UNIVERSITA' DEGLI STUDI DI PADOVA

DEPARTMENT OF ECONOMICS
AND MANAGEMENT "M.FANNO"

MASTER COURSE
IN BUSINESS ADMINISTRATION

MASTER THESIS

"EQUITY CROWDFUNDING: an analysis of
Italian start-ups case-studies"

SUPERVISOR:
CH.MO PROF. FABIO BUTTIGNON

CANDIDATE:
RACHELE PETTAZZONI

ID NUMBER: 1165498

ACADEMIC YEAR 2018-2019

Il candidato dichiara che il presente lavoro è originale e non è già stato sottoposto, in tutto o in parte, per il conseguimento di un titolo accademico in altre Università italiane o straniere.

Il candidato dichiara altresì che tutti i materiali utilizzati durante la preparazione dell'elaborato sono stati indicati nel testo e nella sezione "Riferimenti bibliografici" e che le eventuali citazioni testuali sono individuabili attraverso l'esplicito richiamo alla pubblicazione originale.

The candidate declares that the present work is original and has not already been submitted, totally or in part, for the purposes of attaining an academic degree in other Italian or foreign universities. The candidate also declares that all the materials used during the preparation of the thesis have been explicitly indicated in the text and in the section "References" and that any textual citations can be identified through an explicit reference to the original publication.

Student's signature

_____

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

CF = Crowdfunding

ECF = Equity Crowdfunding

DCF = Debt Crowdfunding

CFP = Crowdfunding Platform

VC = Venture Capital

BA = Business Angel

KIA = Keep it All

AON = All or Nothing

SME = Small-Medium Enterprises

EBITDA = Earnings Before Interests, Taxes, Depreciation & Amortization

KPI = Key Performance Indicator

BP =Business Plan

INTRODUCTION

How business start-ups are financed is one of the most fundamental questions of enterprise research (Cassar 2004). Indeed, financial capital is one of the necessary resources required for enterprises to form and subsequently operate. As Cassar (2004) stated, the importance of the financing decision of new businesses consequentially has important implications for the economy, given the role that new enterprise plays in employment growth, competition, innovation, and export potential.

As of 2015, equity crowdfunding constituted $2.6 billion of the crowdfunding market globally (Massolution 2015). Its presence in the U.S. has grown substantially since April 2012, when Barack Obama signed into law the Jumpstart Our Business Startups Act (JOBS Act). Into the title III of the JOBS Act, the government directly addressed equity crowdfunding, opening the possibility for entrepreneurs to raise funds also from non-accredited investors. Previously, only accredited investors, the ones who have an income higher than $ 200.00 a year and a net worth of at least $1 million, were allowed to invest in early-stage companies (Beckwith 2016).

The European Parliament resolution of 9 July 2015 on Building a Capital Markets Union (CMU) stated that "the CMU should create an appropriate regulatory environment that enhances cross-border access to information on the companies looking for credit, quasi-equity and equity structures, in order to promote growth of non-bank financing models, including crowdfunding and peer-to-peer lending". The Commission has acknowledged that crowdfunding can contribute to the objective to mobilise capital and channel it to all companies, including SMEs (European Commission 2015). These demonstrate that also governments understood the potential of equity crowdfunding in boosting startups and SME growth. Indeed, as the World Bank in its report of 2013 stated that, given the lack of positive cash-flows and the high risk of start-ups, their capital structure should be mainly financed by equity rather than debt. This way, the equity crowdfunding is a recent financing alternative for start-ups that shows a remarkable growth in recent years. "A number of high profile campaigns and an increasing appetite to "cut out the middleman" mean crowdfunding is likely to remain an important part of early stage finance for some years to come"(Vulkan, Astebro, and Fernandez 2016).

This dissertation is aimed to study the phenomenon of crowdfunding, more precisely focusing in the equity- based model, and its evolution in Italy. The scope of this analysis is to identify if equity crowdfunding is a valuable mean to raise funds for startups and SME, by looking at past performances of startups who raise through ECF in the year between 2014 (when ECF was regulated in Italy) to 2016. The remainder of this thesis is divided in 4 chapters. The first one gives an overview of the phenomenon describing its origins, the different crowdfunding

models, and the main actors involved. The second chapter focus on equity crowdfunding and its peculiarities, as well as the analogies with traditional sources of fundraising, explaining the funding gap and how ECF addresses it. The third chapter gives an overview of the Italian ECF market and evolution from 2014 up to date, introducing also the Italian regulation on ECF and tax shield for ECF investors. The fourth and last chapter illustrates the analysis made on a sample of 11 case-studies of companies which raise money between 2014 and 2016, and for which data about business plans were available online. The analysis is based on a comparison between business plan forecasts provided by the company at the date of the campaign, and actual results recorded in the yearly financial statements, for the three (in two cases four) years following the ECF campaign. The comparison was made on two main economic variables: sales and EBITDA. The first part of the chapter also summarizes the main outcomes of the all 30 ECF campaigns which successfully closed between 2014 and 2016.

CHAPTER 1 – CROWDFUNDING: When the Crowd Become Investor

1.1. Definitions and Origins

In recent years, crowdfunding has become a valuable alternative source of funding for entrepreneurs seeking external financing. Existing empirical analyses report an impressive growing volume of money collected through crowdfunding worldwide.(Belleflamme, Lambert, and Schwienbacher 2013).

As the word suggest, crowdfunding (CF) involves two basic elements: a crowd and a need of funds. New ventures require resources to succeed, and one of the most critical of these is financing (Gompers and Lerner, 2004; Gorman and Sahlman, 1989; Kortum and Lerner, 2000). In recent years, CF has emerged as novel way for entrepreneurial ventures to secure funds without having to seek out venture capital or other traditional sources of venture investment. Indeed, in his 2012 remarks upon signing the JOBS Act to legalize equity CF, President Obama stated that "for start-ups and small businesses, this bill is a potential game changer."(Mollick 2014).

Substantially, through CF, founders and funders can connect by means of web-based platforms which act as intermediaries and where proponents of new projects can presents their ideas through a "pitch" and try to collect as much funds as possible from the crowd of non-mandatory-professional backers. Even if in the literature many scholars tried to articulate different definitions of CF, there are three main recurring elements: the internet, the small amount of investment, and the substantial number of investors (the crowd).

Furthermore, we know that CF is a relatively new alternative form of financing, but it's possible to find some examples of it also in the past, dating back to the construction of the Statue of Liberty. Indeed, even if the mechanism is really simple and almost assimilable to that of a traditional "whip round"(Osservatori Entrepreneurship & Finance 2019), it's mainly thanks to the advent of the Web 2.0 and the financial crisis of 2007/2008 that CF really started to growth and to be identified as an alternative way to raise money whereas the traditional channels were not able to supply funds.

1.1.1 Crowdfunding Definitions

In the literature we can find a variety of definitions which in the last decades evolved with the increasing awareness about CF as a new funding vehicle and a new element of alternative finance. One of the most known definition about CF was given by Belleflamme, Lambert, and Schwienbacher in 2013, extending the definition of crowdsourcing provided by Klemann et al.(2008). They defined CF as "an open call, mostly through the Internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes".

Essentially, CF involves the financing of a project by a group of individuals instead of professional parties(like, for instance, banks, venture capitalists or business angels) without the need of a traditional intermediary: entrepreneurs "tap the crowd" by raising the money directly from individuals. (Schwienbacher and Larralde 2010).

Ethan Mollick (2014), citing Schwienbacher and Larralde, wrote that CF is a novel method for funding a variety of new ventures, allowing individual founders of for-profit, cultural, or social projects to request funding from many individuals, often in return for future products or equity. CF projects can range greatly in both goal and magnitude, from small artistic projects to entrepreneurs seeking hundreds of thousands of dollars in seed capital as an alternative to traditional venture capital investment. The same author also tried to propose a narrower definition stating that "CF refers to 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 individuals using the internet, without standard financial intermediaries."(Mollick 2014).

The European CF Network defined CF as a " a collective effort of many individuals who network and pool their resources to support efforts initiated by other people or organizations"(Gajda et al. 2012), while a more recent approach was given by the European Commission in 2018, who stated that "*The basic function of CF can be described as an open*

call via the Internet for the provision of funds by the public at large to support specific initiatives by typically small fundraisers. The investors/lenders can provide the means as a pure donation (intangible reward) *or in exchange for some form of reward in order to compensate for the financial risk taken* (tangible reward). It generally takes place on CF platforms, that is, internet-based platforms that link fundraisers to funders". In general, CF is a new technology-enabled innovative process that is changing the capital market space.(Beaulieu, Sarker, et al. 2015), and can be seen as an innovation in financial services which emerged in response to unfilled needs and gaps in services currently provided (Christensen, 2013: cited by Beaulieu, Sarker, 2015).

From the above definitions it is clear how CF is based on three central elements: the entrepreneurs seeking funding, the crowd willing to support entrepreneurs' projects, and the centrality of the web, which act as the mean through which the connection between founders and funders is made possible, thanks to the presence of web-based platforms.

Moreover, as emerge from the definition given by the European commission, It is central the presence of a reward: a compensation expected by the crowd in exchange for their funding contributions, which can be expressed either in financial or non- financial terms, depending on the different category and vehicle of CF used by founders.

To summarize, G. Quaranta (2016) gave us a broad and comprehensive definition, explaining how CF is a particular "mass-financing" mechanism which, exploiting the internet potential, allows those who have ideas or needs but who don't have the funds to realize them, to get access to resources of third parties , starting from those of family and friends, and hoping to reach also those of the crowd (fools) […], whom crowds is willing to finance an increasing number of ideas. […] In this way everyone is potentially able to get access to a real "funding from the crowd". (Quaranta 2016). In his definition effort Quaranta exposes also the concept of the 3Fs which broadly represents what is seen as the main components of a crowd of non-professional investors: Friends, Family, and Fools.

As we can see the literature provides us with an increasing number of definitions but generally speaking we can identify in the term CF un umbrella term used to describe diverse forms of fundraising – typically via the Internet – whereby groups of people pool money to support a particular goal.(D. Cumming and Ahlers 2017)

1.1.2 Historical Background: From Crowdsourcing to Crowdfunding

When it comes to define what crowdfunding is, it is useful to start by describing where crowdfunding comes from, and therefore to define first the notion of crowdsourcing (Wetterhag

and Dècarre 2014). CF draws inspiration from concepts like micro-finance and crowdsourcing, but represents its own unique category of fundraising.(Mollick 2014). Specifically, the concept of CF is rooted in the broader concept of crowdsourcing, which refers to using the crowd to obtain ideas, feedback, and solutions to develop corporate activities (Bayus, 2013; Howe, 2008; Kleemann et al., 2008). The term "crowdsourcing" has been first used by Jeff Howe and Mark Robinson in the June 2006 issue of Wired Magazine, as a way to shorten the notion of outsourcing to the crowd, providing the following definition of the phenomenon: "the act of taking a task traditionally performed by a designated agent (such as an employee or a contractor) and outsourcing it by making an open call to an undefined but large group of people". A more general definition is offered by Prpic et al. (2015): "Crowdsourcing involves organizations using information technology to engage crowds comprised of groups and individuals for the purpose of completing tasks, solving problems or generating ideas". The essential components of crowdsourcing are the use of an open call to a crowd, a task that needs to be undertaken, the fact that the compensation can be economic, social, or self-esteem (Allon and Babich 2019).

In the case of CF, the task of financing is outsourced to the crowd, a large group of individuals who are willing to use their spare dollars, pounds and pesos to fund these new projects. (Howe 2006). Two years later however, Kleeman et al. explained that *Crowdsourcing* takes place when a profit oriented firm outsources specific tasks essential for the making or sale of its product to the general public (the crowd) in the form of an open call over the internet, with the intention of animating individuals to make a contribution to the firm's production process for free or for significantly less than that contribution is worth to the firm (Kleemann, Voss, and Rieder 2008). Kleeman at al. moreover stressed the point that crowdsourcing has been made possible on a large scale by the emergence of "Web 2.0,". As highlighted by the authors, in their efforts to explicate the theory of the *working consumer,* "Firms are shifting a wide array of previously internal capacities and functions onto their own customers, consumers in general, and other

Type of Crowdsourcing	Description
Participation of consumers in product development and configuration	Companies ask for comments and suggestions on current and future products
Product design	Companies ask to develop a whole new product from A to Z
Competitive bids on specifically defined tasks or problems	Companies ask to give a solution to unsolved problems
Permanent open calls	Companies ask for any new information or documentation
Community reporting	Same as before apart that the work is done by a known community instead
Product rating by consumers and consumer profiling	Companies ask for product reviews and opinions for other users to see

Figure 1.1: different sources of CF as carachterized by Kleeman et al. (2008), (cited by Larralde 2010)

nonemployees. This trend is affecting an increasing number of areas and is being conducted increasingly systematically."(Kleemann, Voss, and Rieder 2008).

In the case of CF, the objective is to collect money for investment, generally by using online social networks. In other words, instead of raising money from a small group of sophisticated investors, CF helps firms obtain money from large audiences (the "crowd"), in which each individual provides a very small amount. Such investment can take the form of equity purchase, loan, donation, or pre-ordering of the product.(Belleflamme, Lambert, and Schwienbacher 2013). Clearly, the concept is not a revolutionary one but what revolutionized the context and allowed for an innovative way of funding was the advent of the Internet, which simultaneously allowed to lower both transactional and information sharing costs. Moreover, the "social" dimension of the Web, allowed for an higher collaborative involvement of funders, which interact in the network not only as capital providers but also as potential contributors to the projects itself , all in the logic of crowdsoursing. (Osservatori Entrepreneurship & Finance 2019). As Piatteli (2016) remind us, one of the most common past examples of CF is the campaign for the pedestal of the Statue of Liberty. In 1885, J. Pulitzer, the publisher of an American newspaper ("World"), asked the citizens to donate moneys for the building of the pedestal with the aim to collect 100.000 dollars, and he offered in turn to publish the donors' names on his newspaper, regardless the amount of dollars transferred. The campaign gained 102,000 dollars in five months, from 120,000 different donors, who in the majority of cases gave less than 1 dollar each.[1]

However, it is only from the beginning of the new millennium that CF started to spread on a world basis, mainly thanks to the birth of web-based crowdfuding platforms: CF developed primarily in the arts and creativity- based industries (e.g., recorded music, film, video games). Likely due to indirect network effects and similar to other online markets (e.g., eBay), CF has historically been dominated by a single platform[…] Originally, that was Sellaband, a music-online platform founded in 2006 and based in Amsterdam that allowed artists to raise the money from their fans and the SellaBand community in order to record a professional album., and subsequently it was Kickstarter, a broader creative- projects platform founded in 2009 and based in New York. (Catalini, Agrawal, and Goldfarb 2014)

For what concerns the term "CF", the man who was credited with coining it is Micheal Sullivan who, back in 2006, tried to launch a portal for videoblog-related projects and events called Fundavlog, but the term really began to be used by the masses just few years laters with the advent of Kickstarter. (crowd-funding.cloud 2019)

---

[1] Crowd-funding.cloud

Broadly speaking, two major factors that enabled the exponential growth of CF are mainly identified by Bottiglia and Pichler (2016) in the technological innovation of Web 2.0 and in the 2007-2008 global financial crisis. They define Web 2.0 as the all websites and applications that allow internet users to share informations online, while the financial crises played an important role inasmuch as after the collapse of the US Bank Lehman Brothers, banks credit has almost ceased and it has began more and more difficult for SMEs and startups to find financing, thus creating a gap (the so called funding gap) for CF as an alternative method for raising money. Nonetheless, when the bank credit started to recover it created the opportunity for crowdfuding to became a complementary source of capital. (Bottiglia and Pichler 2016)

It is evident how CF as a new way to raise capital has emerged in response to the inability for some players to collect financial resources through the traditional channels such as banks, VCs, and Business Angels. Indeed, mainly thanks to the spread of the Internet, nowadays CF made also possible for the masses, who until now didn't have the proper means, to invest in Startups. As a consequence the benefit is double: individual non-professional investors can diversify their portfolios involving in riskier investment while allowing entrepreneurs to raise the capital they need.

1.1.3. The Wisdom Of The Crowd

The concept of *wisdom of the crowd* has been sustained by several authors in the literature and all of them agree that the use of the crowd as investor produce some benefits in terms of efficienty and lower risk. Considering the affirmation of Lévy (1997) in his notion of *collective intelligence*: 'no one knows everything, everyone knows something, *and all knowledge resides in humanity', he highlighted the fact that knowledge becomes more important as communities share it (Schwienbacher and Larralde 2010). From this perspective we can assume that Crowdsourcers[2] use the masses as the mentioned above "working consumer" in order to create value by allowing future customer to participate in the product design and improvement: as a cosequence the company increase its opportunity to have better customer acceptance as well as reduce costs and length for product development. (Kleemann, Voss, and Rieder 2008).

Continuing on this line Howe stated that crowds may at times be more efficient than individuals or small teams. (Howe 2006): this efficiency of crowds in solving problems of companies is related to its composition; the more diverse it is, the more efficient it can be.(Brabham 2008)

---

[2] Companies that use crowdsourcing for product development.

15

The *wisdom of crowds* concept was popularized by James Surowiecki in his 2004 book first introduced in 2004: Wisdom of crowds is the idea that " large groups of people are smarter than an elite few, no matter how brilliant - better at solving problems, fostering innovation, coming to wise decisions, even predicting the future". He explained that the 'wisdom of crowd' is due to crowd's solutions aggregating to each other(Surowiecki 2004). Unlike business angels or venture capital funds, crowdfunders might not have any special knowledge about the industry. However, the "wisdom of the crowd" argument states that a crowd can at times be more efficient than individuals or teams in solving corporate problems. Hence, crowdfunders as a crowd would be more efficient than a few equity investors alone.(Schwienbacher and Larralde 2010). Another argument in favor of the crowd was expressed by Larralde et al. involving the risk aspect: the risk taken by crowdfunders might be smaller, and not only because of the small amounts that they provide individually. The crowd may further become consumers once the product has been brought to the market and have an incentive to disseminate the information about the product it if they participate in the profits of the venture. In contrast, similar information dissemination would require significant advertisement campaign if the venture were financed by a few, larger investors.

