et al., 2015), although not all company information are a means to reduce the information asymmetries, as often the qualities and potential of enterprises, in several young start-ups, are not directly observable and easy to grasp (Spence, 1973; Busenitz, Fiet, & Moesel., 2005).

This paper analyses the signals that drive investment decisions from funders approaching both an equity-based and reward-based context. Starting from the first contributions in the literature, some information sets are analyzed which allow companies to have a positive response from the crowdfunding campaign, both in terms of funding obtained and in the number of investors involved. These two elements, which are associated with the success of projects using this funding mechanism (Ahlers et al., 2015), are the dependent variables with which the independent variables are connected (Fig. 1).

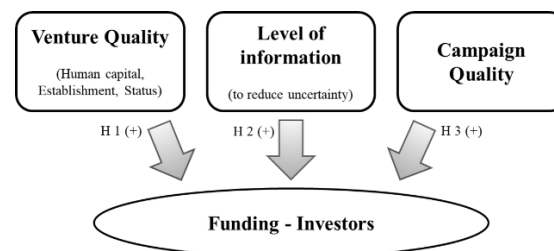


Figure 1. The success factors that determine the amount of funding obtained and the number of investors

The success of the initiatives, in fact, according to the pre-existing literature, is determined by a series of indications that lead the funders to invest, with reference to the characteristics of the entrepreneurial initiative and economic-financial information. Starting from the contribution of Ahlers et al. of 2015, referring exclusively to equity-based crowdfunding, where the determinants of success were analyzed, considering the level of uncertainty (equity share and financial projections) and the venture quality (intellectual capital, human capital and social capital) both in funded and not-funded projects (*fully funded* and *not fully funded*), it is argued in this paper that three sets of signals affect the level of funding obtained and the number of investors involved, analyzing both successfully funded companies through equity crowdfunding and reward crowdfunding.

The first set is represented by *venture quality*, which is made up of information and documents provided by entrepreneurs, providing information on the characteristics of the company (Baum & Silverman, 2004; Ahlers et al., 2015). This category includes:

- *Human capital*, represented by the *team* (members of the company or initiative being established, including CEOs and management teams) and *staff* (people that work for the company or collaborate but are not part of the team). Human capital is an important element for business strategies (Baum, Locke, & Smith, 2001)

and is associated with their success (Doms, Lewis, & Robb, 2010; Unger, Rauch, Frese, & Rosenbusch, 2011; Ahlers et al., 2015).

- *Information on the establishment* of the company (henceforth *company establishment information*), represented by the *years of activity* (since the establishment of the enterprise) and the *innovation* of the activity carried out (whether it is innovative or not, whether it is innovative or not, whether the main object is traditional or high-innovative activity<sup>2</sup>). The nature of enterprise plays a significant role in investor financing choices, as well as the years when the company operates in a business (Ahlers et al., 2015). In the reward-based context, there is also an indication of the establishment of the company or not, as these are not companies that are certainly already set up as in the case of Equity Crowdfunding, as the use of this financing model can be used by both companies and entrepreneurs or aspirants.
- *Information on the status* of the company (henceforth *company status information*), represented by previous funding *rounds* (if the company has previously concluded round or not), the *number of rounds, awards* (if the company received prizes, participated and / or won business plan competition, and other types of awards), *tutors* (the number of subjects such as tutor, mentor, business angels or incubators that have supported or still support the initiative and/or also recommended it, until the launch of the crowdfunding campaign). This type of information represents an element that highlights the quality of the business and allows funders to receive news about the trend and evolution of society, and awards are a sign of the Company's activity (Ahlers et al., 2015).

With reference to this first category, the following two hypotheses are formulated:

**Hypothesis 1:** higher venture quality, represented by human capital (a), company establishment information (b) and company status information (c), has a positive effect on the amount of total funding raised.

**Hypothesis 2:** higher venture quality, represented by human capital (a), company establishment information (b) and company status information (c), has a positive effect on the number of investors involved.

The second category of signals is represented by the *level of information* the company provides to reduce the degree of uncertainty that characterizes the initiative, allowing investors (subscribed to the crowdfunding platform) to better evaluate launched initiative. In this category falls:

- *Equity share* represented by the equity share that the company makes available to new investors (and therefore future shareholders who will subscribe to the company's equity capital with relative risks) through the call on specific equity crowdfunding platforms. A quality signal is represented by the corporate share held by entrepreneurs, correlated with the value of the company (Ahlers et al., 2015). The amount of equity share offered is a signal that allows investors to know the level of the shares that the shareholders and entrepreneurs retain after an offering and the power they hold.
- *Business plan*, the presence of a business plan by the company, which identifies strategies and economic and financial elements, is an instrument that can support investors to analyse risks and opportunities (Mason & Stark, 2004).

With reference to this second category, the following two hypotheses are formulated:

**Hypothesis 3:** higher level of information (to reduce the degree of uncertainty) has a positive effect on the amount of total funding raised.

**Hypothesis 4:** higher level of information (to reduce the degree of uncertainty) has a positive effect on the number of investors involved.