However, in the empirical evidence it is not always clear CF could be the right way to exploit the wisdom of crowds. Chen et al. in 2016 analyzed the difference in investment decision made by two types of crowds: pure and hybrid, where the former is a crowd where all investors participate as equal while the latter is a crowd led by an expert investor. They found out that a pure crowd design has some limitations. In a pure crowd, investors assume that prior investment decisions are justified by private information, and thus consider accumulated capital to be a quality signal. Consequently, they may decide to imitate prior decisions, leading to "herding" behavior [(Zhang 2013; Zhang and Liu 2012; Agrawal et al. 2013; Vismara 2015) cited by (Chen, Huang, and Liu 2016)]. This herding behaviour could be sometimes also irrational because investors are afraid to lose the opportunity to invest and blindly follow prior investors without questioning the soundness of their judgments. To conclude, the general opinion about crowd is that it brings to some kind of efficiency thanks to the variety of components and opinions, especially when it comes to crowdsourcing as a mean to co-develop products. On the other end, it is still not clear if this efficiency can be exploited by CF, since in case of investment decision the crowd is not as informed as traditional investors, such as venture capitals and business angels, and the absence of a proper due diligence could make crowds' investment decisions irrational.

1.2. Crowdfunding Models

This section is aimed to explore the different applications of CF currently used in the market and their main characteristics. CF investments may take place in a wide range of forms. However, the CF models used by founders in their fundraising purposes are identified in four distinct categories, each of which differs from the others mainly on the type of "reward" expected by investors. Hemer et al. (2011) represented the main CF types in a graph classified by increasing level of process complexity. Specifically, with an increasing level of complexity is associated a different CF model and a different type of motivation of investors, as well as a different reward expected. I reported the graph from Hemer et al. (2011) adding a personal elaboration on the abscissae axis about the risk level of the investment and expected return from crowdfunders. Going from left to right the process complexity increase as well as the expected return of investors who, depending on the CF model they decide to invest, have different motivation and expectations of returns: indeed, just as the funding needs for startups vary, crowd- funding varies by the type of rewards offered to supporters (Paschen 2017). These rewards vary whether they are tangible or intangible. Gajda et al. (2012) classified them in three main categories: social, material, or financial. Therefore, when a crowdfunder decides to donate, his motivation would be driven by expectation of a social return. If the same crowdfunder will decide to invest in a pre-ordering or reward-based scheme his expectation is that of a material return in the form of a product. Finally, when crowdfunders choose the equity-based model they become fully investors and their motivation to invest is driven by a desire of a financial return. Obviously, at each model is associated a different level of risk, which id proportional to the amount of money invested and the return desire: in the donation based the risk is very low since there is no expectation for a financial return while in the equity-based the
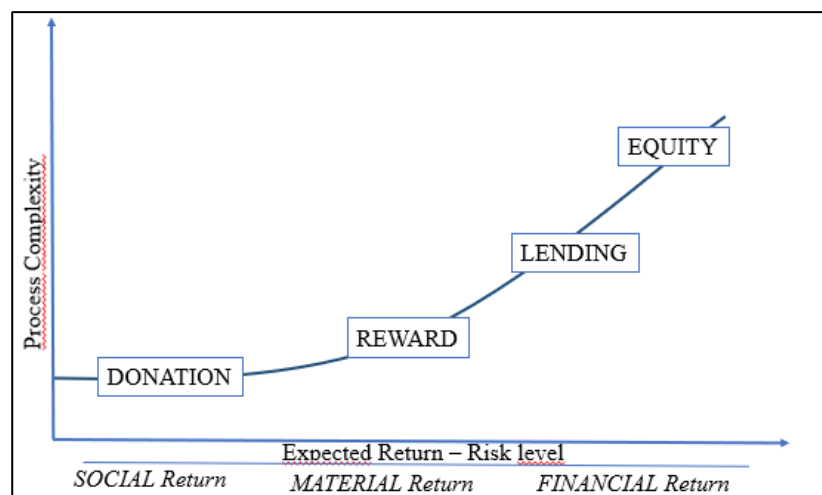
Figure1.2: The major forms of capital provision ranked by process complexity and risk- return level. (Hemer et al. 2011a, personal adaptation)

17

risk of the investment is higher and the higher expected rate of return from the investment compensate for this risk.

1.2.1. Donation based

Donation crowdfunding raises nonequity capital rather than the sale of securities for creative projects or charity causes (infoDev/The World Bank 2013). In the donation crowdfunding model, the founder receives money from a crowd without any tangible return for that contribution. In the pure donation model described by Paschen, no rewards at all are offered to contributors. The funds received are essentially a grant given for a specific purpose, but without the expectation of a specific return to the funder (Paschen 2017). What characterized this type of model is in fact the expectation of a *social return:* the funders are already satisfied when they see that a project can be realised(Gajda et al. 2012). Funders have intrinsic motivations and
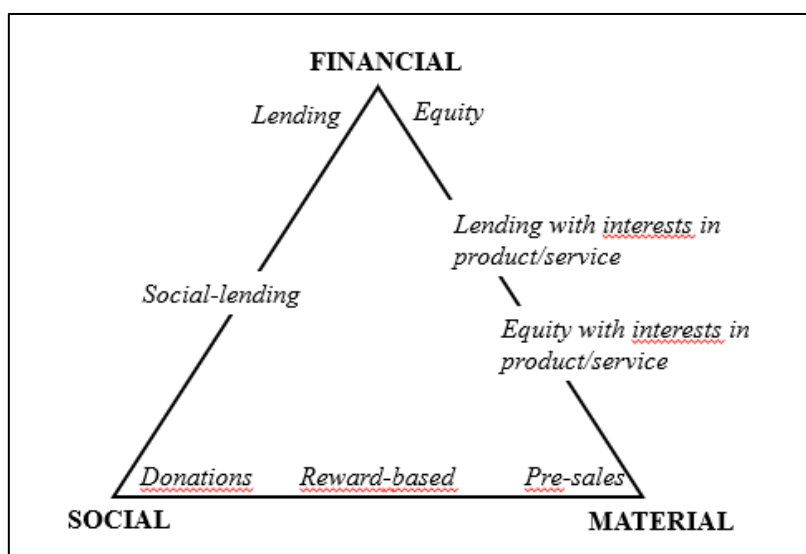
Figure 1.3: Main motivations for crowdfunders (Gaida et al. 2012, personal adaptation)

don't want neither material nor financial rewards for their contribution, what they expect is personal recognition or *experiential rewards*, such as the opportunity to meet the creators, attend special events, or even to participate in the creation of the product(Paschen 2017). This is the reason why this form of CF is extensively used by non-profit organizations, where funds are collected for the realization of a charity or social project which can benefits the entire community. Indeed, NGO's have been using this model to attract donations for specific projects for over ten years (Gajda et al. 2012). Moreover, according to Gajda et al. the donation-based model works well with NGOs because, since funders know that their money will be used on a very specific project, they are more willing to donate higher amounts per person. They also sustained that the intrinsic motivation behind these types of donors make them more loyal to the NGOs in the long run, allowing for recurring donations, especially if the NGOs keeps

donors updated on the projects' progresses. However, given that these types of campaigns rely on voluntary contributions, the success of a donation-based CFP depends on the quality of the matching between the "tastes" of the funders and the characteristics of the campaign.(Belleflamme, Omrani, and Peitz 2015)

Generally speaking, The *infoDev* report of The World Bank (2013) identifies three main feature of this CF type: the philanthropy of funders, the absence of risk from the funders perspective (justified by the nature of the investment, namely a donation), and the difficulty of entrepreneurs in raising huge amount of capital.

Another application of donation-based crowdfunding is found on *civic crowdfunding*[3]*:* the term identifies a CF type that take place when institutional entities such as municipalities and provincial bodies launch campaigns for the financing of public works and projects and call for citizens to donate money for the community. In the picture below the different CF types are classified on the bases of the spectrum tangible – not tangible reward.

	Donation Crowdfunding		Lending Crowdfunding			Equity Crowdfunding	
	Pure Donation	Reward Donation	Forgivable Loan	Presales	Traditional Loan	Investor-Led	Entrepreneur-Led
no tangible reward ←――――――――――――――――――――――――――――――――→ tangible reward							
Reward Type	No reward	Recognition, tokens, or other non-tangible rewards	Interest only if the project has revenue or profit	Finished product	Fixed-term interest	Securities, revenue, or profit sharing; projects accessible to accredited investors only	Equity, bond-like shares, securities, revenue, or profit sharing; projects accessible to all investors
Platform Examples	Kopernik Crowdrise	Indiegogo Experiment	Quirky TubeStart AppsFunder	Kickstarter PledgeMe	SoMoLend Lending Club	AngelList Seedrs EquityNet	Crowdcube Fundable

Figure 1.4: typology of crowdfunding (Paschen 2017)

1.2.2. Reward based

The feature of this CF approach is that funders receive a reward for backing a project. This can include being credited in a movie, having creative input into a product under development, or being given an opportunity to meet the creators of a project(Mollick 2014).

This model is often used by project owners who want to collect donations, allowing donors to have some incentive or gratification without giving up equity. The rewards are of a symbolic value and provided by the investee. They are usually much lower than the donation amount, to ensure there is enough money left for the project. Nevertheless, the perception of the value can be much higher, for example special VIP tickets as a reward for a higher donation(Gajda et al. 2012). In general, the parties do not consider it a legally binding obligation to provide the goods

---

[3] Crowd-funding.cloud

and do not classify it as a sale. In practice, what characterized reward-based CF is the presence of a material reward. This reward often involves the possibility to have the final product in advance and before other "regular" customers: in this case the CF model is also called *pre-selling* or *pre-ordering* CF. With this very common approach funders are treated as early customers, or as Belleflamme(2015) call them "prosumers", allowing them access to the products produced by funded projects at an earlier date, better price, or with some other special benefit. Through pre-ordering entrepreneurs invite consumers to pre-order the product, in order to collect the necessary capital for launching production. In this way is it viable for founders to price discriminate between two groups of consumers: crowdfunders, who pre-purchase the product, and other regular consumers, who wait until the product reaches the market to purchase it (Belleflamme, Lambert, and Schwienbacher 2013).

Belleflamme et al (2013) also discovered that there are some community benefits linked to the consumption experience under the pre-ordering mechanism. In particular, the choice about which CF model to use is largely influenced by the differences in extra benefits perceived by the project owner. The authors' finding was that when the initial capital requirement is relatively small entrepreneurs prefer the pre-ordering mechanism, while they prefer the profit-sharing (equity-based CF) mechanism otherwise. Another benefit of this type of CF model derives from using the crowd as a earlier market research mean: indeed, pre-sale CF replaces traditional market research and validates demand while providing working capital, if successful. (Gajda et al. 2012).

For this reason reward-base CF often involves an active investments by the crowd, recalling the discussion made in the first paragraph about crowdsourcing: entrepreneurs offer investors to become active in the initiative, next to offering rewards to them. This may provide valuable feedback to the entrepreneur on potential market demand and product characteristics that the market may prefer most. (Schwienbacher and Larralde 2010). Continuing on this line, the literature provides us with several papers and authors sustaining the "marketing role" of reward-based CF. On their paper of 2015, "The Economics of Crowdfunding Platforms", Belleflamme, Omrani, and Peitz (2015) explain how using the crowd as *prosumers* reduces the risk of losses from the viewpoint of the fundraiser. The uncertainty from the viewpoint of the funder is whether the output will satisfy his or her tastes. Thus, funding is a predictor of future demand and may serve as a signal for future funding rounds, possibly through more traditional funding channels (e.g., venture capital or bank loans). They also suggested the possibility to use funders as product ambassadors: they promote the product, e.g., by posting to Facebook friends and, as ambassadors, may receive additional rewards. The discussion on the literature often focus on the difference between reward-based and equity-based CF: many authors tried to outline which

are the advantages and success factors of both the models. Some findings from Bayus and Kuppuswamy (2013)and Gerber, Hui, and Kuo (2012) explained through a study made on *KickStarter*[4] how funders see receiving rewards as an important motivation for participating in CF communities and, since on reward-based CFPs funders receive tangible, but non-financial benefits for their contributions, reward-based CF cannot be measured in monetary terms, as opposed to investment-based and lending-based crowdfunders, who may mostly be concerned about the probability that a funded project will provide positive returns. In particular, a particular creative project may appear to be of high importance for some funders while completely irrelevant for others. This suggests that taste heterogeneity among funders plays a more prominent role for projects launched on reward-based than on investment-based CFPs. A possible drawback coming from this mechanism could be that most entrepreneurs may have difficulty raising substantial capital without a product with mass appeal to sell.(infoDev/The World Bank 2013)

1.2.3. Lending-based

Lending-based CF, as the word etymology suggest, takes place when a company borrow money from a group of people instead of a bank. In practical terms, funders receive a debt instrument that pays a fixed rate of interest and returns principal on a specified schedule. The role of the platform can be diverse. Some of the platforms will act as a middle-man and will also make the repayments to the lenders, where other platforms act only as match-makers and the borrower and lenders will be connected when the deal is closed.(Gajda et al. 2012) In this CF model the reward is financial and consist in the interest and the payback after the lending period (Hemer 2011). The risk is usually diversified between financial and emotional motivations. The project owner can use loans or equity-based CF to collect investments against interest or dividend payments (Gajda et al. 2012).

Lending- based CF is also called *Peer-to-Peer Lending (P2P).* Here the main feature in is that the lenders and borrowers usually do not know each other. The funders financial return is their main motivation and is represented by the interest rate, general are based on the risk-factor, which in turn is calculated based on financial data and personal securities. These calculations are currently done by P2P-platforms that show-case the loans. Existing data shows that default rates for P2P lending on average are very low, below 1% (Gajda et al. 2012).

Funders have an advantage using this CF model, inasmuch debt holders are senior to equity holders in case of bankruptcy. This secured status may make it easier for entrepreneurs to raise

---

[4] Founded in 2009, is the first and most famous CF platform based on a reward crowdfunding approach. *www.kickstarter.com*

capital.(infoDev/The World Bank 2013). On the other end, the same funders can be subordinate to senior creditors. Thus, this CF model is more suitable for businesses already generating cash flow, since they can offer a more structured exit opportunity than typical equity offerings.

Another approach to DCF is through *forgivable loans CF:* The forgivable loan repays contributions only if and when the project begins to generate revenue or profit. CF projects are assessed according to their risk levels,either by the platform itself or by a third-party evaluator. Lenders choose the level of risk they are prepared to accept and support projects accordingly (Paschen 2017).

Among the different types of DCF we can find also *social lending*: a CF type in which funders are offered a 0% interest-rate on their loan, thus more assimilable to a donation-based model. This is the case, for example, of businesses in developing countries, where they can receive micro-financing without any interest being paid to the lending party.

Broadly speaking, there is a general connection between all forms of alternative funding: they all provide access to capital for a segment of the population that cannot access it through traditional means.(infoDev/The World Bank 2013) However, there are significant differences between the various CF and each model differs in fundamental ways, including their targets and objectives (see Figure 1.2). (infoDev/The World Bank 2013)
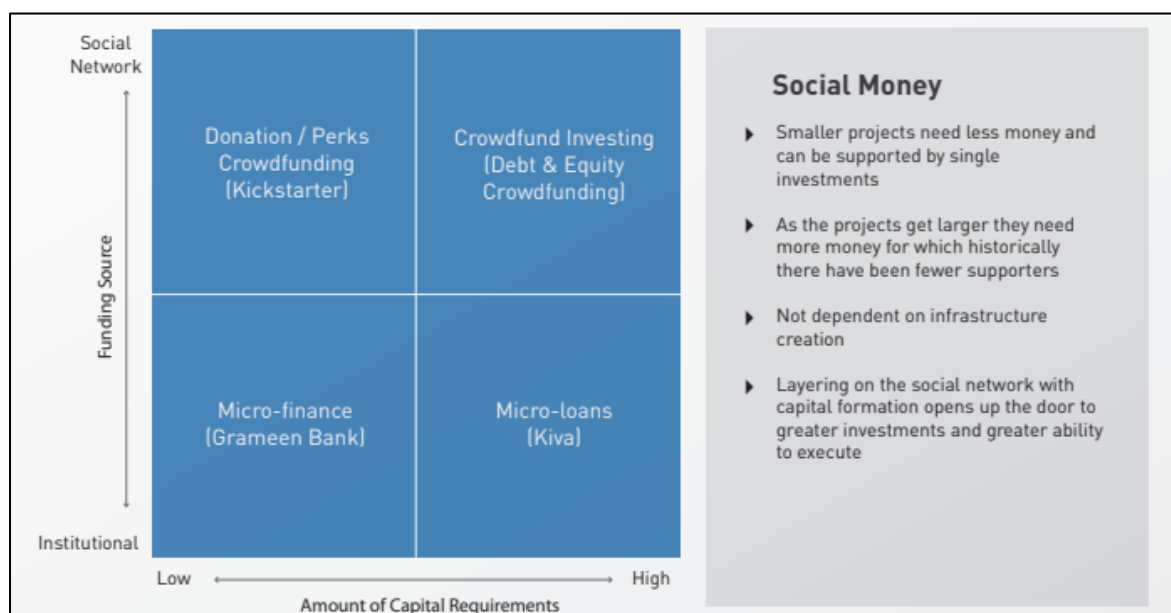
Figure 1.5: The amount of capital grows with the social network (The World Bank, InfoDev 2013)

In particular, The World Bank (2013) offered us a classification in which the authors divided CF in the four main categories showed in the figure above. In the 2013 report is explained how the main difference between equity and debt CF is that in the latter investors become creditors of the business and do not receive an equity stake. Investors in debt-based CF as well as in the

equity-based are attracted by mean of social networks and can perform the same degree of due diligence. Disclosure requirements change a little since in the case of debt-based platforms, disclosures include the type of debt, the interest rate and the term of the instrument. However, maybe the biggest difference among the two models is that with ECF all investors receive the same terms and the same valuation, while in DCF each investor can bid an amount to loan and receives an interest rate associated with that amount. Once a campaign is successfully funded, the issuer's average interest rate is the weighted average of all accepted bids. Bids with lower interest rates have a higher chance of being accepted, benefiting the issuer by lowering the cost of capital (infoDev/The World Bank 2013). The role of platforms in this CF model is to facilitate the aggregation of loans for the business, fund transfers to the business and repayment of the loans from the business back to investors.

1.2.4. Equity-based

Equity-based crowdfunding (ECF) is the main topic of this thesis and the model on which the following research is based on. In this paragraph the focus will be on the main differences in relation to the others CF models, whereas the main features and legal aspects of ECF will be deepen in the second Chapter of this thesis.

Through ECF entrepreneurs solicit individuals to provide money in exchange for a share of future profits or equity securities (Belleflamme, Lambert, and Schwienbacher 2013). It is a *profit-sharing* scheme in which motivations of crowdfunders are driven by a desire of a financial return. Differently from the reward-based CF, the investors may or may not decide to consume the product at a later stage, allowing for community benefits stemming from the investment experience.