The last category is represented by *campaign* (of crowdfunding) *quality*, which in literature are considered elements positively related to the success of the initiatives. Are included in this category:

- *Updates* and *comments*, both the number of updates made by the promoters of the initiative (founders) and the comments made by investors (funders) are quality signals associated with a successful outcome of crowdfunding campaigns (Mollick, 2014; Cordova et al., 2015).
- *Mean Contribution* and *number of funders*, both the mean amount of the contribution of each funder and the number of the same, are indicative of the level of participation and relevance in helping a project succeed (Cordova et al., 2015; Mollick, 2014).

With reference to this third category, the following two hypotheses are formulated:

**Hypothesis 5:** higher campaign quality has a positive effect on the amount of total funding raised.

**Hypothesis 6:** higher campaign quality has a positive effect on the number of investors involved.

## 2. Data and Methodology

### 2.1 Samples Construction and Data Collection

We have made two distinct datasets, one for companies funded by equity crowdfunding and the other by reward crowdfunding.

Regarding the first, data from companies that were successfully funded through two of the most well-known crowdfunding portals, Crowdcube (UK) e Companisto (Germany), were collected, referring to the totality of projects funded from the origin of platforms (respectively from 2011 for the first and 2012 for the second) until the end of 2015 for the first and beginning of 2016 for the second. The sample thus obtained is made up of 235 companies (respectively 173 from the first platform and 62 from the second). The currency used was the euro, therefore the amounts of funded projects through the Crowdcube (UK) platform were converted from pound sterling (GBP) into euros in accordance with the exchange rate at the end of the campaign, while in the case of the amounts of the projects on the Companisto (Germany) platform they were already in euros.

Referring instead to the reward-based model, data of successful projects were collected on the Kickstarter (USA) platform, one of the world's leading crowdfunding portal, considering only the category Technology and referring to 2012 and 2013. La scelta di limitare il campione a questa singola categoria è dovuta al fatto che riguarda sia le società già stabilite che le potenziali start-up che, tenuto conto della natura dell'iniziativa proposta, sono destinate ad essere stabilite in un breve lasso di tempo (a differenza del crowdfunding di quote in cui le società devono già essere stabilite e offrire azioni proprie); while choosing to refer to two years alone is due to the amplitude of the number of projects presented over the years in the reward-model category, relatively much larger than the equity-model portals in terms of number of published initiatives, and the difficulty in finding data with completeness. The data collection was performed as a random choice of projects submitted between 1 January 2012 and closed by 31 December 2013. The sample thus obtained is 274 successfully funded projects through a reward model (the currency expressed in dollars for this type has been maintained since the system comparison is on volumes).

In addition to the information published and visible within the platforms, additional company data, not available on the portals, was obtained through the websites of the same companies, the official Business Registers databases (i.e. EBR) and the major search engine and start-up information sites (i.e. Crunchbase, AngelList, etc.), to ensure the completeness of dataset data.

Appropriate identification of research participants is critical to the science and practice of psychology, particularly for generalizing the findings, making comparisons across replications, and using the evidence in research syntheses and secondary data analyses. If humans participated in the study, report the eligibility and exclusion criteria, including any restrictions based on demographic characteristics.

### 2.1 Variables' Description

We are listed and described the variables used as follow.

We have identified two dependent variables used to measure success:

- 1) *Ln Funding*: the logarithmic transformation (natural logarithm) of the total funding raised in the initiatives.
- 2) *Ln Investors*: the logarithmic transformation (natural logarithm) of the number of investors which contributed to the success of the initiative.

We have identified the independent variables in the following ones.

- 1) *Team*: the number of members of the team that proposes the initiative.
- 2) *Staff*: the number of staff working for or collaborating with the Company.
- 3) *Years of activity*: the number of years in which the company has been active since its founding.
- 4) *Innovation*: dichotomous variable (0,1) that indicates whether the nature of an initiative is innovative or not.
- 5) *Round of funding*: dichotomous variable (0,1) variable that indicates the presence or not of previous funding rounds obtained from the initiative until the launch of the crowdfunding campaign.
- 6) *N° round of funding*: the number of funding rounds that were obtained from the initiative until the launch of the crowdfunding campaign.
- 7) *Awards*: the number of awards or various prizes/acknowledgments received from the initiative so far.
- 8) *Tutor*: the number of subjects such as tutor, mentor, business angels or incubators that supported or even

advised the initiative, until the launch of the crowdfunding campaign.

- 9) *Equity share\**: the share of equity, expressed in percentage terms, that the company offers.
- 10) *Business Plan*: dichotomous variable (0,1) that indicates the presence or not of a business plan that specifies the future perspectives of the initiative and how the funds will be used.
- 11) *Updates*: the number of updates on the project that have been given by the crowdfunder, during the campaign.
- 12) *Comments*: the number of comments present during the crowdfunding campaign, written by the funders, and which the crowdfunder may or may not have responded.
- 13) *Establishment of the company\*\**: dichotomous variable (0,1) that indicates whether a company is established or not yet.
- 14) *Ln Mean Contribution*: the logarithm of the mean amount contributed by each funder.
- 15) *Funders*: the number of funders who funded the initiative.

\* variable present only in the crowdfunding equity based.

\*\* variable present only in the crowdfunding reward based.

The tables 2 and 3 are reported the summary statistics, respectively, for Equity and Reward crowdfunding.

Table 2. Summary statistics - equity crowdfunding

Variables	Obs	Mean	Std. Dev.	Min	Max
Ln Funding	235	12.08744	1.115421	9.181941	15.83041
Team	235	3.434043	1.960865	1	13
Staff	235	3.32766	8.605745	0	110
Years of activity	235	2.617021	2.412159	1	15
Innovation	235	0.6765957	0.468774	0	1
Round of funding	235	0.8680851	0.3391205	0	1
N. round of funding	235	1.544681	1.216484	0	7
Awards	235	2.140426	1.821484	0	10
Tutor	235	1.92766	1.571338	0	9
Equity share	235	17.83718	13.4056	1.07	100
Business Plan	235	0.7361702	0.4416488	0	1
Updates	235	13.37872	11.37874	1	97
Comments	235	35.69362	37.57829	0	271
Ln Mean Contribution	235	6.979246	0.9558221	4.869136	11.3022
Funders	235	317.3872	414.9798	1	3503
Ln Investors	235	5.108193	1.185419	0	8.161375

Table 3. Summary statistics - reward crowdfunding

Variables	Obs	Mean	Std. Dev.	Min	Max
Ln Funding	274	9.785209	1.752531	4.94876	14.89592
Team	274	2.182482	1.918558	1	20
Staff	274	2.372263	2.732272	0	22
Years of activity	274	1.343066	2.702429	0	20
Innovation	274	0.5656934	0.4965726	0	1
Establishment of the company	274	0.5255474	0.5002606	0	1
Round of funding	274	0.5036496	0.5009016	0	1
N. round of funding	274	0.6934307	0.8435234	0	4
Awards	274	0.9525547	1.195816	0	12
Tutor	274	0.9562044	1.413533	0	11
Business Plan	274	0.3284672	0.4705151	0	1
Updates	274	20.28832	18.6591	0	141
Comments	274	239.1752	895.5592	0	10593
Ln Mean Contribution	274	4.384099	0.9539665	1.857717	7.647356
Funders	274	696.9964	1552.251	4	12840
Ln Investors	274	5.40111	1.465537	1.386294	9.460321

*Note.* These tables contain descriptive statistics on successful funded equity and reward crowdfunding projects (dependent variable: Funding and Investors). They include the mean, standard deviation (Std. Dev.), minimum (min) and maximum (max) values for each variable used.

In the table 4 and 5 are reported the correlation matrix and VIF scores, respectively, for Equity and Reward crowdfunding.

Table 4. Correlation matrix and VIF scores - Equity crowdfunding

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	VIF
1 Ln Funding	1.0000															
2 Team	0.3269	1.0000														1.20
3 Staff	0.3336	0.1017	1.0000													1.31
4 Years of activity	0.0367	0.0353	0.1971	1.0000												1.22
5 Innovation	0.3995	0.1580	0.0899	-0.0306	1.0000											1.27
6 Round of funding	0.3149	0.1764	0.1042	0.0529	0.1875	1.0000										1.50
7 N. round funding	0.5862	0.2749	0.2956	0.2636	0.3102	0.4753	1.0000									2.74
8 Awards	0.5975	0.2258	0.3534	0.2788	0.2086	0.3414	0.6596	1.0000								2.36
9 Tutor	0.6623	0.3209	0.3007	0.1347	0.2988	0.3670	0.7071	0.6605	1.0000							2.75
10 Equity share	0.0488	-0.0328	-0.1038	-0.0815	-0.0947	0.0585	0.0034	0.0192	0.0129	1.0000						1.08
11 Business Plan	0.4872	0.1772	0.1128	0.0371	0.3705	0.4514	0.4038	0.3491	0.3788	0.0512	1.0000					1.61
12 Updates	0.1354	0.1311	0.0542	0.1395	0.0183	0.1514	0.1731	0.2912	0.1605	0.0859	0.0200	1.0000				1.21
13 Comments	0.2964	0.2166	0.2011	-0.0697	0.0096	0.0870	0.1946	0.2713	0.3154	-0.0067	0.0142	0.2235	1.0000			1.60
14 Ln Mean Contribution	0.3529	-0.0923	0.0775	0.1295	0.1136	0.1800	0.2060	0.1525	0.1314	0.1285	0.3089	-0.0053	-0.3420	1.0000		1.57
15 Funders	0.6208	0.3384	0.3658	0.0047	0.2227	0.1259	0.4213	0.4251	0.5446	-0.0208	0.2031	0.0336	0.5024	-0.2697	1.0000	2.27

Note. VIF, variance inflation factor;  $p \leq .05$ ; Mean VIF=1.69 - There are no heteroskedasticity (Breusch-Pagan test) or autocorrelation (Durbin Watson test).