Vulkan et al. (2016) found that equity CF differs from the typical rewards-based CF in a number of important aspects: a much higher average amount pledged; a much higher average campaign goal, steadily increasing over time and lately approaching the size of first round investments for VCs; the existence of a pre-money valuation of each of the projects, and the clear goal of the backers to obtain a positive monetary return on their investment.(Vulkan, Åstebro, and Fernandez 2016). In fact, in the case of ECF, the funders became fully investors, actually buying stakes in the founders' business and enjoying profits only at the end of the investment period, thorugh an *exit*. Differently from the other CF models, here investors has voting rights in proportion to the amount of shares they own. This bring to a clear difference with the reward-based scheme: in fact, letting investors participate in the profit sharing and the voting process regarding certain product characteristics may at times yield to the entrepreneur feedback not

about whether investors like the product per se but rather their market sentiment in general. Indeed, in the ECF case, investors do not need to be consumers. However, making investors become active by giving them voting rights may provide the entrepreneur with valuable information for designing his product and selecting the optimal consumer targets (Schwienbacher and Larralde 2010). Given that investors own equity instruments, this CF type offers great potential of financial gain thanks to the opportunity to share venture profitability. Nevertheless, given the nature of the investment (equity instrument) the risk associated with this type of CF is higher and involves an high potential loss of the investment, partly because, in case of default, equity holders are subordinated to creditors. Equity CF is the fastest growing alternative finance channel in the world. Indeed, its attractiveness as investmente channel is high both for investors and founders. Founders use CF as a mean to collect the money they need fullfilling in some way the funding gap typical of early stage ventures. On the other hand, funders have the opportunity to invest in a financial instrument that was once available only to traditional investors such as Venture Capital firms and Business Angles.

1.3. Main CF actors and why they choose CF

Three are the main actors involved in a CF mechanism: Fundraisers, Funders, and Platforms. *Fundraisers* are all the entities, for-profit or not, who wants to collect funds in order to develop their project or launch their business. The most common fundraisers who use CF are startups' founders, for whom is not always viable to get funds from the traditional channels, especially in the seed stage of their business. For this reason, CF provides an alternative to deal with the funding gap, as it will be later explained in Chapter 2.

Funders are all the subjects who decide to give their money to fundraisers through the mean of a CF campaign. They can be either retail investors or family and friends, as well as institutional and professional investors. They usually invest in CF for different reason and because they expect different returns, which will be explained in the following section.

CF Platforms are the "intermediaries" through which the match between funders and fundraisers is made possible. These Platforms are in the form of websites in which founders can submit their projects (after the platform approval). After registration on the platforms, funders have the possibility to navigate in the window of the multiple currently open campaigns, analyse the data given by the platform, and choose the project that best suits their investment tastes. The figure below from Hemer et al (2011) summarizes the CF process through intermediaries (platforms).
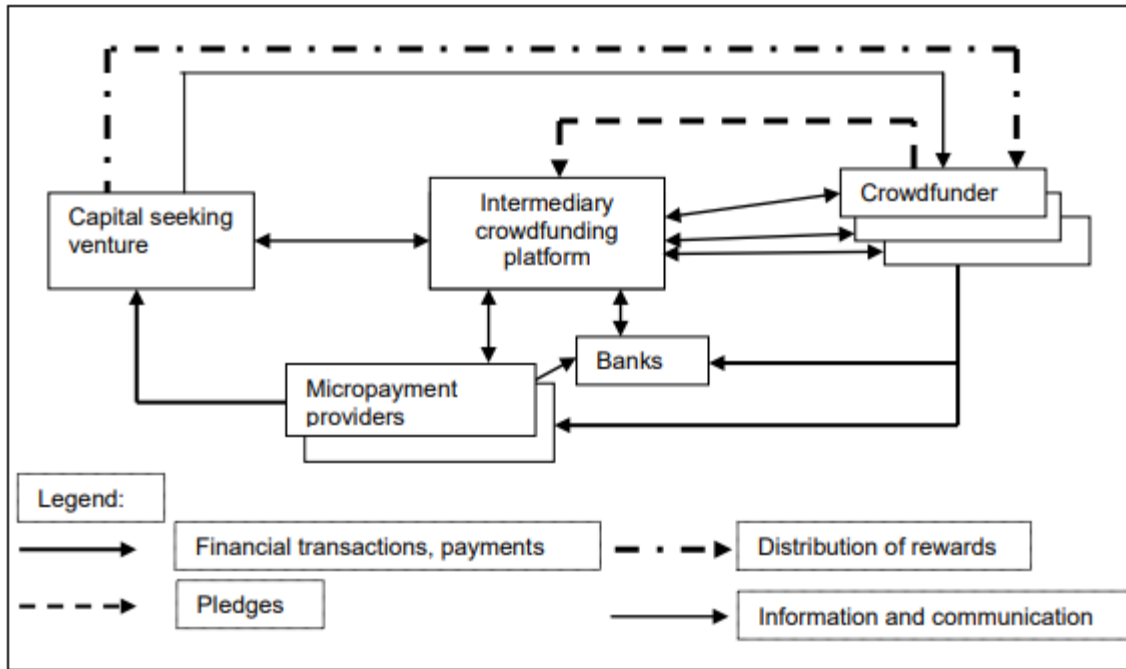
Figure 1.6: the CF process through intermediaries, (Hemer 2011a)

1.3.1. Fundraisers

A variety of terms have been used in the literature to represent those individuals who post their idea on a CF website to receive funding: examples of them are "creator", "borrower", "entrepreneur", "firm", "founder", "owner", and "start-up". In general, individuals seeking funding come from a wide variety of backgrounds and have a wide range of goals. However, many of these labels are too narrow and invariably leave out a portion of participants. For example, not all individuals seeking funding may classify themselves an entrepreneur or have a goal of starting a business (Beaulieu, Sarker, and et al. 2015). In this thesis all these terms are used to identify that category of individuals or organizations who post CF campaigns on CF platforms in order to reach as much potential funders as possible. The founders' role in the CF ecosystem is to envision a product or project and then present their ideas clearly and compellingly to would-be backers through the use of a CF website (Beaulieu, Sarker, and et al. 2015).

Fundraisers have many incentives and motivation for using CF. Clearly, the ultimate goal is to raise capital and collect the needed financial resources for the realization of the project/business idea, initially substituting traditional financial institution. In particular, in the case of equity-based, CF has the potential for funders with limited available funds to launch a successful campaign, which would not receive funding from traditional financial institutions (or at less attractive terms) (Gajda et al. 2012). However, funding need not be the only goal of a CF effort, even in an entrepreneurial context(Mollick 2013). A very common practise for entrepreneurs is

to use CF in the initial stages of the business and leverage on their successful campaigns in order to signal their creditworthiness and, thereby, facilitate their access to bank loans or attract venture capitalists in future rounds of fundraising. CF may thus provide a steppingstone for further funding, possibly through other channels (Gajda et al. 2012). For example, this is the case of the "Pebble smart-watch", which was initially rejected for venture capital funding but was able to secure a large amount of VC funding after its Kickstarter campaign. Conversely, a lack of demand makes it easy for founders to "fail quickly" if they see little interest in a project, without the need to invest additional capital or effort (Mollick 2014).

In addition to raising capital, founders may use CF to test market an idea, to gain exposure for future funding, to gain validation, and to build relationships by fostering open communication and collaboration with backers (Gerber, Hui, and Kuo 2012; Beaulieu, Sarker, and et al. 2015). To this regard, CF has also been used by founders primarily for marketing purposes, trying to stimulate and create interest in the project in the early stage of development while testing market reactions even before launching the product. Mollick (2014) sustained that this mechanism has been especially important in industries where projects seek to create ecosystems of complimentary products. Moreover, among other resources who CF offers beyond capital raising there is the potential advertising to the product made by the Press attention which follows CF campaigns, which can be beneficial to founders. According to Catalini (2014), creators may choose to raise capital through CF rather than a traditional channel due to two primary incentives: a lower cost of capital, and access to more information. For what concerns the lower cost the author explains that founders typically access capital for early- stage ventures from sources such as personal savings, home equity loans, personal credit cards, friends and family members, angel investors, and venture capitalists. Under certain conditions, CF may enable creators to access capital at a lower cost than traditional sources for three main reasons. First of all, thanks to its internet-based nature, CF allow to access capital across a global pool of potential backers, avoiding the location constraint typical of traditional offline financing mechanisms, As a result fundraisers match with those individuals who have the highest willingness to pay for equity in their venture (or for early access to their new product, etc.). The second reason is that, "to the extent that platforms facilitate a hybrid approach and allow creators to bundle the sale of equity with other rewards they wish to offer (e.g., early access to products, limited- edition products, recognition), creators may be able to lower their cost of capital by "selling" goods that are otherwise difficult to trade in traditional markets for early-stage capital"(Catalini, Agrawal, and Goldfarb 2014). The last way in which CF allow for lower cost of capital is the availability of more information: CF generates more information than traditional sources of early- stage capital (e.g., interest from other investors, ideas for product

modifications and extensions from potential users), this information may increase funders' willingness to pay, thus lowering the cost of capital (Catalini, Agrawal, and Goldfarb 2014). Regarding the information aspect, CF allow for other benefits beyond lower cost. As mentioned before CF is a great mean for marketing research, providing informative signal of post-launch demand and allowing for a better forecast of post-launch demand and a better prediction of success. Furthermore, CF provides creators a mechanism through which they may receive input on their product or business plan from users and investors, thus facilitating the early development of an ecosystem around the product. Indeed, CF allows the project owner to gain feedback on some of the most critical parts of the product before its release into the public marketplace. Moreover, CF has the capability to establish direct links between founders and funders that are the bases for customer loyalty, participation, and emotional attachment to the product. For this reason CF is an incredibly effective way of gauging if their product or idea has a mass appeal (Gajda et al. 2012). Finally, if CF increases competition in the supply of early-stage capital, then it may drive down the cost of capital across other channels for early-stage funding.

For what concern the typical profile of founders, Baulieu et al (2015) classify them according to the degree of experience they have in two dimensions: business expertise and product expertise. A founder may be strong in both business and project expertise, may being strong in only one dimension, or may have little experience or skill in either dimension. Founders with business experience have started previous businesses or been involved in startup firms and have the advantage of a better understanding of what is needed to take a business from concept to a running concern. The second type of experience is related to the actual product or project itself. Sometimes the founding team of a business/product is quiet diversify and comprises either people with business expertise and with product expertise.

1.3.2. Funders

Funders, also called backers, are the other most important actors on the CF ecosystem (figure 1.7). As mentioned in the above paragraph, the role of the backer goes beyond just contributing money: they also play a role in testing the market and providing judgment toward what is a good idea and whether a concept is worth pursuing (Beaulieu, Sarker, and et al. 2015).

Because of their multiple roles the literature use multiples term to indicate backers, among which: "consumer", "contributor", "crowdfunder", "funder", "investors", and "lender".

Several are the motivations that backers can have for contributing to a CF campaign. Some authors (Burtch, Ghose, & Wattal, 2013a), sustain the theory of "altruism", according to which funders could provide money just for the positive feeling of helping someone else. Other

authors support instead the theory of egoistical motivation, according to which backers participate just because the want to be part of the project or may want others to recognize their participation (Gerber et al. 2012)

In general, In exchange for their choices and contributions, backers receive extrinsic rewards (e.g. a return on their investment, a copy of the product, etc.) and an intrinsic reward (e.g., a "warm glow" or the feeling of being a part of something) (Beaulieu, Sarker, and et al. 2015). These intrinsic and extrinsic rewards are those who in the second paragraph were illustrated in categorized on tangible and intangible rewards. Thus, the incentives of funders to participate on a CF campaign vary according to their risk aversion and to their desire of a material reward rather than a social or a financial one. Depending on their expectation of reward backers will choose the CF model which best suite their desires.

Each arrow represents:
a: A founder posts their idea/project on a crowdfunding website.
b: The website provider provides space to describe the project and features such as the ability to post a video, communicate with backers, tools to analyze traffic to the project page, and integration with third party payment processing systems to distribute funds to founders.
c: Backers use the crowdfunding website to explore projects and decide whether to contribute.
d: The website providers allow communication between the backers and the founders and provide secure payment processing system to collect the funds from the backers.
e: Founders will continue to use the traditional capital markets for some projects.
f: Traditional capital markets will turn to crowdfunding websites in some instances; for example, to validate whether a market exists and explore different price points.
g: All crowdfunding activity occurs in the context of laws, regulations, and ethics.

Figure 1.7: Crowdfunding ecosystem (Beaulieu, Sarker, and et al. 2015)

Catalini (2014) found five main incentives for funders to engage in CF. One of the biggest incentives is to have access to investment opportunities but this case is applying only to equity-based CF. Before the advent of these web-based CF platforms funders were limited to investment opportunities just in the local market. Moreover, recent regulations have opened investment opportunities in early-stage ventures also to retail investors: Gubler (2013) describes CF as "giving ordinary investors the opportunity to get in on the ground floor of the next big

idea." Another incentive is the possibility to have early access to new product, especially in the case of reward-based CF, through pre-buying products before they go to regular customers.

Funders also enjoy the benefits of community participation: for many funders, investing on a CF platform is an inherently social activity, and they commit capital partly to obtain preferential access to the creator and gain recognition from the creator within the community.(Catalini, Agrawal, and Goldfarb 2014), Philanthropy, even if not so common, is also a motivation for CF, especially in donation-based campaigns involved in no-profit projects. Lastly, formalization of contracts is seen as an incentive for funders since, through the intermediation of CF platforms, is it possible to formalize what would otherwise be informal finance (such as friends and family who give the entrepreneur funds without a formal agreement).

1.3.3. CF Platforms

The process behind CF transactions may be complex, especially when the number of backers and micro- payments is high. Since the majority of founders is neither experienced nor interested in managing this process, they rely on intermediaries, the so-called CF platforms (Hemer 2011), who are web-based services. They act as neutral facilitators both for the project owners and the backers. Platforms tasks and activity intensity vary consistently. Some CFPs only offer the "physical" place where founders can present their projects and where financial pledges are administered and collected. On the contrary, other platforms make great effort and give advice, organise public relations, make arrangements with micro-payment providers etc. Sometimes they offer other value-added services beyond the sheer facilitation of funding (e.g. due diligence, consulting, managing a co-investment fund, search for co-investors, etc.)(Hemer 2011).

Since CFPs core activity is to manage these relations, they usually gain experience and professionalism allowing founders to heavily rely on platforms' services to successfully launch their campaigns. A simplify scheme of how CFPs work is offered below.

CFPs receive applications from project owners and they next decide which project to publish on the website based on some selection criteria. Not every platform makes a pre-selection, some of them automatically publish every idea. Platforms that use pre-selection usually check the background of the project owner and do a quick review on the feasibility of the CF plan and on the likelihood of the campaign to close successfully. After an idea is accepted by the online platform, the project owner is tasked with creating a funding goal over a marked period of time and an online "pitch" (most of the times in the form of a video), where the founders present his/her idea to potential funders. Fundraisers often utilise social networks to access potential

funders on a larger scale. Funders then fund the campaign directly through the online CF platform(Gajda et al. 2012).

CF platforms are predominantly for-profit businesses. Thus, their motivation of engaging in CF activity is linked to revenue purposes. Most of them employ a revenue model based on a transaction fee for successful projects, which can vary typically from 4–5% to 10% or more, depending on the country, of the total funding amount. As a consequence, their objective is to maximize the number and size of successful projects (Catalini, Agrawal, and Goldfarb 2014). CF platforms also have an incentive to attract projects that can generate a disproportionate share of media attention because they both expand the existing community of funders (further increasing network effects) and allow the platform to expand into new categories (Kain 2012). CF platforms differs not only for the CF model applied but also for the structure of the campaigns they host. In particular, CF campaign can take two different forms: *All Or Nothing* or *Keep It All,* which differs among each other in the rule on fundraising outcome.

All Or Nothing Vs Keep It All

The Keep-it-All (KIA) model provides that the entrepreneur set a fundraising goal and keep the entire amount raised regardless of whether or not the stated capital raising goal is reached.

With the All-or-Nothing (AON), the entrepreneur sets a fundraising goal and keeps nothing unless the goal is achieved. If the fundraising goal is not met, the crowd its given his money back and funders do not receive any stake in the firm equity.

Cumming et al. (2014) provided evidence that the use of AON is a credible signal to the crowd that the entrepreneur commits to undertake the project only if enough capital is raised. In this way they provides the crowd with a strong signal which translate in risk reduction for the crowd, which has evidence to believe that undercapitalized projects will not be undertaken, as can happen under the KIA model. For this reason the AON model enables startups to "set higher goals, raise more money, and be more likely to reach their stated goals. AON projects are expected to be larger and more successful, and investors will be more sensitive to information released by AON proponents. In contrast, KIA projects tend to be less successful, since the crowd bears the risk that an entrepreneurial firm undertakes a project that is underfunded and hence more likely to fail after the campaign."(D. J. Cumming, Leboeuf, and Schwienbacher 2014). Practical evidence shows how the KIA model is preferred to entrepreneur who are involved in scalable projects, still feasible with partial funding. Moreover, KIA campaigns can be continuative or not. Continuative KIA campaigns are not subjected to a time limit, while the non-continuative usually have a duration between 45-60 days. In general, KIA campaigns are

more suited to non-profit organizations or social causes, in which the CF form used the most is the donation-based. Donors give money to the campaign for a social cause like an earthquake or to sustain a cause which is continuative, like for example anti-cancer researches.

In chapter 2, paragraph 3, will be further explained the mechanism of CF platforms which applied the equity-based model.

CHAPTER 2 – EQUITY CROWDFUNDING: Selling Shares to the Crowd

Entrepreneurs face an inherent problem to attract outside capital at the early stage of their entrepreneurial innovative project because of a lack of collateral and an important information asymmetry. It appears that formal and informal venture capital (BAs) financing is not sufficient to fill the equity gaps that exist (Deff and Sudolska 2014). Many scholars studied the role of CF in this scenario and the potential that it has as an alternative source of funding to fill the gap created by traditional channels. The first paragraph of this chapter is intended to describe Equity CF and compare it to the traditional sources of equity funding such as VCs and Business Angels, as well as classify its role in the funding gap.

2.1 A Focus on ECF

As mentioned in the previous chapter, with equity crowdfunding (ECF), also defined crowdinvesting, funders receive compensation in the form of foundraisers' equity revenue or profit-share arrangements. In other words, the entrepreneur decides how much money he or she would like to raise in exchange for a percentage of equity and each crowdfunder receives a pro-rata share (usually ordinary shares) of the company depending on the fraction of the target amount they decide to commit (Wilson and Testoni 2014). According to Agrawal, Catalini, and Goldfarb (2015), there are gains from trade in the market for early-stage capital as much as it happens with other goods and services. For this reason investors who are interested in a particular technology market segment and have the desire to differentiate their portfolio with early-stage investment, would surely benefit from the availability of a greater selection of investment opportunities than those available in their home city, made possible thanks to equity CF platforms. Thus, ECF reduce the geography limits allowing for a greater connection among founders who need capital and funders who are keen to invest in early-stage ventures with the aim to gain from future returns, realizable through an exit.