Table 5. Correlation matrix and VIF scores - Reward crowdfunding

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	VIF
1 Ln Funding	1.0000															
2 Team	0.1966	1.0000														1.33
3 Staff	0.3376	0.1687	1.0000													1.27
4 Years of activity	0.2034	0.3115	0.2977	1.0000												1.73
5 Innovation	0.4352	0.1373	0.1682	0.1114	1.0000											1.51
6 Stato iniziativa	0.4492	0.1783	0.3441	0.4677	0.3176	1.0000										1.85
7 Round of funding	0.5583	0.1327	0.3255	0.3509	0.3672	0.5770	1.0000									3.64
8 N. round of funding	0.5034	0.1886	0.3104	0.3693	0.3194	0.4961	0.8176	1.0000								3.62
9 Awards	0.4930	0.4460	0.3563	0.5310	0.3908	0.4582	0.5170	0.5629	1.0000							2.43
10 Tutor	0.6430	0.2461	0.3163	0.2053	0.3433	0.3901	0.4762	0.5540	0.4257	1.0000						2.99
11 Business Plan	0.5048	0.2458	0.3205	0.1876	0.5187	0.4311	0.4922	0.4669	0.4640	0.5449	1.0000					2.01
12 Updates	0.5299	0.1195	0.1464	0.0679	0.3235	0.2655	0.3015	0.2784	0.2735	0.4020	0.3338	1.0000				1.32
13 Comments	0.4302	0.1548	0.1856	0.0500	0.2050	0.1813	0.2153	0.2688	0.2223	0.6095	0.2478	0.3151	1.0000			2.66
14 Ln Mean Contribution	0.5484	0.1241	0.1896	0.1955	0.2153	0.2932	0.3507	0.3145	0.2059	0.2490	0.2796	0.2383	0.0745	1.0000		1.34
15 Funders	0.5562	0.1692	0.2225	0.0508	0.2492	0.2308	0.2859	0.3357	0.3415	0.6655	0.2873	0.3253	0.7664	-0.0453	1.0000	3.39

Note. VIF, variance inflation factor;  $p \leq .05$ ; Mean VIF=2.22 - There are no heteroskedasticity (Breusch-Pagan test) or autocorrelation (Durbin Watson test).

As shown in the table 4, the average Vif is 1.69 (below the conventional threshold of 5-6) and the single VIF values (maximum VIF 2.75) are below the critical thresholds (conventionally 10), so there are no problems related to multicollinearity in estimates. In the case instead of the dependent variable Ln Investors (Model 3), the average Vif is equal to 1.59 and even in this case values are below the critical thresholds.

As shown in the table 5, the average Vif is 2.22 (below the conventional threshold of 5-6) and the single VIF values (maximum VIF 3.64) are below the critical thresholds (conventionally 10), so there are no problems related to multicollinearity in estimates. In the case instead of the dependent variable Ln Investors (Model 4), the average Vif is equal to 2.00 and even in this case values are below the critical thresholds.

### 3. Discussion of Hypotheses and Results

Both with respect to the equity-crowdfunding context and the reward-crowdfunding context, two separate analyses were carried out to test the proposed hypotheses. For both types, the OLS Regression method has been used, since dependent variables (log transformed) follow a normal distribution and there are no problems related to multicollinearity, autocorrelation, or heteroschedasticity (verified by VIF, Durbin Watson and Breusch Pagan test), as described in the tables 4 and 5. In total four models were run, statistically significant (Prob F > 0.0000) and for which are indicated the respective R<sup>2</sup> indices, two on the funding obtained in the two types of crowdfunding and two on the number of investors, always in relation to the two typologies indicated. In this way it is possible, by using common variables, to identify the relevant signals for companies with reference to the received funding and the number of investors (using the same regressors), and to compare the two funding systems.



As regards the amount of funding raised, the two models are proposed and discussed in the tab. 6: Model 1, with reference to Equity crowdfunding (with  $R^2$  equal to 78% and Adj. R-squared 77%) and Model 2, with reference to Reward crowdfunding (with  $R^2$  equal to 76% and Adj. R-squared 75%).

In the equity-based model (Table 6 - Model 1), referring to the first hypothesis, i.e. the correlation of venture quality with the amount of funding, the following variables are significant (while the variables not mentioned are not significant).

Table 6. Model 1 (Equity Crowdfunding) and Model 2 (Reward Crowdfunding): Funding

	Model 1:				Model 2:			
	Funding Equity Crowdfunding				Funding Reward Crowdfunding			
	Coeff.	Std. Err.	t	P>t	Coeff.	Std. Err.	t	P>t
Team	0.0410732	0.0195592	2.10	0.037	-0.0329845	0.0319798	-1.03	0.303
Staff	-0.0010648	0.0046387	-0.23	0.819	0.0241736	0.0219687	1.10	0.272
Years of activity	-0.0398536	0.0159873	-2.49	0.013	-0.0308533	0.0259398	-1.19	0.235
Innovation	0.283731	0.0840342	3.38	0.001	0.1983264	0.1318566	1.50	0.134
Establishment (company)					0.0854661	0.1448167	0.59	0.556
Round of funding	-0.0548557	0.1261653	-0.43	0.664	0.6565335	0.2029862	3.23	0.001
N. round of funding	0.0156981	0.0475646	0.33	0.742	-0.2715971	0.1201888	-2.26	0.025
Awards	0.0963844	0.0294853	3.27	0.001	0.192146	0.0694185	2.77	0.006
Tutor	0.0732482	0.0368755	1.99	0.048	0.1761687	0.0651615	2.70	0.007
Equity share	-0.0003899	0.0027035	-0.14	0.885				
Business Plan	0.2423531	0.1002948	2.42	0.016	0.0999372	0.1606918	0.62	0.535
Updates	0.0035842	0.003377	1.06	0.290	0.0171004	0.0032831	5.21	0.000
Comments	0.0027801	0.0011746	2.37	0.019	-0.0002964	0.0000971	-3.05	0.002
Ln Mean Contribution	0.534456	0.0458468	11.66	0.000	0.7895165	0.0646482	12.21	0.000
Funders	0.0013456	0.0001269	10.61	0.000	0.000515	0.0000632	8.15	0.000
cons	7.062307	0.3301592	21.39	0.000	5.061193	0.2724742	18.57	0.000

Note.  $p < 0.05$ .

*Team* (with a coeff. of 0,0410 which corresponds to an increase of 0,0418 of d.v., we expect about 4,2% increase in funding score, for a one-unit increase in team score) that, although not particularly high, is positively correlated with the funding obtained (considering that this amount may also be rather large size), supporting hypothesis 1a, and hence the role played by human capital; in this case the team is associated as a quality element of the companies, especially considering its composition based on the number (which in most cases coincides with more heterogeneity of the team and therefore it is made up of members with different and complementary characteristics).

*Innovation*, the nature of the initiative, (coeff. 0,2837 corresponding to an increase of 0,3280 of d.v., expecting about 33% increase in funding score, for a one-unit increase in innovation score), represents a significant evidence of the positive correlation with the amount of funding, supporting hypothesis 1b. However, with reference to the other variable of company establishment information, that is *years of activity*, it is, albeit modestly, negatively associated with the funding received (with a coeff. of -0,0398 which corresponds to a decrease of 0,0390 of d.v., we expect about 4% decrease in funding score, for a one-unit increase in years score), a symptom that companies that are in business for several years and decide to offer equity shares can be seen with distrust from investors. In fact, funders can interpret the number of years of activity as a synonym for a business phase that is no longer growing but maturing and likely to decline (some companies have failed in a short period of post-crowdfunded), highlighting a predilection towards start-ups, in particular, innovative and capable of expanding (and with greater scalability), which can guarantee future economic returns. Therefore, hypothesis 1b finds support only with reference to the first variable in question and not even the second one.

The number of *Awards* (coeff. 0,0963 which corresponds to an increase equal to 0,1010 of d.v., expecting about 10% increase in funding score, for a one-unit increase in awards score) and of *tutor* (coeff. 0,0732 corresponding to an increase of 0,0759 of d.v., expecting about 7,6% increase in funding score, for a one-unit increase in tutor score), belonging to category company status information, are positively correlated with the funding obtained, supporting the hypothesis 1 c. Both the awards received and the number of subjects supporting the initiative are two significant signs that funders consider to be quality elements and that in some way express the reputation of the society perceived from the outside.

With reference to the third hypothesis, i.e. the level of information to reduce the degree of uncertainty, there is statistically significant empirical evidence that the presence of *Business Plan* is positively correlated with the

amount of funding received by investors (coeff. 0,2423 corresponding to an increase of 0,2741 of d.v., expecting about 27,4% increase in funding score, for a one-unit increase in business plan score). This supports hypothesis 3.

The third set of information, i.e. campaign quality, is positively correlated, albeit very modestly, with the collected funding, not completely supporting the hypothesis 5. In particular, are signal of quality the number of *funders*, with a little impact (coeff. 0,0013 which corresponds to an increase of 0,0013 of d.v., expecting about 0,13% increase in funding score, for a one-unit increase in funders score), the *mean contribution* (coeff. 0,5344 corresponding to an increase of 0,0053 of d.v., expecting about 0,53% increase in funding score, for a one-unit increase in mean contribution score, or it is also possible to say that for any 10% increase in mean contribution score we expect about 5,3% increase in funding score) and number of *comments* (coeff. 0,0027 which corresponds to an increase of 0,0027 of d.v., expecting about 0,3% increase in funding, for a one-unit increase in comments score), also with a modest impact on the funding received.