From a legal standpoint, ECF is the most complex CF form since it involves the issue of creditors protection. Indeed, funders acquire an equity stake in the venture, which is usually in its early-stage phase. This means the value of the stake must be estimated on the basis of market forecasts and other factors which are not certain. Crowdinvesting thus involves a high degree of uncertainty, the level of which is much greater compared to the other models because it concerns the entrepreneur's ability to generate equity value in the company, which is extremely difficult to assess. Overall, these complexities pose problems that are distinct and more fundamental than those of the other CF models (Wilson and Testoni 2014).

Investment or equity models first became known through two platforms specialising in the music business: SellaBand and Bandstocks Holding model (Hemer 2011). Musicians defined a target amount and a time period as parameters for their campaigns through CF platforms. Then, they divided the target in thousands of equal slices which were offered to the crowd as equity shares at fixed prices.

Nowadays the mechanism through which ECF take place is pretty much the same, even if platforms can decide to apply two different models of fundraising rules, which are called the "all-or-nothing" or "keep-it-all", and will be explained later in the Chapter.

Equity-based platforms also differ in terms of sector verticals they choose to focus on or on the legal structure they apply and other smaller features. However, there are some general standards which have emerged. For example, each platform require some information such as the business plan and intended use of proceeds, the background of the founders team, the type of equity security being offered, the percent of the company being sold in the offering, amount of time remaining in the offering, as well as progresses made toward meeting funding target. (infoDev/The World Bank 2013)

Data from the Cambridge Centre for Alternative Finance show statistics about CF trends across Europe in the last years. In particular, as shown in figure 2.1, a total of €1,605m was generated for businesses across Europe from debt and equity models[5]. The remaining 3% of business
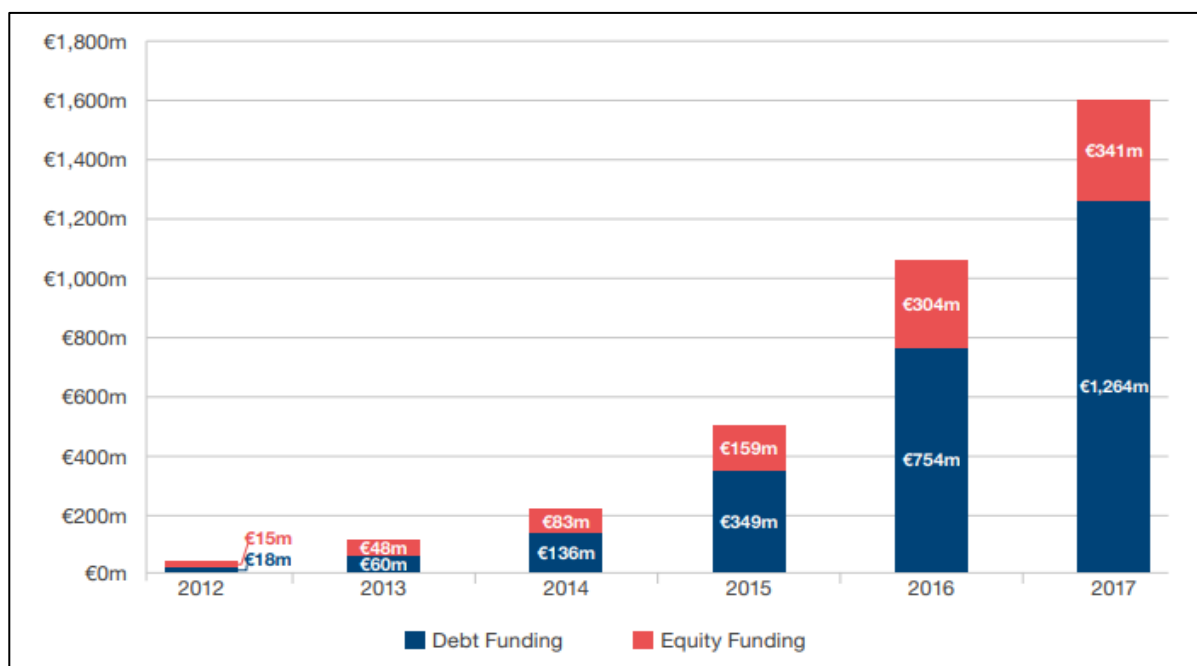
Figure 2.1: Debt vs Equity Online Alternative Business Finance 2012-2017 (€millions) (Ziegler et al. 2019)

---

[5]Debt-based business volumes include applicable volumes from the following models: P2P Business Lending, Balance Sheet Business lending, Invoice Trading, Minibonds, and applicable volumes from P2P Consumer Lending, P2P Property Lending, Balance Sheet Consumer Lending and Debt-based Securities. Equity-based business volumes came from the following models: Equity-based Crowdfunding, Real Estate Crowdfunding, and Profit Sharing

funding (€55.26m) came from non-investment models such as Reward-based or Donation-based CF. (Ziegler et al. 2019)

2.1.1 The Financing Options: ECF Vs. Traditional Funding Channels

Data from the Beahurst report of 2018 about UK market show how, even if PE and VC firms led the way with number of deals completed (figure 2.2), CF in the last year saw a steady growth, with a record of 360 deals closed through CF platforms. Indeed, 2018 in UK was dominated by CF platforms in terms of numbers of deal: in fact, if we observe the statistic of each platform, they singularly closed more deals than traditional channels, ranking at the first 10 places.[6] Perhaps a sign that government is starting to commit more seriously to funding ambitious businesses, especially those outside of London, where private capital is less likely to venture into (Beahurst 2018).
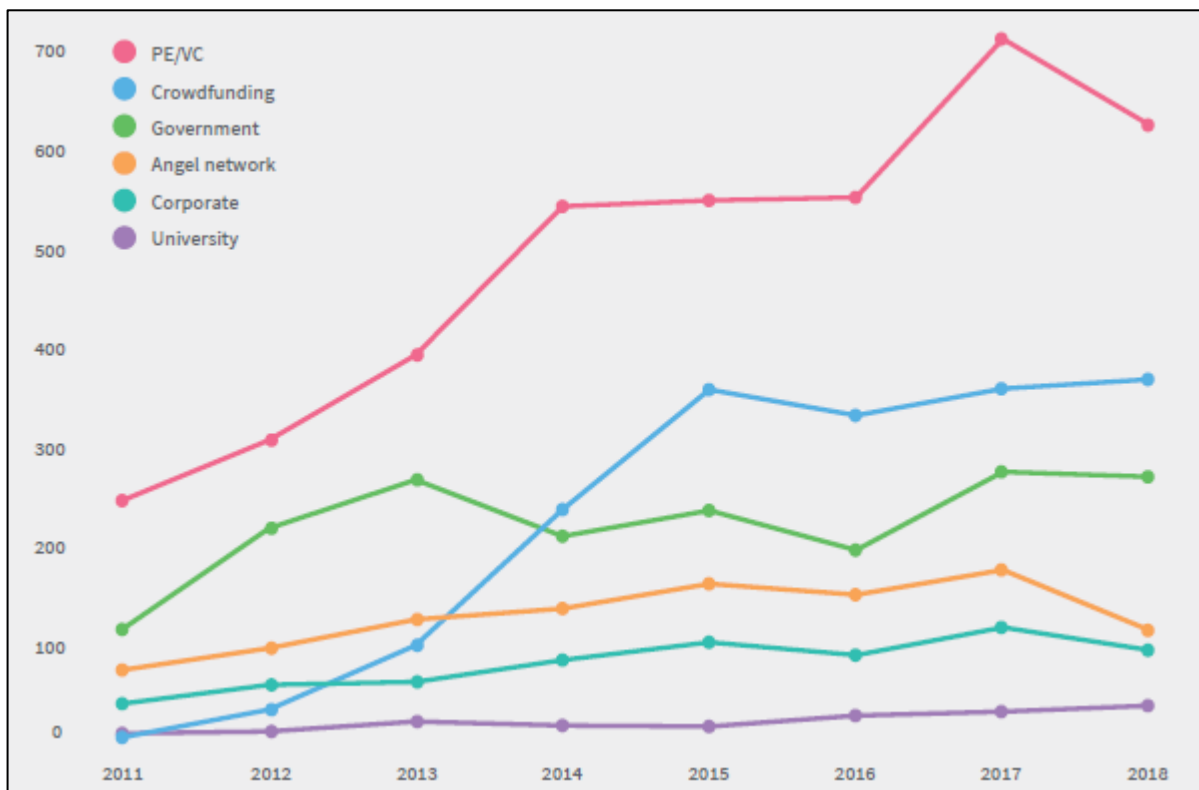
Figure 2.2: Deals by investor type over time (Beahurst 2018)

---

[6] Seeders ranked first with 168 deals closed, followed by Crowdcube with 158. (data from Beahurst 2018, The Deal).
For more detailed information see paragraph 2.5

From the Beauhrst report of 2018 it is also clear that CF is growing and gaining ground on the panorama of seed and venture stage businesses while for established and growth-stage companies the leading backers remains the traditional channels. This phenomenon is largely explained by the nature of CF, which, as clarified in the previous chapter, allow for early-stage ventures to raise funds whereas traditional means don't provide them, filling what is called the funding gap.
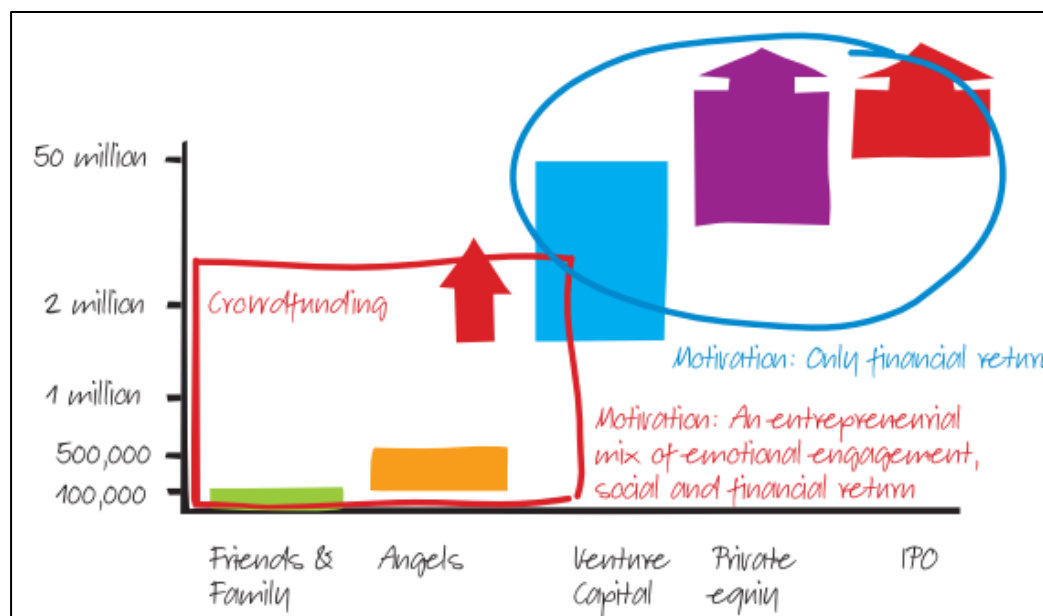
Figure 2.3: The Early-stage Equity Investment Ecosystem (De Buysere, Gajda et al. 2012)

In the remainder of this paragraph, this thesis is going to classify the traditional funding channels, Venture Capitals and Business Angels, and compare them with ECF dynamics, in order to provide a broader picture of the early-stage investment panorama.

The most common reason for project failure is the inability of founders to connect with a sufficient number of investors (An, Quercia, and Crowcroft 2014).

Figure 2.3 from Gajda et al. (2012) provide us a summary of the financing options for a business according to its different life-cycle stage. Traditionally there have been three sources of equity funding for young innovative firms: founders, family and friends; angel investors; and venture capitalists (Wilson and Testoni 2014).

The European Business Angel Association (EBAN) released a report in 2018 presenting an overview of the European early stage investment market. In particular, they estimated it to be
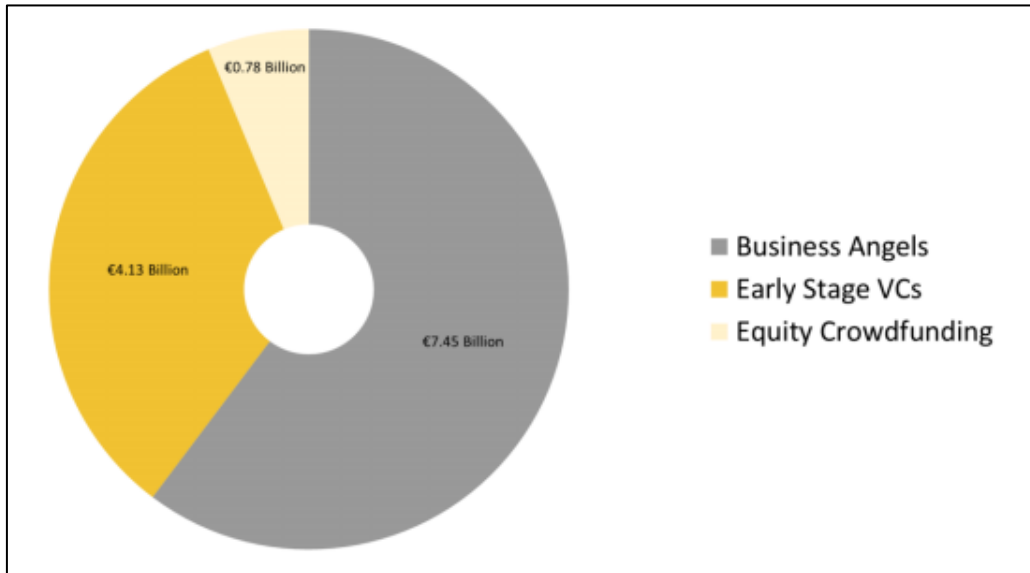
Figure 2.4: Early Stage Investment Market (EBAN 2018)

worth 12,3 billion Euros. Business angels represent the biggest share of the investment market with 7.45 billion Euros, equal to approximately 60% of the total market, followed by the early stage venture capital industry investing 4.13 billion Euros. ECF investments have been growing steadily in the past three years and are expected to continue at this pace (EBAN 2018; Directorate European Commission 2017; InvestEurope 2018).

3F: Family, Friends and Fools

The most common first source of funding for new ventures is the founders' own capital along with the so-called *love capital*[7]. The term identifies the initial capital for the starting of the business provided by the 3Fs, which are Family, Friends, and Fools. Family and friends are the closest people to the entrepreneur who are usually the first ones to provide seed capital in the first phases of development of the start-up (seed stage). (Wilson and Testoni 2014) The third "f" stays for fools: this category includes investors who are especially risk-seekers and keen to invest in risky businesses.

It is indeed well recognized that new ventures face diffculties in attracting external finance at their very initial stage, be it through bank loans or equity capital. While business angels and venture capital funds fill gaps for larger amounts, the smallest amounts are provided by entrepreneurs themselves and the 3Fs (Belleflamme, Lambert, and Schwienbacher 2010). Moreover, it has been found that 20-40% of initial fundings in Kickstarter come from family

---

[7] economyup.it/glossario/love-capital-o-fff-family-friends-fools-definizione/

and friends. These individuals tend to be newcomers or occasional investors who support projects because of their personal relationships with the founders. (An, Quercia, and Crowcroft 2014)

This findings were further confirmed by economists who, investigating pleading behaviour They found out that even if CF eliminates distance-related economic frictions, yet initial findings tend often to come from family, friends and acquaintances (Agrawal, Catalini, and Goldfarb 2011).

Furthermore, family and friends also played a strategic role in ECF campaigns. In fact, it is a common practise for ECF platforms to ask entrepreneurs to collect money from this category of investors before going to the crowd. This happen because if neither the people close to the entrepreneur are willing to commit capital for its venture, why should be the crowd willing to do it? Thus, collecting as much money as possible from relatives and friends gives a signal of credibility to the entrepreneur project.

Business Angels

Angel investors are experienced entrepreneurs or business-people that choose to invest their own funds into a new venture. They typically invest in seed and early stage ventures with amounts ranging from $25,000 to $500,000. Angels invest not only for the potential financial return, but in many cases to give back by helping other entrepreneurs (Wilson and Testoni 2014).

The launch of co-investment funds with business angels has proven to be an efficient way to attract "new money" in many countries as well as expertise from the market, helping to fund thousands of innovative companies. Business angels bring capital, knowledge, experience and a network to start-ups and help them to scale-up, while they represent the main source of seed and early stage investment in Europe.(BAF and Directorate European Commission 2017)

The size of the visible and invisible business angel market in Europe increased to an estimated 7.45 billion Euros in 2018, a growth of 2.44% from 2017, remaining the main equity market for early stage SMEs and European start-ups. Data from EBAN statistics compendium of 2018 show that the business angel community in Europe grew to an estimated 345.000 investors which closed 37,200 deals in 2018. Overall and taking into consideration other early stage investors operating in Europe, the sector, which includes early stage VCs and ECF, reached an estimated €12.3b of investment in 2018. For what concern the European panorama, within the visible market, "the United Kingdom continues to be the leading country with 109.4 million Euros invested in 2018, followed by Germany with 86.6 million euros of angel investment in 2018, and Spain with 58.7 million Euros of annual investment. In terms of stages of

development, angel investors typically invest in the "seed stage" (62% of all investments made), with "pre-seed stage" becoming less popular than in previous years (36% in 2018 vs. 63% in 2017). Angels are apparently investing more often in later stages, with pre-series A and series A stages growing from 30% in 2017 to 40% in 2018 (Figure 2.5). Co-investment continues to rule, although more business angels are starting to shift from investing with other business angels to investing through early-stage funds. Over the past years, the market has been growing in terms of total amount invested as well as the number of business angels, but in 2015 and in 2018 we saw a slight drop in number of investments, indication of the effect of increased BA co-investment funds and syndication among angels" (EBAN 2018)

Co-investment among angels usually happens through *angel-clubs*. The club model is applied when, to avoid bureaucracy and cost, some platforms organise their community by recruiting potential funders from the crowd as members of a closed circle, which acts like an investment club. The regulatory provisions are then less strict, because members of these clubs are regarded as "qualified investors" who need less legal protection.(Hemer 2011).