In the reward-based model (Table 6 - Model 2), with reference to the first hypothesis, i.e. venture quality, there are statistically significant variables only in company status information, while signs of human capital and company establishment information are not significant. The number of *awards* and *tutor*, as the funded companies through equity-crowdfunding, are positively correlated with funding (respectively: coeff. 0,1921 corresponding to an increase of 0,2118 of d.v., expecting about 21% increase in funding score, for a one-unit increase in awards score: coeff. 0,1761 corresponding to an increase of 0,1925 of d.v., expecting about 19% increase in funding score, for a one-unit increase in tutor score), it is a symptom that even in the reward-based context the awards, the various acknowledgments or prizes received and the number of tutors, constitute a quality signal that encourages and drives investors to fund more the initiative. Surprisingly the presence of previous *rounds of funding* has a very positive effect on the funding received (coeff. 0,6565 which corresponds to an increase of 0,9280 of d.v., expecting about 93% increase in funding score, for a one-unit increase in round of funding score), highlighting how the previous funding rounds have helped funders to have a better perception of the initiative, since it has already been supported earlier and has therefore already received a first (or even more than one) response, unlike companies that for the first time are testing their business and confronting the market; while the increase in the *number of round of funding* received (coeff. -0,2715 corresponding to a decrease of 0,2377 of d.v., expecting about 24% decrease in funding score, for a one-unit increase in number of funding rounds score), has a negative effect on the amount of funding, this is presumably due to the fact that companies that have already received several financing rounds are probably not the best target for a mechanism such as crowdfunding, especially reward based, since funders prefer to support initiatives at the initial stages of their life and support them in launching and spreading, thus highlighting the strong effect of “community”. Hypothesis 1c is therefore partially supported, considering the first three variables indicated (awards, tutors and round of funding), while the funding does not find a positive correlation in the number of rounds.

With regard to hypothesis 3, concerning the level of information, it does not seem significant to have a *Business Plan* in the funders' choice to support a project through crowdfunding reward-based; This is explained by the nature of this typology that, unlike the equity-based model, does not require specific supporting documents, although they may be helpful in the choices, and which seems more suitable for companies that test their business ideas on the market prototypes, thus leveraging community commitment to supporting projects they believe. This is explained by the nature of this typology that, unlike the equity-based model, does not require specific supporting documents, although they may be helpful in the choices, and which seems more suitable for companies that test their business ideas on the market prototypes, thus leveraging community commitment to supporting projects they believe.

Finally, hypothesis 5, in relation to the quality of the crowdfunding campaign, finds a very exiguous support, highlighting a positive correlation with the funding obtained, both the number of *updates* (coeff. 0,0171 which corresponds to an increase of 0,0172 of d.v., expecting about 1,7% increase in funding score, for a one-unit increase in updates score), which has an impact, albeit very small, unlike the equity model (where there was instead a slight impact on the comments), and the *mean contribution* (coeff. 0,7895 which corresponds to an increase of 0,0078 of d.v., expecting about 0,78% increase in funding score, for a one-unit increase in mean contribution score, or also we can say that for any 10% increase in mean contribution score we expect about 8% increase in funding score), while the number of *funders* (coeff. 0,0005 which corresponds to an increase of 0,0005 of d.v., expecting about 0,05% increase in funding score, for a one-unit increase in funders score) and *comments* (coeff. -0,0002 corresponding to a decrease of 0,0002 of d.v., expecting about 0,02% decrease in funding score, for a one-unit increase in comments score) have an irrelevant impact almost null.

As regards the number of investors involved, the following two models are proposed and discussed in the tab. 7:

Model 3 with reference to Equity crowdfunding (with R<sup>2</sup> equal to 71% and Adj. R-squared 69%) and Model 4 with reference to Reward crowdfunding (with R<sup>2</sup> equal to 57% and Adj. R-squared 55%).

Table 7. Model 3 (Equity Crowdfunding) and Model 4 (Reward Crowdfunding): Investors

	Model 3				Model 4			
	Investors Equity Crowdfunding				Investors Reward Crowdfunding			
	Coeff.	Std. Err.	t	P>t	Coeff.	Std. Err.	t	P>t
Team	0.072328	0.0237173	3.05	0.003	0.0376903	0.0357707	-1.05	0.293
Staff	0.0116206	0.0054975	2.11	0.036	0.0324402	0.0245506	1.32	0.188
Years of activity	-0.0517594	0.0195614	-2.65	0.009	-0.0648689	0.0286412	-2.26	0.024
Innovation	0.3706645	0.102584	3.61	0.000	0.2351426	0.1474241	1.60	0.112
Establishment (company)					0.1377832	0.1618502	0.85	0.395
Round of funding	-0.2288393	0.1534395	-1.49	0.137	0.7384779	0.2268061	3.26	0.001
N. round of funding	0.0685346	0.0580214	1.18	0.239	-0.2990083	0.134405	-2.22	0.027
Awards	0.1225324	0.0360397	3.40	0.001	0.3076898	0.0760226	4.05	0.000
Tutor	0.1748987	0.0436769	4.00	0.000	0.3662434	0.0680668	5.38	0.000
Equity share	0.0017078	0.0033073	0.52	0.606				
Business Plan	0.3479588	0.1224128	2.84	0.005	-0.0497918	0.1785901	-0.28	0.781
Updates	-0.0023442	0.0040851	-0.57	0.567	0.0183878	0.0036686	5.01	0.000
Comments	0.006313	0.0013816	4.57	0.000	0.000184	0.0000862	2.13	0.034
Ln Mean Contribution	-0.6310214	0.052879	-11.93	0.000	-0.3714806	0.0688629	-5.39	0.000
cons	8.122646	0.3859589	21.05	0.000	5.708104	0.2915971	19.58	0.000

Note. p<0.05.

In the equity-based model (Table 7 - Model 3), regarding the hypothesis 2, or the correlation of the company's quality with the number of investors, there are the following significant variables (while not mentioned variables are not significant):

*Team* (coeff. 0,0723 which corresponds to an increase of 0,0749 of d.v., expecting about 7,5% increase in investors score, for a one-unit increase in team score) and *staff* (coeff. 0,0116 corresponding to an increase of 0,0116 of d.v., expecting about 1,2% increase in investors score, for a one-unit increase in staff score), are positively correlated with the number of investors involved (although the staff has little impact), thus supporting hypothesis 2a on the positive influence of human capital on the investors involved.

*Years of activity* (coeff. -0,0517 which corresponds to a decrease of 0,0504 of d.v., expecting about 5% decrease in investors score, for a one-unit increase in years score) are negatively related to the number of investors (although the decrease is slight), years of activity are negatively related to the number of investors, as happened with the funding received always with reference to the equity model, while the variable *innovation* (coeff. 0,3706 corresponding to an increase of 0,4486 of d.v., expecting about 45% increase in investors score, for a one-unit increase in innovation score), positively affects the number of investors. Hypothesis 2 b the hypothesis therefore finds only partially support, finding support only in the second variable mentioned.

The number of *Awards* (coeff. 0,1225 which corresponds to an increase of 0,1303 of d.v., expecting about 13% increase in investors score, for a one-unit increase in awards score) and the number of *tutors* (coeff. 0,1748 which corresponds to an increase of 0,1910 of d.v., expecting about 19% increase in investors score, for a one-unit increase in tutor score), positively affect the number of investors involved. Thus, hypothesis 2c is supported on the positive correlation between company status information and number of investors.

With reference to the fourth hypothesis, or the level of information to reduce the degree of uncertainty, there is a positive correlation between the presence of the *Business Plan* and the number of investors involved (coeff. 0,3479 corresponding to an increase of 0,4161 of d.v., expecting about 41,6% increase in investors score, for a one-unit increase in business plan score). This supports hypothesis 4.

Finally, in the equity model, hypothesis 6 is not supported, as the impact of the *comments* is rather small (coeff. 0,0063 which corresponds to an increase of 0,0063 of d.v., expecting about 0,6% increase in investors score, for a one-unit increase in comments score) and the *mean contribution* has a negative impact, although contained (coeff.-0,6310 which corresponds to a decrease of 0,0062 of d.v., expecting about 0,62% decrease in investors score, for a one-unit increase in mean contribution score, or also we can say that for any 10% increase in mean contribution score we expect about 6% decrease in investors score).

In the reward-based model (Table 7 - Model 4), significant variables are present only in venture and campaign quality, rather than in the level of information.

Concerning hypothesis 2, *years of activity* (coeff. -0,0648 which corresponds to a decrease of 0,0627 of d.v., expecting about 6,3% decrease in investors score, for a one-unit increase in years of activity score) are

negatively related to the number of investors (although the decrease is slight), like the equity model, not supporting the hypothesis 2 b, while the hypothesis 2 c, i.e. company status information, is supported with regard to variables *round of funding* (coeff. 0,7384 which corresponds to an increase equal to 1,0925 of d.v., expecting about 109% increase in investors score, for a one-unit increase in round of funding score), with a particularly significant impact, *awards* (coeff. 0,3076 corresponding to an increase of 0,3601 of d.v., expecting about 36% increase in investors score, for a one-unit increase in awards score) and *tutors* (coeff. 0,3662 which corresponds to an increase of 0,4422 of d.v., expecting about 44% increase in investors score, for a one-unit increase in tutor score), while the *number of rounds of funding* is negatively correlated (coeff. -0,2990 corresponding to a decrease of 0,2584 of d.v., expecting about 26% decrease in investors score, for a one-unit increase in number of funding rounds score).

While variables on campaign quality, that are *updates* (coeff. 0,0183 which corresponds to an increase of 0,0184 of d.v., expecting about 1,8% increase in investors score, for a one-unit increase in updates score), *comments* (coeff. 0,00018 corresponding to an increase of 0,00018 of d.v., expecting about 0,02% in investors score, for a one-unit increase in comments score) and *mean contributin* (coeff. -0,3714 which corresponds to a decrease of 0,0037 of d.v., expecting about 0,37% decrease in investors score for a one-unit increase in mean contribution score, or also we can say that for any 10% increase in mean contribution score we expect about 3,7% decrease in investors score) they do not have a significant impact on the number of investors, thus not supporting hypothesis 6, just as the equity model.

#### 4. Conclusions and Implications for Futher Research

This is a first examination of the effectiveness of the signals that determine the success of initiatives through crowdfunding, referring to both the amount of funding received, and the number of investors involved. The contribution is the first to analyze the information with reference to companies that have resorted to equity crowdfunding, and to companies that have resorted to crowdfunding reward.