For what concern the time horizon of investments, Business Angel investors mainly have long-term investment horizons, hence the name "patient capital" with holding periods of the investment of 5 or more years. This trend highlights the implied idea to build longer-term partnerships within the investment case. In detail, angel investments in the seed and start-up stage were 34% in 2018, a decrease of 7% from 2017 and 2016 levels. Angel investments in the early stage were 41% in 2018, identical to the 2017 allocations. However, angels increased, to 21%, their investment in expansion stage companies. This increase in expansion financing indicates that angels were concerned with building a longer runway for their investments, but this came at the expense of investments in the next generation of ventures, as indicated by the decrease in seed and start-up stage investments (Sohl 2018).

Venture Capitals
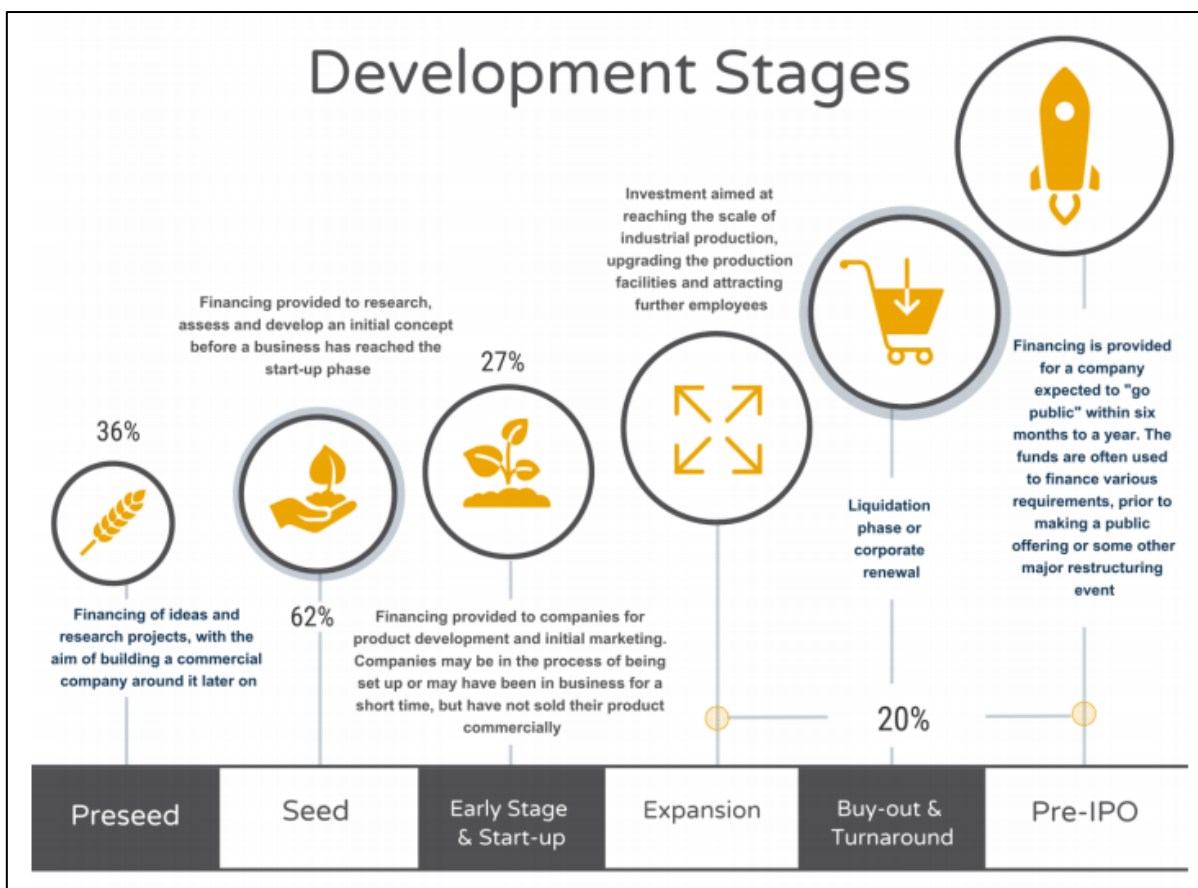
Figure 2.5: Investments by investee's development stage in 2018 (EBAN 2018)

Venture capital is a crucial and growing part of Europe's investment ecosystem, contributing to innovation, jobs and growth across the continent. Venture capital is considered 'professional' equity, in the form of a fund run by general partners, and aims at investments in firms in early to expansion stages. The source of capital pooled into venture capital funds is predominately institutional investors. Venture capital firms typically invest around $3m and $5m per round in a company. The contributions of angel investors and venture capital firms are not limited to the provision of finance. They are actively involved in monitoring the companies in which they invest and often provide critical resources such as industry expertise and a valuable network of contacts (Wilson and Testoni 2014). Apart from financing the VC can provide the company with a list of extra benefits which are crucial for business growth and development. The venture-backed company wants to enjoy these direct and indirect benefits that a company can exploit when financed by a VC.

These benefits are the followings (Caselli and Negri 2018)[8]:

---

[8] From Online course of SDA BOCCONI on Courshera: https://www.coursera.org/learn/private-equity

Certification Benefit: due to the long screening phase before deciding to invest in a company, if the VC finally does choose to invest in the venture-backed company, in a way, that confirms the very high quality of the company's accounts. This can give a sign of great health of the company and this high quality can be used as a kind of promotion for the venture-backed company's brand.

Network Benefit: the VC can give the company a very strong network, in terms of suppliers, customers and banks therefore multiplying its possible contacts.

Knowledge Benefit: The VC can transfer knowledge to the company in terms of either *Soft Knowledge* (the capability to manage the business) and *Hard Knowledge* (the specific-field knowledge of a business, which applies particularly to high-tech or pharmaceutical industries). With this knowledge, an investor can even carry the company through very hard and difficult steps, such as a merger and acquisition (M&A) process. The VC plays the role of an advisor and mentor.

Financial Benefit: The financial benefit is generated through the injection of cash in return for shares

of the venture-backed company. The increase generates the following effect on the cost of capital: more equity brings to a higher rating which in turns allow for a positive effect on the cost of capital.

Moreover, InvestEurope provided us a classification of venture capital investment according to the stage of the venture-backed company. In particular, Early-stage funds focus on investing in companies in the early stages of their lives; Later-stage funds provide capital for an operating company which may or may not be profitable (Typically in C or D rounds); Venture fund (at all stages) focus on both early and later stage investments (InvestEurope 2018).

Data from the European Investment Fund (EIF.org) reveal that from 2007 to 2015, investors poured about euros 35 billion into early and later-stage start-ups located in the 28 EU countries(Crisanti, Pavlova, and Krantz 2019). The average amount received in an initial VC round was euros 1.45m, but due to the high variation, mostly dependent on the geography, this number doesn't apply to most start-ups. Aside from geography, the amount of money a start-up will receive is also shaped by its stage and industry. It is no surprise that later-stage ventures tend to receive significantly more money than seed and start-up firms. Similarly, the sector of the ventures plays a relevant role in amount of funds received by VCs. Indeed, the life sciences industry's strong needs for capital translate into larger investment rounds than information and

communications technology (ICT), which in turn gets about as much money as manufacturing or green technologies on average.(Crisanti, Pavlova, and Krantz 2019).

From a global perspective Venture capital deal activity has expanded rapidly over the past decade; global deal flow has more than doubled, while aggregate deal value has more than quadrupled in the period. This, coupled with the growing influence of non-traditional investors entering the venture capital market, is fuelling competition in the industry. Consequently, portfolio company valuations are at record-high levels, raising concerns among investors of over-inflated assets and the sustainability of the market (PREQIN 2018).
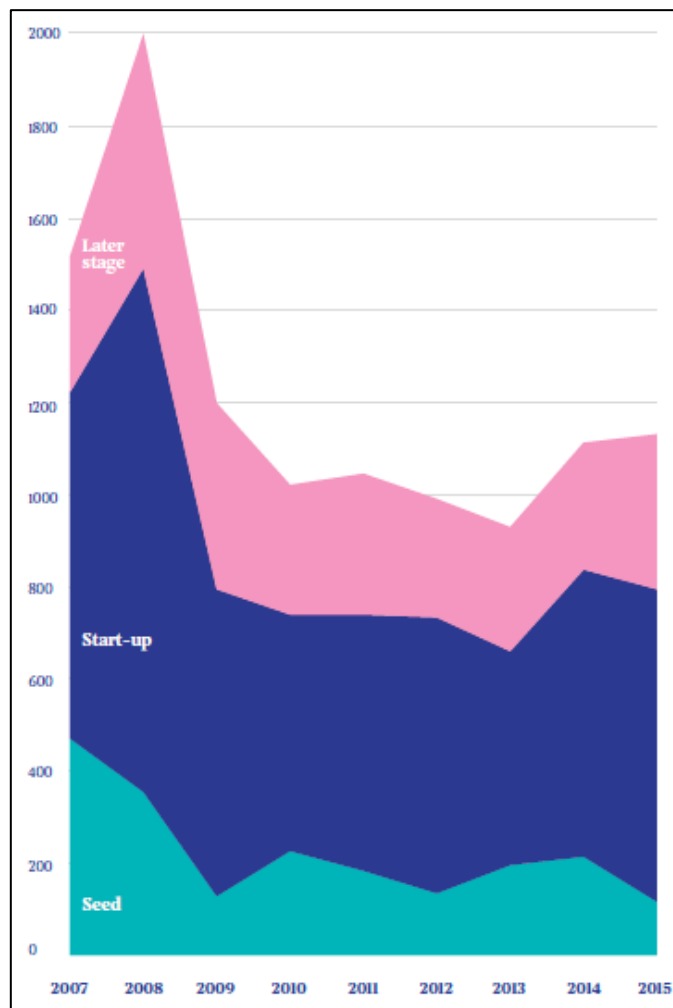
Figure 2.6: Number of VC-backed start-ups by stage 2007-2015 (EIF 2019)

2.1.2 The Funding Gap

Starting from the definition given by Investopedia, a funding gap is "the amount of money needed to fund the ongoing operations or future development of a business or project that is not currently funded with cash, equity, or debt." This definition draws a clear and general picture of the nature of a funding gap, identified simply as a shortage of financial resources needed to fund a project, but does not clarify when the funding gap happens and how the financial world addresses it.

Usually the shortage of money to fund projects happens to early stage venture and innovative startups who face difficulties in securing finance from traditional channels given the illiquidity of the investment and the risky nature. Obstacles to the financing of innovative projects are not only due to the rarity of funds or the rarity of the good projects. They are due to a difficulty

41

convincing of the potential of value creation in a phase dominated by the uncertainty (Deff and Sudolska 2014).

As Ferrary and Granovetter explained, "there is a stage in the life-cycle of high-tech start-ups when they need external funding because they do not generate sufficient revenues. VC funding is crucial at this stage. [...] The financial risk of VC investment is very high. Commercial banks do not lend money to high-tech start-ups because of the high risk. Lacking assets or a proven cash flow, start-ups are unable to raise capital from conventional sources, such as commercial banks or the public market."(Ferrary and Granovetter 2009). Indeed, as a result of the financial crisis, banks are even more reluctant to fund young firms because of their perceived riskiness and lack of collateral. Yet, venture capital firms, who should fill the gap that banks leave unserved, are focusing more on later-stage investments and have left a significant funding gap at the seed and early stage.(Wilson and Testoni 2014). Moreover, competition is high for VC funds, and anecdotal evidence suggests that less than one in one hundred to perhaps one in one thousand business plans presented to a VC are ever funded (Dos Santos, Patel, & D'Souza, 2011; Lavinsky, 2011; cited by Gajda et al. 2012). Therefore, many ventures remain unfunded, partially because of a lack of sufficient value that can be pledged to investors, partially because of unsuccessful attempts to find and convince investors (Beaulieu, Sarker, and et al. 2015). In particular, two are the main factors acting on the difficulties of ventures to find financing. In general, all sources of uncertainty reduce the possibility of accessing traditional financing resources (Ferrary, Granovetter, 2009), but the two main problems an entrepreneur face when looking for funds are represented by the *agency problem* and the *asymmetric information problem.* These two problems are exacerbated during the creation phase (Deff and Sudolska 2014).

In fact, in the world of SMEs, both ex-ante and ex-post information asymmetry between them and outside stakeholders is usually more acute. As Esho and Verhoef (2018) explained in their paper, ex-ante information asymmetry exists before finance is given and limits finance sources while ex-post information asymmetry increases default and makes financing more expensive by increasing transaction costs. Moreover, SMEs generally also do not have access to formal capital markets, apart from financial institutions, when they need external funding. Consequently, small and medium businesses are more prone to the consequences of any gap in funding. In this scenario, the importance of angel investors has increased and as a result, particularly those investing through groups or syndicates, are active in this investment segment and thus help to fill this increasing financing gap. (Wilson and Testoni 2014) In addition, CF may appear to be a possible alternative route, allowing to increase the capital allocated to innovative projects and startups. In particular, ECF is assimilable to a syndication of business

angels to the extent in which a group of people collect money to reach a financing target, but it departs from the models of traditional angel investors and venture capital firms because transactions are intermediated by an online platform (Testoni 2014). CF, on the other hand, is a new technology-enabled innovation that significantly alters the institutionalized process of raising capital by founders and has been referred to as the democratization of entrepreneurial funding (Beaulieu, Sarker, and et al. 2015).

Beaulieu et al. (2015) identified some reasons why CF may result as a positive innovation for the market. First, the nature of many projects could be not appropriate for funding through traditional means, either because they have an unproven track record, or because they may not have the growth potential that VC firms or angel financing seek. Thus, CF has enlarged the market for projects for which traditional forms of financing were never an option. In addition, traditional sources of financing may look to CF as a value-added step through which a market can be identified. This is the case, for example, when a VC firm initially was not willing to fund a venture but it later decide to back it if they are able to prove, through CF, that a market actually exists (Beaulieu, Sarker, and et al. 2015).

The World Bank, through its report on CF, provided its picture of where CF fits into the funding lifecycle of growing firms (figure 2.6). Crowdfund investing is suitable for many types of enterprise, most notably high-growth start-ups, often in the technology sector, research institutions as well as more traditional small businesses (infoDev/The World Bank 2013).
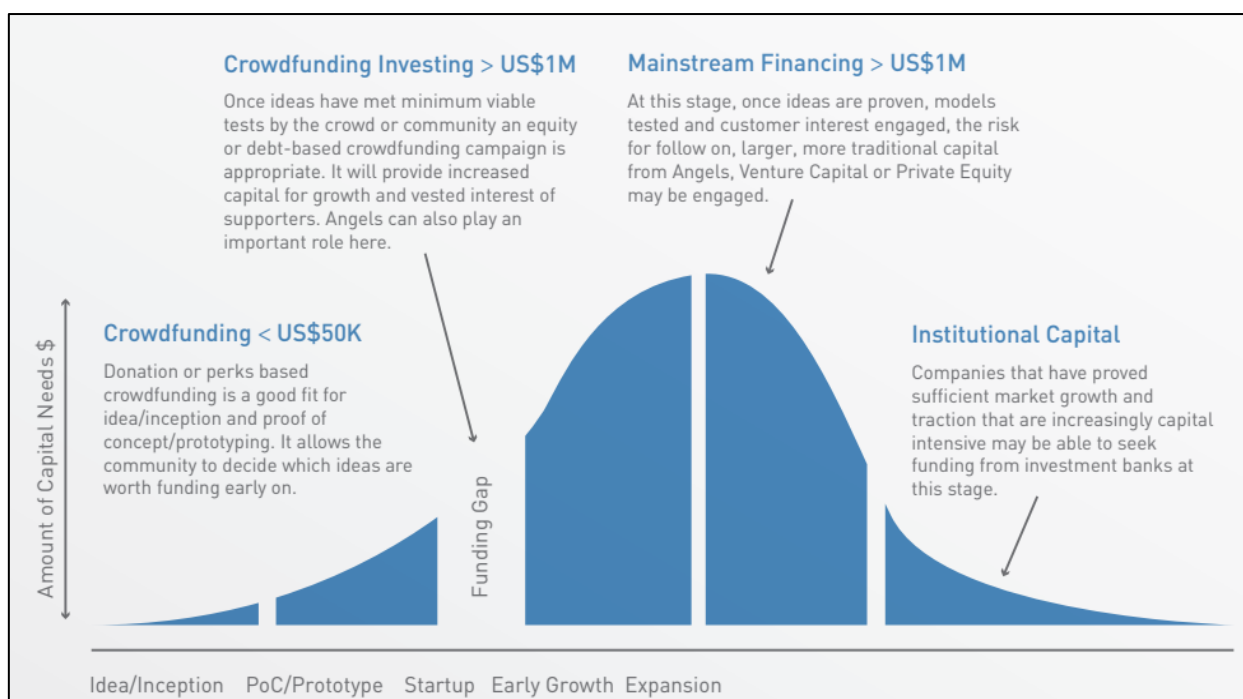
Figure 2.7: CF adoption curve (infoDev 2013)

2.2 Risks and Benefits of Equity Crowdfunding

2.2.1 Risks

The nature and characteristics of ECF makes investments in seed and early-stage companies risky. In fact, rather than disadvantages or cons, the literature on ECF focuses on risks linked to this type of equity investment. The master of risks is from investors' point of view, the possibility to lose all the money invested when the startup doesn't reach the forecasted goals and doesn't make a successful exit (Magnani 2019). Moreover, information is not always certified: as Magnani stressed in her article, the Italian law provides that the Consob has to supervise platforms but not the information content published by companies on ECF platforms. ECF is considered to have more difficult time catching on compared to other models because contracts are more complicated, since the level of investment is so high that there is a strong preference for funders to intimately know the entrepreneurs and their businesses (Vulkan, Astebro, and Fernandez 2016). As a matter of fact, information asymmetry problems common to seed and early-stage financing are exacerbated in ECF. Especially, Wilson and Testoni (2014) identified four main aspects affected by information asymmetries: s*election and valuation*, *investment, Post-investment support and monitoring, and exit.*

Selection and Valuation

The first aspect concerns the problem of due diligence. VCs and BAs usually perform due diligence to assess the potential value of a firm before making the investment decision. Due diligence is an essential step in investment decision making and it is a major determinant in achieving return of investment. It is costly and time consuming but usually justified by the huge amount of the investment. Because their investments are relatively small, crowdinvestors have less incentive to perform due diligence (Wilson and Testoni 2014). "Moreover, individual investors have the possibility of free-riding on the investment decisions of others. This implies that the CF community may systematically underinvest in due diligence" (Agrawal et al, 2013; Testoni 2014).

Current practice in ECF establish that entrepreneurs set the value of the business prior to the start of the CF campaign, in order to decide how much equity to offer for the amount of capital they want to raise. Value estimation for a startup could be problematic, either for the lack of historic financials and also because there are often parts of the business, such as intellectual property or estimations on market size and scale that are difficult to estimate or quantify (Gajda et al. 2012). Accordingly, an overvaluation or undervaluation of the business is quite common in this framework. Due diligence is thus a missing element in ECF because, given the nature of

platforms which are open to the public and allow everyone to join, the crowd often includes non-professional investors, who do not have the knowledge or capabilities to properly estimate the value of a company. "They will be less accustomed to reading financial documents and inferring the viability of a new start-up, as well as unable to meet entrepreneurs in person, hindering their ability to conduct in-depth due diligence."(Beckwith 2016). For this reason, startups valuations performed by a crowd might be affected by social biases and herding behaviour.

"Evidence suggests that a crowdfunders' investment decision might be affected by those of the other investors (Agrawal et al, 2011; Kuppuswamy and Bayus, 2013). Moreover, different studies have found that both the crowd and entrepreneurs are typically initially overoptimistic about potential outcomes (Mollick, 2013b; Agrawal et al, 2013)" (cited by Testoni 2014).

Investment

When VCs and BAs invest in seed and early-stage firms, they usually require tailored contracts, through the use of covenants and provisions, to align their interests to those of the entrepreneur. ECF instead relies more on standardised contracts provided by the platforms through which funders invest. ECF settings try to replicate these mechanisms but the degree of personalization is without no doubt lower than VCs' investments. Moreover, BAs and VCs usually diversify their portfolio investing in a variety of companies. On the contrary, equity crowdfunders not always have the possibility of mitigating the risk through diversification strategy in the same way of traditional investors. Furthermore, the majority of non-professional investors might not be aware of the importance of this strategy and could potentially concentrate all their investments in a single venture. For example, Seedrs[9] statistics show that 41 percent of investors hold only one company in their portfolio (Wilson and Testoni 2014). Another risk factor for crowdfunders is that they usually cannot participate in follow-on rounds, increasing the risk of dilution and consequently reducing the chances of a positive return. All these elements increase the riskiness of an ECF investment for potential funders.

Post-investment support and monitoring

An important advantage of choosing a VC or a BA as a backer is to take advantage from their network benefits and the support that the funder gives to the venture in its initial stage. This happens because, as described in paragraph 2.1, VCs and BAs not only provide finance to startups, but they are also actively involved in increasing the value of the company (Wilson and

---

[9] https://www.seedrs.com/

Testoni 2014). When a firm decides to choose the crowd as a backer it usually misses this support benefit. Indeed, given their typical small level of investment, crowdfunders have less incentive to provide active support to the company because the return for their action is lower (Catalini, Agrawal, and Goldfarb 2014). At the same, time, it could be too costly for a startup to manage a crowd of investors if they decide to become active. As a consequence, entrepreneurs who opt for ECF instead of venture capital may miss out on the industry knowledge, guidance, and connections that a VC typically provides (Beckwith 2016). Moreover, one element that contributes in raising the risk of ECF investments from the investors point of view is the presence of information asymmetries that characterises the post investment phase. Information asymmetries are amplified by the geographical distance which, even if it enables backers to attain access to a wider pool of entrepreneurs (and visa-versa), it also entails higher monitoring costs (Wilson and Testoni 2014), thus limiting the monitoring potential of the crowd. In addition, both information asymmetries and geographical distance between entrepreneur and funder increase the risk for fraud. Critics point out the potential for funders to fund scams through CF platforms. In fact, since the crowdfunders have no personal contact or real knowledge of the business idea beyond what is presented on the CF website, they have a lower capability of detecting scams. This is the reason why most CF websites already have fraud detection mechanisms in place (Gajda et al. 2012).

Exit

The main characteristic of equity investment, especially in seed and early-stage firms, is their degree of illiquidity. Liquidity refers to how easy it is to convert a security (something that you own with economic value) into cash money. Equity in a listed public company can be nearly instantaneously traded on the stock exchange, and is therefore highly liquid.[10] On the other hand, an illiquid investment is one that you cannot readily sell or that you'd need to sell at a deep discount relative to its market value. Equity in a startup is highly illiquid, as it is more difficult to sell, and startup investors make a profit from their investments when they sell part or all of their portion of ownership in the company during what is called an *exit*. An exit is a liquidity event which allow investors to exit from their investment and provide a return if the outcome of the exit is positive, usually through an IPO, an M&A, or in rare cases a buyback.

Moreover, the duration of this type of investment usually takes between 5 and 10 years, after which it is likely to not have any positive exits. Crowd investors might not appreciate that

---

[10] https://fundersclub.com/

long periods are necessary for these investments to either succeed or fail, or that most of these investments are unlikely to yield any return (Wilson and Testoni 2014).

Disclosure

Another debated risk of ECF is about disclosure. Argawal, Catalini, and Goldfarb (2013) claim that the need to disclose confidential details about an early-stage venture may provide a huge deterrent for entrepreneurs. Publicizing a new company before launch may have negative repercussions for its intellectual property rights and bargaining power with suppliers (Beckwith 2016). Indeed, CF platforms require startups to disclose certain information such as the business plan, the technology used, as well as the competition landscape. Moreover, in order to have access to more sensible information such as the financials of the company or the capital structure, an investor usually only need to register on the platform and ask for this material. For this reason, ECF allows startups to have an open exposure to the public of potential competitors and could hurts the company's competitive advantage. Accordingly, ECF is suited to that firms whose products are protected by patents, firms which can protect their intellectual capital through means other than secrecy, for startups whose business is not particularly innovative or whose competitive advantage could not be eroded by early disclosure. (Wilson and Testoni 2014)

2.2.2 Benefits

Scholars identify various benefits related to ECF, apart from the obvious advantage of having access to an alternative source of finance. First, ECF allows entrepreneurs to access individuals with the highest willingness to pay for equity in their ventures on a truly global scale (Beckwith 2016). In particular, an added advantage of ECF compared to traditional funding channels is that crowdfunding could help entrepreneurs to turn potential consumers into investors. This is the case when financing from the crowd allow entrepreneurs to collect funds from a pool of actual or potential consumers who, with their money, vote on the entrepreneur ideas, thus providing credible feedback on how good the ideas are (Zhang et al. 2019). For this reason, Beckwith (2016) call ECF a "validation tool" to ensure that there is substantial demand for the product, providing a particularly informative type of market research. The italian newspaper IlSole24Ore (20189) characterized ECF as an "innovative and democratic" source of finance, in the sense that the final result of the campaign (and thus of the funding round) depends only from the judgement on quality level of a firm business plan, rather than from some "collateral factors" such as the networking or the geographic location (Magnani 2019).

Other scholars also hypothesize that ECF may be attractive for the same reason for which it could be risky: using the crowd instead of traditional investors as backers allow firms to transfer less control to funders compared to a venture capital arrangement. "Indeed, most crowdfunders will take on very small shareholding positions, limiting their voting rights and their ability to interfere with the entrepreneur's vision."(Beckwith 2016).

Furthermore, crowdfunders can also extract social and emotional benefits from backing a startups, that goes beyond the sole motivation for a financial return. A survey of Seedrs users revealed that the three top motivations for investors to fund start-ups are the desire to help new businesses get off the ground, the ability to exploit tax reliefs, and the hope of achieving meaningful financial returns (Wilson and Testoni 2014). Wilson and Testoni (2014) also found other benefits from the analysis of Seedrs dynamics. Among the others, they uncovered the benefit given by the heterogeneity of investment spectrum that the crowd gives compared to VCs. In fact, while venture capitals usually tend to focus on technology-based companies, crowd investors comprise more various investment motives, not always focused on high-risk/high-yield investments, allowing for a broader investment spectrum on CF platforms. "The fact that crowd investors derive also non-financial benefits from the investment implies that they might also be willing to accept higher risks or lower returns than an investor seeking to maximise financial returns" (Collins and Pierrakis, 2012; Testoni 2014). As a result, when surfing on the portfolio of open campaign on platforms such as Seedrs and Crowdcube[11], it is possible to notice startups engaged in a variety of sectors, ranging from digital to, Artificial Intelligence (AI), food and drink, high-tech, art and music, fin-tech, Internet of Things (IoT), fashion and apparel, real estate and many others.

Another benefit pinpointed by the authors is the fact that ECF through the intermediation of platforms might improve the efficiency of the market by enabling for a better and faster match between investors and startups compared to the traditional channels who heavily rely on word-of-mouth.

In addition, ECF "can be used before and as a supplement for government support funds, business angels and bank loans, whilst enabling entrepreneurs to either grow their business organically or to scale the business fast through equity investment to make it attractive for early-stage venture capital funds"(Gajda et al. 2012).

---

[11] https://www.crowdcube.com/

2.3 ECF Dynamics

2.3.1 Campaigns Success Factors: Signalling and Herding Behaviour

Since when CF started spreading all over the world as a new way of financing, scholars have started investigating the reason why some campaign succeed in attracting funds and others fail. Many authors concluded theoretical and analytical studies in order to identify the major causes of success of CF campaigns. This paragraph is intended to summarize two main aspects in which the majority of scholars agree: the signalling theory and the herding behaviour theory.

CF market operates in a largely rational manner, even among retail investors who are arguably less sophisticated. Crowdfunding investors seem to pay a great deal of attention to the financial and governance material that firms provide (D. Cumming and Ahlers 2017).

Vismara (2016) studied the effect that early investors and the investors' public profiles have on campaigns success. The author tested the "information cascades" among investors in order to find a correlation with successful fundraising. "An Information cascade or informational cascade is a phenomenon described in behavioural economics and network theory in which a number of people make the same decision in a sequential fashion"[12]. The concept is similar to what is called herd behaviour: "is the behaviour of individuals in a group acting collectively without centralized direction". CF campaigns are an ideal setting where to analyse these phenomena because "the projects seeking finance are characterized by high risk and uncertainty, crowdfunders are typically amateur investors with high monitoring costs and limited skills and opportunities to perform due diligence; there are no third-party certification mechanisms (such as IPO underwriters) in crowdfunding marketplaces; the very functioning of these markets relies on the wisdom of the crowd. Finally, the name (or nickname) of the individual investors is often publicly available, making it feasible for investors to interpret the signal provided by their behaviour."(Vismara 2016). In fact, according to the author survey, when making investment decisions, most respondents look at who already invested in projects and read comments by other investors. In CF settings, crowd investors can neither rely on official reports issued by financial analysts, nor on third party certifications, but they can only rely on the documentation published by the entrepreneur on the campaign page. For this reason, the *signals* delivered by other investors become essential. Thus, later investors may learn by observing the behaviour of previous backers, who making early contributions in the first days of an offering send signals to potential late investors that they believe in the project and trust its proponent.

---

[12] https://en.wikipedia.org/

Indeed, ventures that fail to reach their funding target identify the inability to generate early-stage momentum and insufficient marketing as the primary causes of their failure (Vismara 2016).

The author demonstrated that not only contributions in the early days of offering are fundamental in attracting other investors and, thus, increase the probability of success of the campaigns, but also that public profile investors play a crucial role in attracting other investors in the initial days of the campaign. This is made possible for two reason. "First, uniformed investors receive a strong signal from non-anonymous investors who are expected to be better informed and more experienced. Second, investors with a public profile are more likely to generate the word-of-mouth effect

around the project in which they invested"(Vismara 2016).

What is clear from this analysis is that quality signals are conceptualized as success factors in the literature. "Because the quality of young companies often cannot be observed directly, evaluators must appraise the company based on observable attributes that are thought to co-vary with its underlying but unknown quality." (Stuart, Hoang, and Hybels 1999, cited by Cumming and Ahlers 2017). Backers thus respond to quality signal in CF settings, and equity crowdfunding is most successful when entrepreneurs reduce uncertainty for potential investors by signalling quality (Gammelgaard and Bossen 2018). That being said, it is important to understand how entrepreneurs can signal the quality of their ideas to potential investors.) As Cumming et al. (2017) explained, signals to be effective must share two characteristics: observability and signal cost. "Observability is the extent to which the signal is noticed and understood by investors; signal cost must be structured so that dishonest signals are not rewarded, and so the cost of producing the signal doesn't outweigh its benefits." In CF contest signals can take two forms: fact-based signals and performance-based signals. The formers include those attributes which are inalterable and not chosen by founders, such as the board experience and the presence of external certifications. The other type of signals might be set by founders in order to offer a proper image of their business. These include for example, capital market roadmaps and risk level. Beckwith (2016) collected data from AngelList[13], a US based CF platform, to investigate those signals, and he found out that exists a relationship between a company's likelihood of crowdfunding success and its previous funding history. Moreover, he uncovered that also the presence social media (higher visibility granted to hot projects even outside the platform extends the basis of potential backers further (Vismara 2016)), the size and location of the entrepreneur and the funders' educational background play a role in determining

---

[13] https://angel.co/

the success of an ECF campaign. Cumming et al. (2017) conducted an empirical examination on the effect that different types of signals have on crowd investors. They highlighted the importance of signals like financial roadmaps, such as structured pre-planned exit strategies, and risk factors such as the amount of equity offered and the provision of financial forecasts. The experience and educational level of the founders and board also engrave on the campaign success, while it appeared to the authors that external certifications, such as patents, have not significant impact on success.

Correia, Sousa, and Brandão (2019) explored the drivers of fundraising success in ECF using a database from the two major platforms of equity crowdfunding in the United Kingdom (Seedrs and Crowdcube) for the period between 2015 and 2018. They found that the factors contributing the most to the success of equity crowdfunding campaigns are: "equity retention, the presence of a large investor, the entrepreneur commitment with the project, maintaining an intensive interaction with the investors during the campaign (providing updates of the project and answer to the Q&A posed by investors) and a ensuring a good start of the campaign (through, for instance, capturing some relevant early investments before the campaign is active)".

An important consideration which emerges from all these researches is that campaigns' success not only depend on the intrinsic quality of the project, but it is rather correlated to a series of other factors, among which the most important is the founders' commitment, translated into their capacity to attract early backers and stimulate interest into their project.

For what concern the *herding behaviour* aspect, Vulkan (2016), in his study on ECF concluded that "funding propensity increases with accumulated capital and may lead to herding", confirming what other scholars found out in analysing other CF models. Herding is common in all types of crowdfunding, which entails an high degree of uncertainty: "the decisions of the crowd provide some information in the absence of much else" (Vulkan, Astebro, and Fernandez 2016).

Put in simple words, herding means that the decisions of early funders may affect the decisions of later funders, as much that in the extreme case, funders may even ignore their private information (Belleflamme, Omrani, and Peitz 2015). As Belleflamme et al. (2015) noticed, herding can lead to inefficiencies, to the extent that "those lucky to receive initial favourable attention are more likely to make it even if they are less deserving than other projects that were initially not so lucky", altering the "meritocratic" allocation of funds among projects. These theories must be confirmed by ECF platforms mechanisms. In fact, some platforms, such as Seedrs and Crowdcube in UK, and ExitValley[14] in Israel, structure all the campaigns in such

---

[14] https://www.exitvalley.com/

way that they go private for a short period of time before going public. Doing this, entrepreneurs can collect funds from relatives and friends as early backers in order to start the public launch having already collected a percentage of the target amount and signal to later backers the quality of their projects. This mechanism is made possible because, while in reward-based CF proponents raise as much as possible, in equity crowdfunding, there is a maximum number of shares that entrepreneurs are willing to sell, thus a maximum amount to raise. "This affects the funding dynamics, since waiting entails the risk of not being able to participate in the campaign and, thus, sets a limit to the extent to which undecided investors can wait" (Vismara 2016).

2.3.2 ECF Platforms Functioning

ECF Platforms differ from other CF models platforms in a series of way. First of all, since they are related to the selling of equity, in some cases (as in Italy) they need to be regulated by the legal authority. Moreover, ECF platforms need to implement clear rules on the subdivision of ownership as well as provides some covenants to protect investors as creditors.

Figure 2.8 from Testoni (2014) shows the typical ECF process undertaken by ECF platform.
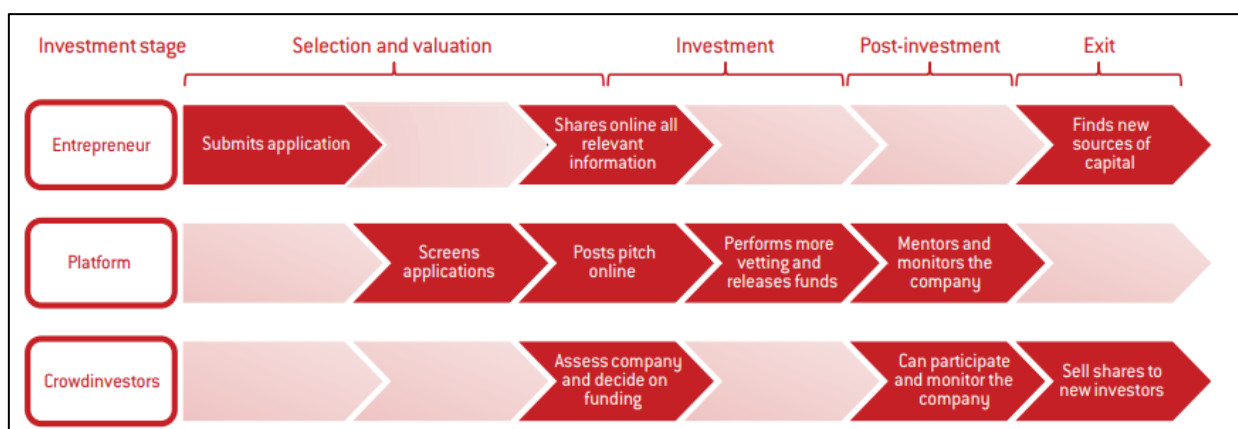
Figure 2.8: ECF process (Testoni 2014)

The interaction among funders and fundraisers on a platform is characterized by cross-group and within-group external effects. Information asymmetries pose several challenges for the design and governance of the platform. In particular, CFPs face the challenge to make relevant information easily available while at the same time to encourage information gathering, in particular on the funder side(Belleflamme, Omrani, and Peitz 2015). For this reason, ECF platforms usually provide entrepreneurs with detailed guidelines on how to structure their campaign in order to set clear objectives and clear rules on after-campaign outcomes, as well as rules on the required disclosure and tips on how to successfully close the campaign. The two main UK ECF platforms, Seedrs and Crowdcube, are equipped with an "help-centre" section of their website in which they explain to investors and founders each step of the "fundraising

journey". The main aspects covered are: the parameters of the campaign, the type of funding round, the type of equity offered, tips on how to structure the pitch and the video pitch, the legal structure applied.[15]

Campaigns parameters

Each ECF campaign require the founders to specify some essential and necessary details about the offer. Particularly, what is asked by every platform is the minimum and maximum target amount, the percentage of equity which is offered to crowd investors, the time span in which the campaign will be open for funders to accept the offer, the minimum chip of investment required by each investor (which can vary from 10 euros up to 10.000 euros or more). Moreover, during the duration of the campaign, platforms display the progresses of each campaign, specifying how many days are left to reach the target, how many investors already entered the campaign, and how much has been collected so far. A clarification has to be done on the *minimum and maximum investment amount* parameters. The minimum amount set the threshold at which the campaign hit 100%. If the campaign is successful it will hit the target before the expiration of the campaign period. If this happens, the majority of CF platforms keep the campaign open until the expiry date in order to allow the entrepreneur to take advantage of overfunding, or until the maximum amount if this is reached before the closing of the campaign. Founders need to have clear in mind which are their fundraising targets because the outcome of the campaign will indicate how much equity they have to transfer to the new crowd investors. For what concern the duration of campaigns, Seedrs statistics found out that the majority of successful campaigns hit target within 30 days and almost all within 40 days. In those cases, the majority of investment raised is within the first 3-4 weeks of a campaign going public and the last 1-2 weeks before closing when the deadline encourages an increase in investment (Mills 2020).