The data analyzed highlight the importance of venture quality, information on the status of the company, such as the funding rounds (in the reward model), the number of awards received and tutors (common in both types of crowdfunding). In particular, these signals appear to be elements of particular importance in the success of the initiative, since they are identified by investors as information that can influence their decision-making process and consequently are factors to be strongly considered also by those who promote the initiatives, as it is able to influence the success of the campaigns. The awards (prizes, acknowledgments and other various awards) received by the initiatives are a quality factor that can represent a “picture” of what society has been able to do so far. Achieving various awards (including various certificates, winning or participation in competitions), both as regards the equity based and reward based contexts, highlights the successes that the company has achieved so far, and in a sense “certifies” the goodness of the initiative that has already had a positive external validation so far. Therefore, funders are more willing to invest in supporting a company that is having positive feedback.

The presence of tutors is also a very important factor for companies, which can be side by side during their development. This element is affecting both types of crowdfunding and highlights how the tutor’s presence is felt as an “added value” that can drive and support companies on their growth and development path.

Unlike equity crowdfunding, crowdfunding reward-based emphasizes the role of previous funding rounds in the investment process. This is a strong point for companies using this particular type of crowdfunding, as well as an element that can reduce the uncertainty associated with the initiative, and in some way to limit the information asymmetries, taking into regard that the reward model does not request particular levels of information (economic, financial, due diligence, etc.) as in the equity-based model where the portal already performs a certain degree of due diligence. Therefore, for companies that carry out reward-crowdfunding campaigns, being previously funded is a significant signal for funders who perceive a parameter on which to base their decisions, often not having further reference parameters and in some ways supports their choice, also based on subjective and/or non-measurable parameters (commitment, solidarity, etc), while in the equity model this presence is not considered by the funders as a relevant element, probably given the nature of this type of crowdfunding, where more weight is given to several other objective parameters that are being evaluated by investors who will become partners by acquiring equity shares of company, reason why the evaluations and the consequent implications resulting from a choice of a model rather than another, could have a different impact on the sphere of the supporter. The previous funding rounds are not a key element in pushing to fund the initiative in the Equity Model, which could also provide different motivations for investing (Cholakova & Clarysse, 2015), in addition to the so-called “lottery effect”.

Human capital and establishment company information seems to affect only on companies funded through

crowdfunding equity-based (in particular, positively influence teams and innovation, while the years are negatively related). Indeed, unlike the reward-model, more weight is given to the nature of the initiative and the team, which are considered significant information for investors who must decide to invest in companies through online portals.

As regards the level of information the company provides to reduce the degree of uncertainty characterizing the initiative, the presence of a Business Plan is a quality signal positively related both with the funding obtained and the number of investors, only in the case of equity crowdfunding. This document has a “communication” function and its presence is an element on which investors can base their investment decisions, allowing better evaluation of company and analysis of its prospects. This distinction between equity and reward model, with regard to the relevance of the Business Plan, is reflected in the latest regulations introduced over the last few years, concerning the collection of funding through online portals by companies (Macht & Weatherstone, 2014); indeed, in several countries this document is mandatory for equity crowdfunding platforms (and not reward-based).

Lastly, the campaign signals, both for equity and reward model, have a very low, almost null, impact on both the amount of funding and investors.

A previous contribution to the literature on Equity Crowdfunding (Ahlers et al., 2015) highlighted the importance for potential investors of the financial projections and the level of equity offered, while in the present work the equity offered, unlike the presence of a business plan, is not correlated with the two variables that measure the success of the initiative. The importance of the quality of the company is common in both contributions, especially regarding human capital, although in the previous work also the degree of education of board members was considered as a quality element (expressed by the possession of MBA).

The success of initiatives through crowdfunding however is determined by a number of elements, sometimes not measurable and difficult to identify, which push funders to support an initiative rather than another and to a different extent (i.e. in the case of motivations and rewards of non-monetary nature).

This contribution highlights the information perceived as quality signals by the funders, providing valid indications for companies and entrepreneurs in launching funding campaigns; Moreover, this work can provide support especially to *policy makers*, who promote types of funding to support start-ups and entrepreneurs, and make decisions on fund-raising tools.

The informations and the signals are, in fact, elements of reflection by the regulators, which give them useful indications to better guide their actions with the aim of improving user conditions and encouraging the development of initiatives and the use of the funding mechanism through the crowd.

An example is represented by Consob (Italian Authority), that introduced the use of the business plan and drafted the regulation on equity crowdfunding.

Further research developments with reference to the proposed topic may involve replicating the model in other contexts as well as expanding the sample and implementing models with additional variables.

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## Notes

Note 1. Credit crunch is generally termed as a contraction in the supply of credit caused by a fall in capital crunch, by reductions in bank liquidity, or sometimes by a more marked risk aversion of banks in granting loans. This status is an economic condition in which investment capital is difficult to obtain.

Note 2. The term "innovative" does not refer to innovative start-ups, as regulated in Italian law with a specific register and with certain characteristics, but refers to the nature of the company, or whether it is the object of an innovative activity or project; consider, for example, a company that has made a robot or has patented a new type of fuel, which falls under the category "innovation", unlike, for example, a traditional brewery or bar (examples of categories in the Equity Model, in particular in several campaigns on Crowdcube in the UK) seeking to obtain new funding through the crowd in return for participation in the company.

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