Types of funding rounds

A funding round is anytime money is raised from one or more investors for a business (Bates 2020).

---

[15] Information personally collected by studying rules of various European CF platforms, among which: Seedrs (UK), Crowdcube (UK), ExitValley (Israel), Ourcrowd (Israe/Worldl), Mamacrowd (Italy), Crowdfundme (Italy), 200crowd (Italy), Startupxplore (Spain), Companisto (Germany), Weseed (France).

*Pre-Seed Round***:** as defined by Investopedia[16] **"**The earliest stage of funding a new company comes so early in the process that it is not generally included among rounds of funding at all. This stage typically refers to the period in which a company's founders are first getting their operations off the ground." In this stage of the business the typical investors are usually the founders themselves or family and friends. Depending upon the nature of the company and the initial costs set up with developing the business idea, this funding stage can happen very quickly or may take a long time. A Pre-Seed round is a pre-institutional seed round that either has no institutional investors or is a very low amount, often below $150k.[17]

Seed round: this is usually the very first round, when the company is at its initial idea stage. Funding provided before the investee company has started mass production/distribution with the aim to complete research, product definition or product design, also including market tests and creating prototypes(Crisanti, Pavlova, and Krantz 2019). It is also called *angel round*: an angel round is typically a small round designed to get a new company off the ground. Investors in an angel round include individual angel investors, angel investor groups, friends, and family.[18]

In this stage the founder usually has some prototype/proof of concept, or a minimum viable product (MVP) or some sign that there is demand for the proponent offer. The entrepreneur needs an investment to support the business because it probably won't be generating a big enough cash flow to cover the day-to-day running costs. Seed funding helps a company to finance its first steps, including things like market research and product development. With seed funding, a company has assistance in determining what its final products will be and who its target demographic is (Investopedia 2019). These rounds usually include a large proportion of funding from friends and family, but it is rather common that also BAs participate in these funding round, given their propensity to invest in the early stage of a risky venture. Typically, investors will put in smaller amounts in exchange for equity, because the company will have little or no track record and the risk is higher than for a more established company (Bates 2020). Round sizes range between $10k–$2M, though larger seed rounds have become more common in recent years. A seed round typically comes after a pre-seed round and before a company's Series A round (Crunchbase 2019). However, companies in seeds rounds may not ever engage

---

[16] From Investopedia: https://www.investopedia.com/articles/personal-finance/102015/series-b-c-funding-what-it-all-means-and-how-it-works.asp
[17] From Crunchbase: https://support.crunchbase.com/hc/en-us/articles/115010458467-Glossary-of-Funding-Types
[18] From Crunchbase: https://support.crunchbase.com/hc/en-us/articles/115010458467-Glossary-of-Funding-Types

in a Series A round of funding. Most companies raising seed funding are valued at somewhere between $3 million and $6 million (Investopedia 2019).

Series A round: at this stage the company is still in its startup phase and the investment is still considered highly risky, since there likely would not be a strong track record with which to prove the value of the business. However, startups which engage in series A funding has develop a sort of user base and some performance indicators as well as revenue figures and it is now ready to attract a larger investor base. Startups usually undertake series A rounds in order to further optimize their user base and product offerings, as well as aiming to scale the product across different markets. In this round usually participate BAs along with VCs (Well-known venture capital firms that participate in Series A funding include Sequoia, Benchmark, Greylock, and Accel (Investopedia 2019)). VCs which invest in series A rounds usually serve as an "anchor", a lead investor who launch signals to other investors and make it easier for the company to attract additional funds, both from BAs and the crowd. Typically, companies in this stage provide strong business plans to turn their ideas into money-making opportunities. For this reason, Series A rounds raise approximately $2 million to $15 million, but this number has increased on average due to high tech industry valuations, or "unicorns." (Investopedia 2019).

Series B round: Series B appears similar to Series A in terms of processes and key players. Series B is often led by many of the same characters as the earlier round, including a key anchor investor that helps to draw in other investors. The difference with Series B is the addition of a new wave of other venture capital firms that specialize in later stage investing (Investopedia 2019). Companies that have gone through seed and Series A funding rounds have already developed substantial user bases and have proven to investors that they are prepared for success on a larger scale. The risk will be lower than previous rounds so the cost to invest will be higher. Estimated capital raised in a Series B round tends to be somewhere between $7 million and $10 million. Companies undergoing a Series B funding round are well-established, and their valuations tend to reflect that: most Series B companies have valuations between around $30 million and $60 million (Investopedia 2019).

Series C round: Typically, a Series C round is required when a company is ready to go for rapid growth (Bates 2020). Businesses that make it to Series C funding sessions are already quite successful. These companies look for additional funding in order to help them develop new products, expand into new markets, or even to acquire other companies. As the operation gets less risky, more investors come to play. In Series C, groups such as hedge funds, investment banks, private equity firms and big secondary market groups accompany the type of investors mentioned above (Investopedia 2019). These rounds are for later stage and more established companies and they usually raise $10M+ (Crunchbase 2020). Most commonly, a company will end its external equity funding with Series C, since many of them undertake these rounds to help boost their valuation in preparation of an IPO. However, some companies can go on to Series D and even Series E rounds of funding as well. At this point, companies enjoy valuations in the area of $100 million or more, which are based on a strongly base of data coming from companies' financials and solid forecasts rather than expectation of future success as it happens mostly in seed rounds.
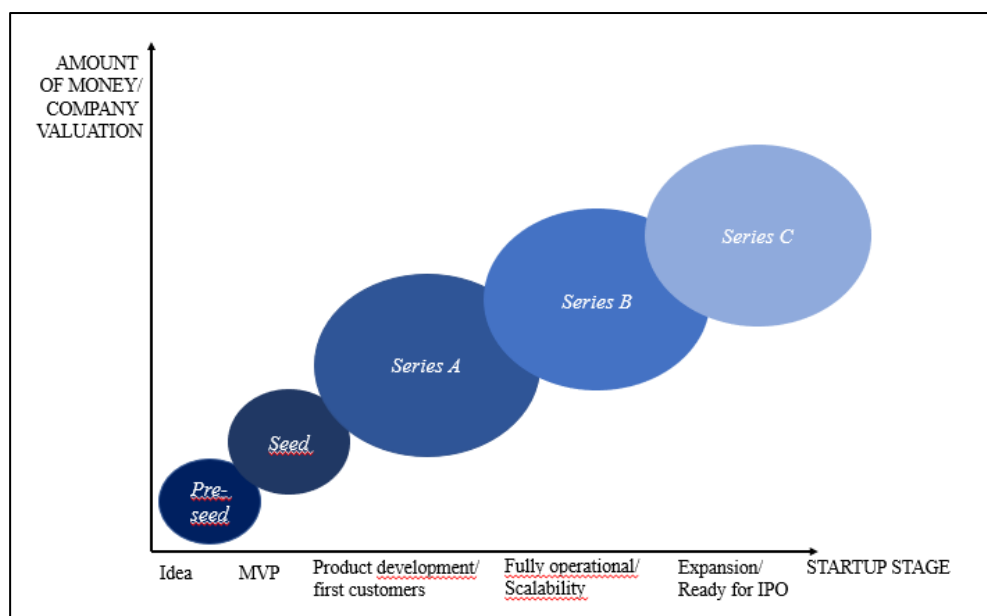
Figure 2.9: startups funding rounds (personal formulation)

Classes of shares and types of equity offered

This aspect varies from platform to platform depending on how it manages the importance given to creditors protection. For example, Seedrs, such as ExitValley, in order to give to the smallest investor the same rights as the largest ones, offer only class A shares, with fully voting rights. Crowdcube, instead applies a different policy, allowing startups to issue both class A and B shares.

A and B shares offer the same economic rights to investors but the firsts have pre-emption and voting rights, while the seconds do not have these rights but do have equal rights to capital distributions and dividends. Crowdcube usually applies an approach in which, in order to strike a balance between reasonable investor protections and straightforward corporate governance, the choice on which class of shares is offered depend on the amount of the investment. In this way, startups are able to discriminate between the two types of investment: only those investing more than a threshold amount receive class A shares. According to Crowdcube statistics, usually, investors will pay over a certain amount to receive the full rights that come with A shares, an average of £1,000 - £4,000, but the platform let the entrepreneur to decide which is his/her threshold. In a similar way the Italian platform Crowdfundme usually provides that professional investors, who invest more than a threshold amount, are allowed to buy class A shares, while retail investors can buy only class B shares.

Another distinction is on the type of equity offered. Both Seedrs and ExitValley for instance offer the opportunity to select a regular equity campaign, a convertible campaign or a fund campaign. Investing through an equity campaign means becoming shareholder of the startup in which the backers directly invested Investing in a fund campaign allows crowd funders to diversify their portfolio investing not directly in the sturtups but in a fund who manage multiple investments in multiple startups on the same platform. Like in a regular fund mechanism the backer becomes shareholders in each of the underlying business that the fund manager chooses. Thus, if for example a backer invests 1,000 euros into a fund campaign, each business will receive a portion of the cash invested and the backer will proportionally receive shares. Finally, a convertible campaign allows backer to invest today, with their investment converting into equity in the future, at a discount compared to other investors. Convertible campaigns avoid the need to agree a specific valuation on the company and instead offer investors a discount, based on which the convertible will be converted into equity in the future (usually in a future funding round).[19]

The "nominee structure"

A nominee arrangement refers to a structure in which an equity crowdfunding platform pools all the individual investors taking part in a funding round, and the pooled entity then makes one single investment into the operative company which is raising funds[20]. It is indeed a very common structure whereby the nominee holds legal title to the shares for the benefit of another

---

[19] From Seedrs Help-center: "Guides: Types of Equity"
[20] From Invesdor.com: https://home.invesdor.com/en/blog/the-two-models-equity-crowdfunding-which-one-is-right-for-you

person. In ECF setting it means that the platform which applies this structure will be the legal shareholder in the relevant company's shareholder register, but it holds those shares on behalf of the various individuals who had invested in the company through the platform. The effect of this structure is that while ECF platforms hold the shares, the full economic interest in them are passed through to the underlying investors. This arrangement is very similar to a trustee relationship. From an administration perspective, this is far easier than having to send notices
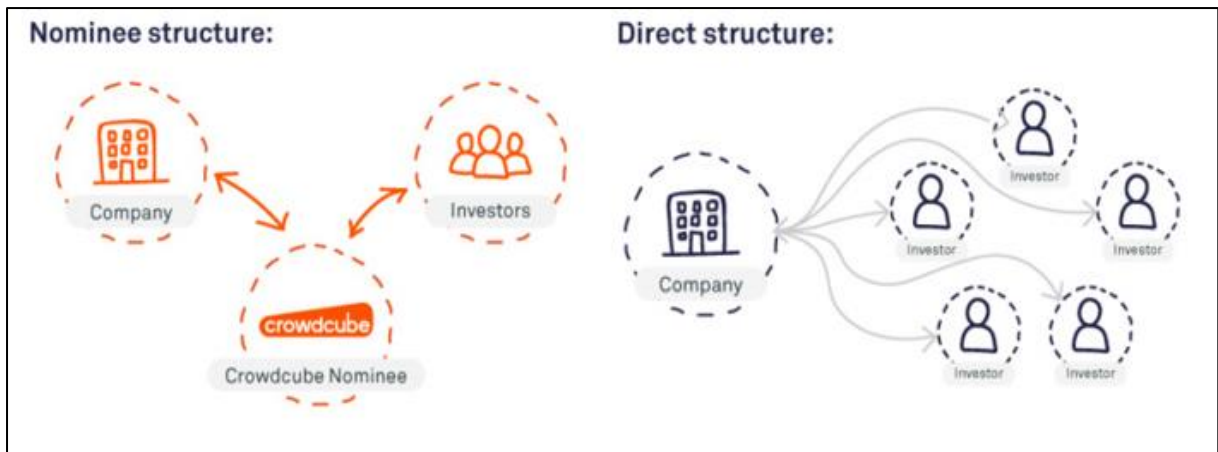
Figura 2.10: The nominee structure (Crowdcube 2020)

and solicit approvals from hundreds of scattered investors. Figure 2.10 illustrates the difference between a direct and a nominee structure applied on Crowdcube.

CHAPTER 3 – ECF IN ITALY: The Italian Regulation and Market Trends

3.1. Italian Regulation

Italy was the first European country to regulate the offer of a company equity through online intermediaries, introducing the first specific legislation on equity crowdfunding. Indeed, within the aspects of "*Decreto Crescita-bis*" in 2012 (specifically, D.L. 179/2012) the legislator opened the possibility to appeal to the use of equity crowdfunding for "innovative startups", expanding afterwards in 2015 this possibility also to "innovative SMEs". The intention was expressly to favour the development and growth of startups and SMEs on the Italian market. From 2013, thanks to the CONSOB (National Commission for the Societies and the Stock Exchange) Resolution n.18592, it is possible also for Italian retail investors to sustain entrepreneurs through equity crowdfunding. From 2017, the Italian Law has allowed the access to ECF fundraising mechanism to all type of SMEs, not necessarily innovative, drastically widening the audience of companies allowed to raise funds through ECF platforms. The last updates are related to some overhauls to the CONSOB regulation on ECF of 2019 which should additionally boost the industry thanks to the possibility for SMEs and startups to issue debt, in the form of *"mini-bond".* Moreover, the last update from CONSOB announced the possibility to create sections on the platforms in which will be possible to buy and sell the shares that have been offered previously on an ECF campaign, increasing the liquidity of the sector.

Rules on platforms

ECF platforms can operate upon approval by CONSOB and registration in the relative registers. Platforms are subjected to a particular attention to disclosure[21]. Specifically, companies which intend to raise through ECF must publish a specific documentation, among which the business plan, the founders' resumes, and the specific risks of the offer. However, this documentation is not subjected to CONSOB approval, in order to make the process faster and easier.

Rules on investors

ECF in Italy is accessible to both professional and retail investors. For each campaign, a minimum percentage of the equity offered (initially it was the 5%, but from 2018 it changed at 3%) must be acquired by professional investors. Retail investors should understand the risks related to this kind of investment and should independently follow a "path of conscious investment" in which they show to be aware of the characteristics and risks involved in investing in early-stage ventures though equity financial instruments.

---

[21] From crowd-funding.cloud

Moreover, crowd investors have the right of withdrawal within 7 days from their adhesion.

Tax relief

From 2017, following the *Budget Law*, the EU commission authorized the relief measure which amount to the 30% of the investment. In particular, ECF investors can deduct the 30% of the total investment amount up to a maximum deductible investment of 1 million euros. Thus, the maximum deduction for each is investor is up to 300.000 euros. In 2019 the legislator made some adjustment[22] increasing the deduction to the 40% of the total investment amount provided that the crowdfunder keep the equity investment into an innovative startup for at least 3 consecutive years. This last change is still waiting the approval of the European commission.

3.2. Descriptive statistics about 6 years of ECF in Italy

Following the regulation coming from the "Decreto Crescita-bis", 2014 in Italy was the year that saw the phenomenon of ECF born. From 2014 until now the evolution and growth of ECF was almost exponential, both in terms of new platform creation, number of campaigns, and amount collected. Every year, the *Crowdinvesting Observatory* from Politecnico of Milano publishes a report in which it highlights the main trends and figures of the year for both equity and lending crowdfunding. In its last report of July 2019 it showed how at the 30th of June of 2019 in Italy there were 35 authorized ECF platforms.
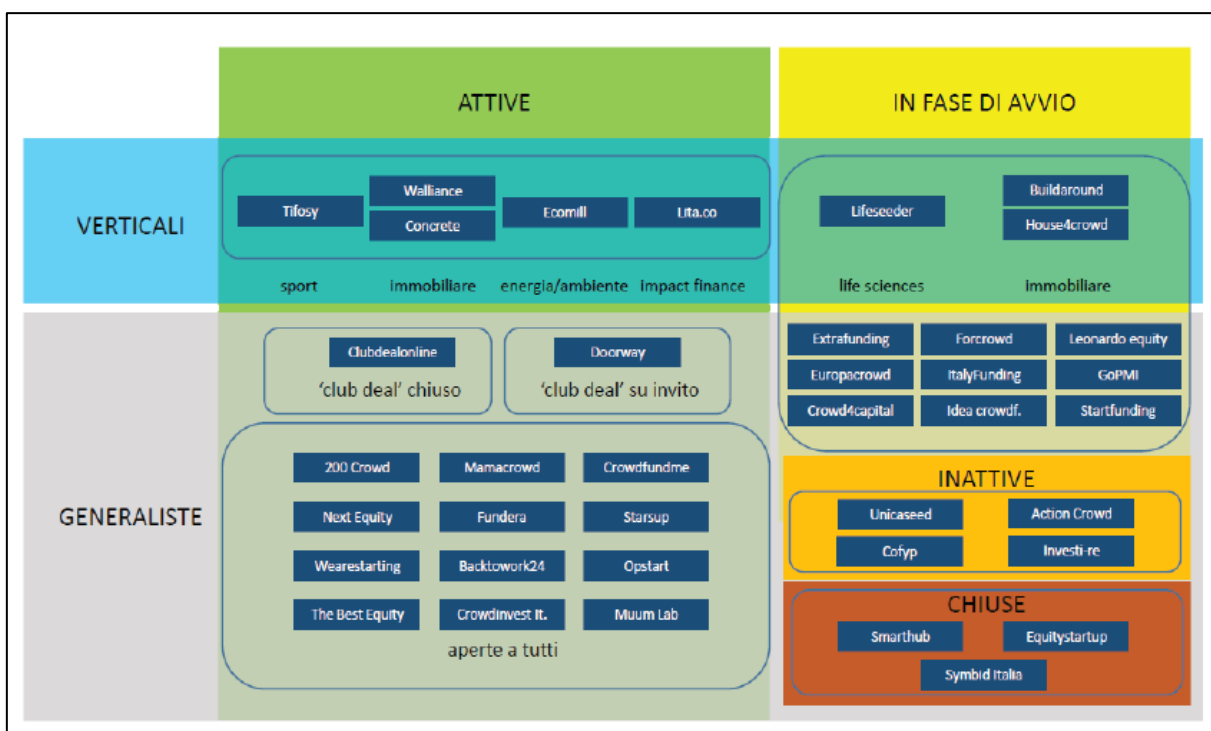
Figure 3.1: Map of ECFPs authorized by CONSOB at 30/06/2019 (POLITECNICO DI MILANO, 2019)

---

[22] From Stefano Massarotto (Partner of law firm "Facchini Rossi Michelutti") at Crowdfundme day 2020, Palazzo Mezzanotte 2020

Figure 3.1 from the Crowdinvesting Observatory illustrates the map of the authorized ECF platforms at the date of 30/06/2019. To this number we must add the other 6 platform authorized within the end of 2019 (Capital4solutions Srl, Crewfunding Srl, Ecrowd Engineering Srl, Local Crowdfunding Network Sr, Meridian 180 Srl, Wedeal Srl), for a total of 41 platforms from 2014 until now.

Among these 41 platforms there are 3 closed and 4 inactive. Nevertheless, it is a quiet high figure in relation to both the market dimension and the situation in other European countries (Osservatori Entrepreneurship & Finance 2019). Figure 3.1 also illustrates how platforms are trying to diversify in order to compete in the Italian market, either in terms of sector focus or target of investors. As a consequence, some platform chose to focus only on some verticals, such as sports or life science, while some platforms chose to focus only on a specific target of investors, creating for example a sort of "club deal" open only to professional investors.

2018 was the year of the boom for ECF in Italy. The numbers relative to number of successful campaigns and amount collected more than doubled, growing from almost 12 million euros raised through 50 campaign on 2017 to more than 36 million euros raised through more than 110 campaigns in 2018 (Figure 3.2). The trend continued positive also in 2019, which saw a total fundraising of more than 65 million euros through the 140 campaigns successfully closed. Figure 3.3 shows the quarterly trend on closed campaigns on Italian ECF platforms. The fourth quarter of 2019 reached the maximum peak with more than 20 million euros raised to finance 36 companies in just 3 months. Overall, from the starting of the Italian regulation on ECF until now in Italy has been raised more than €120 million through online platforms to finance innovative startups and SMEs.
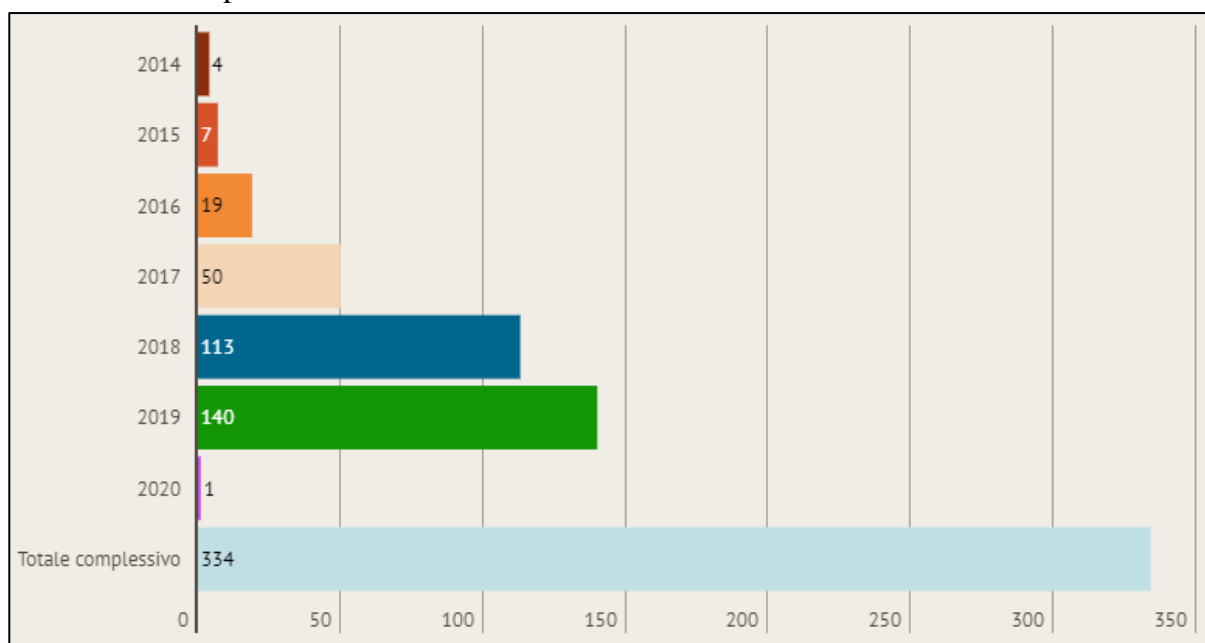
Figure 3.2: Successfully closed campaigns from 2014 to date (Crowdfundingbuzz, 2020)
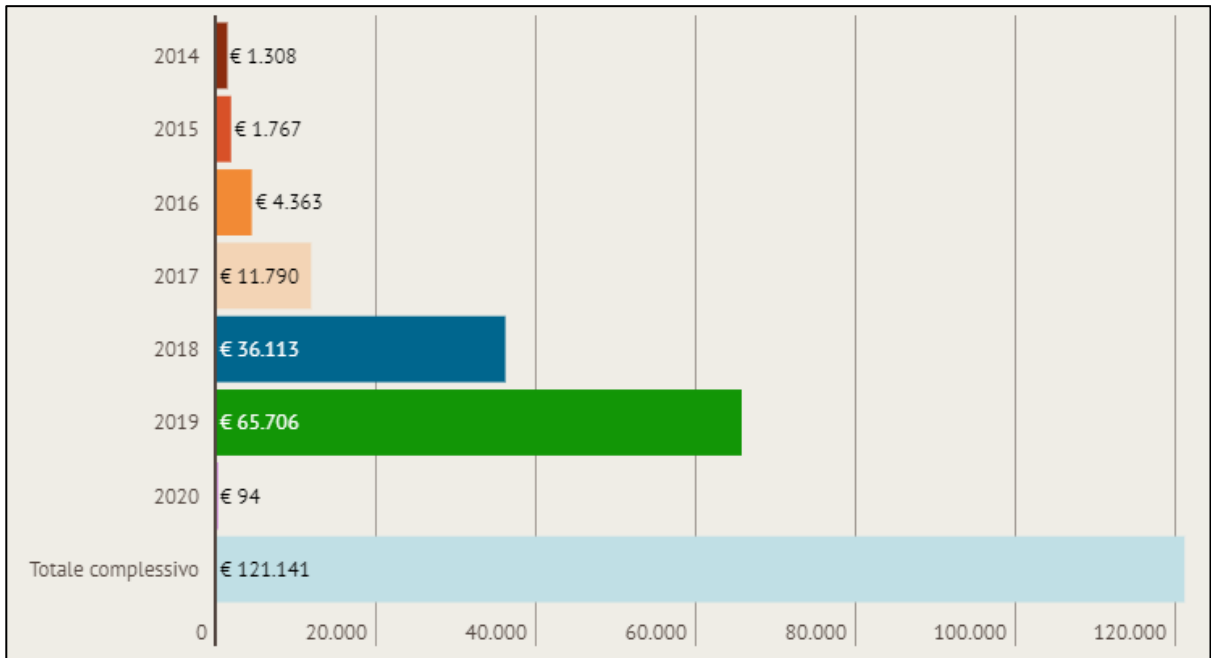
Figure 3.3: Successfully closed campaigns from 2014 to date in €/.000 (Crowdfundingbuzz, 2020)

On the 140 companies financed in 2019 there is a strong difference from 2018 about the "quality of the offer", which Be Beez (2019) measured in terms of amount collected by single campaign, showing how, in 2019, 21 companies raised more than €1 million, of which 6 more than €2 million. The previous year the figure was drastically lower, with only 7 companies raising more than €1 million and 1 company more than €2 million.
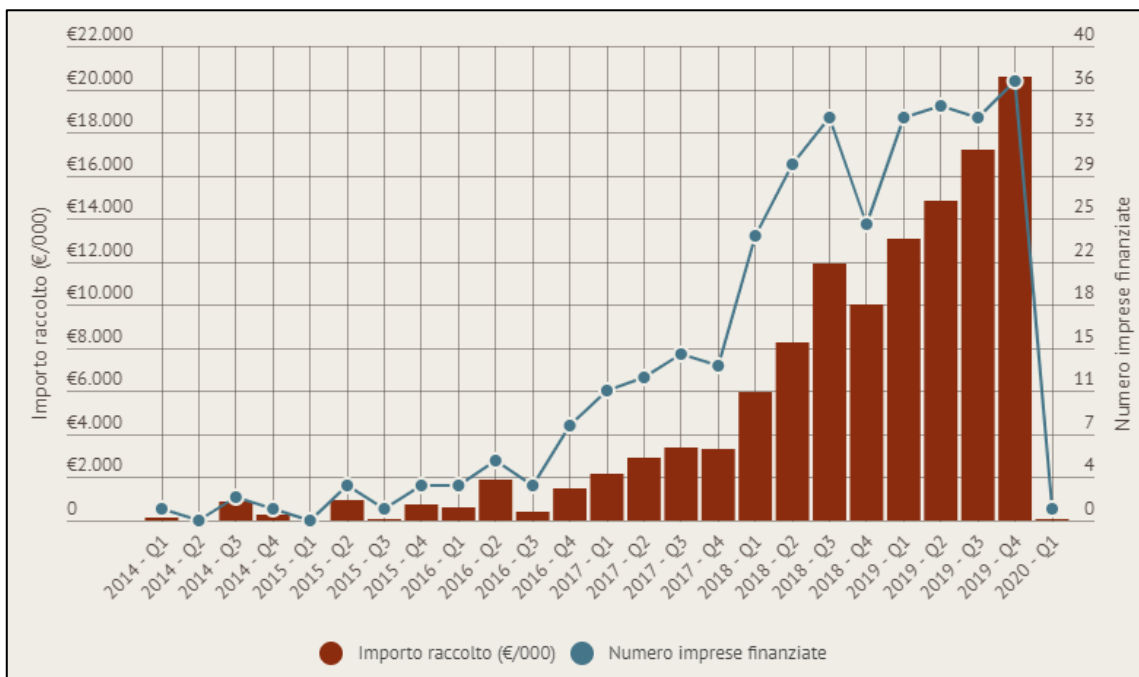
Figure 3.4: Quarterly trend (Crowdfundingbuzz, 2020)

A further analysis can be done in the division of campaigns among the active platforms. How figure 3.4 illustrates, the main two platforms are Mamacrowd and Crowdfundme, which are the biggest both in terms of amount raised and number of campaigns closed. Walliance positioned as third for the amount collected but it closed only 14 campaigns from 2017, thus raising more funds per campaign. However, this is due to the nature of the platform, since Walliance, as well as Concrete, invests only in real-estate projects, which clearly require more funds than startups projects. The interesting figure is that, despite the quick spreading of ECF platforms, the flow of transactions seems to be concentrated on few main portals. Indeed, the platforms which closed the highest number of campaigns are Mamacrowd (68), Crowdfundme (65), and Opstart (50). These 3 platforms alone represent the 55% of the total successful campaign from 2014. If we add the fourth and fifth platforms for number of campaign closed, Backtowork24 (41) and 200crowd (30), this percentage grow up to the 76%, resulting in a very high concentration of the market into the main 5 Italian platform.
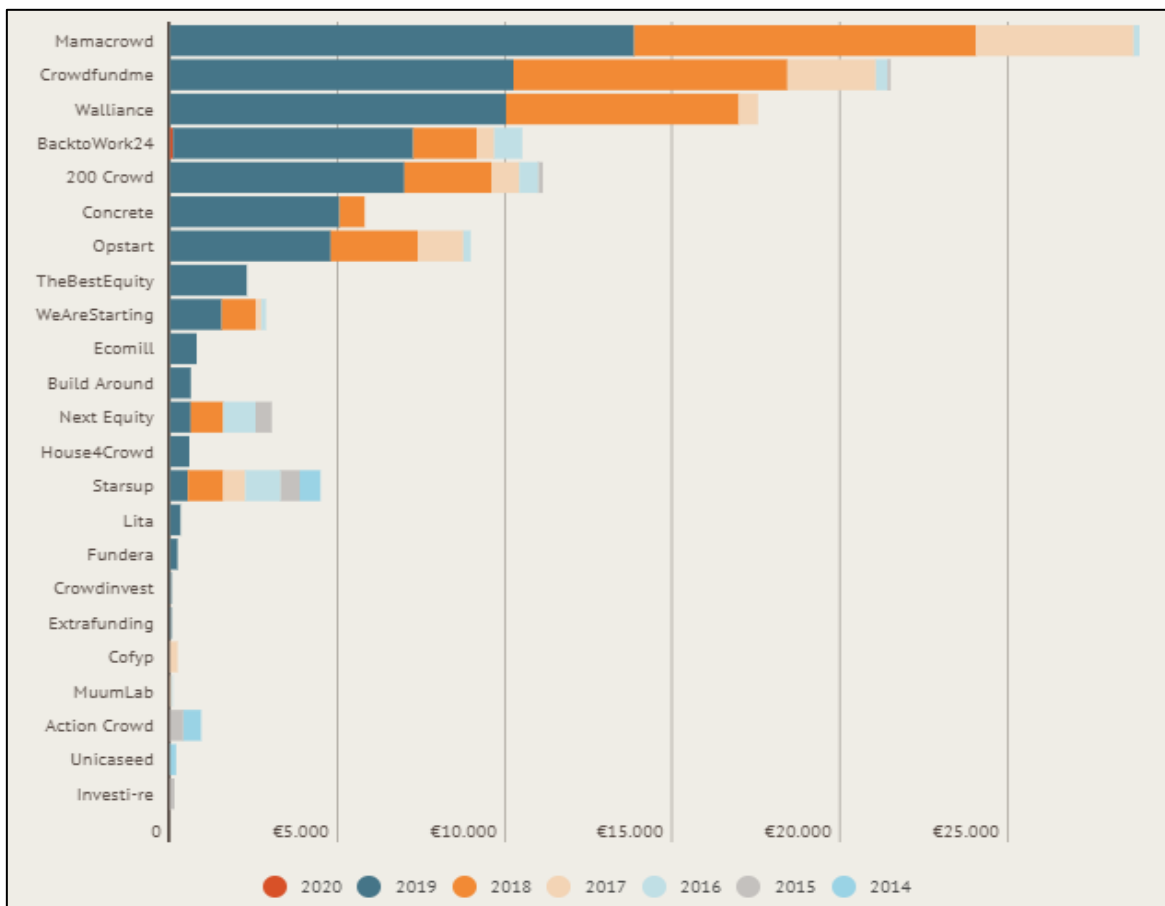
Figure 3.5: Yearly fundraising per platform (Crowdfundingbuzz, 2020)

These 5 platforms are also the intermediaries chosen by the majority of investors: Crowdfundme leads the market with 9782 investors using the platform, followed by Mamacrowd with a total of 9496 investors funding projects on its platform[23].

Investors' characteristics

The trend of growth is visible also in terms of number of funders who invest through ECF. In fact, from 2014 until now, the number of investors backing ECF campaigns amount to 32013[24]. The year of maximum growth has been 2017 (Figure 3.5), where investors operating through ECF passed from 747 to 3277, continuing the positive trend also in 2018 and 2019, where he had the peak of more than 18000 investors backing startups and SMEs on ECF platforms.
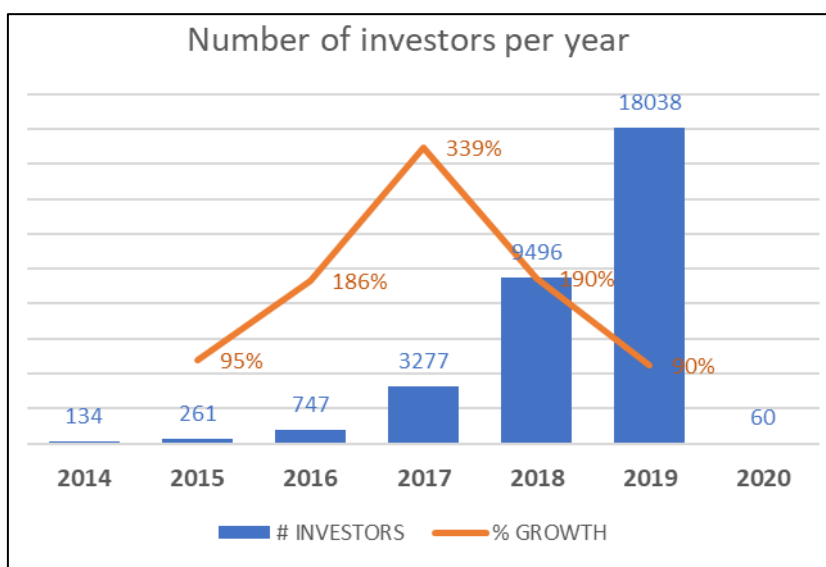
Figure 3.6: Total investors per year on ECF sucessully closed campaigns (Crowdfundingbuzz, 2020, personal adaptation)

Looking at the investment amount made by ECF investors we can notice two interesting aspects. The first statistic comes from crowdfundingbuzz (Figure 3.6) and shows the evolution of the average investment made on ECF successful campaigns from 2014 to date. It is clear how through the years this figures decreased passing from an average of almost €10.000 in 2014 to an average of about €3.500 in 2019. Thus, the increasing in amount raised through the years is directly linked to the increasing in number of investors, which involve a bigger audience but with a lower individual average commitment. This figure shows how Italian ECF from 2014 has been evolving and increasingly attracting retail investors, who have appetite and curiosity for this alternative investment.

---

[23] From crowdfundingbuzz: http://www.crowdfundingbuzz.it/equity-crowdfunding-in-italia-infografica/
[24] Last update 20/01/2020 from crowdfundingbuzz: http://www.crowdfundingbuzz.it/equity-crowdfunding-in-italia-infografica/

Indeed, the second aspects of statistics concerns the breakdown of investors audience among retail and professional investors. The most updated figures come from the crowdinvesting
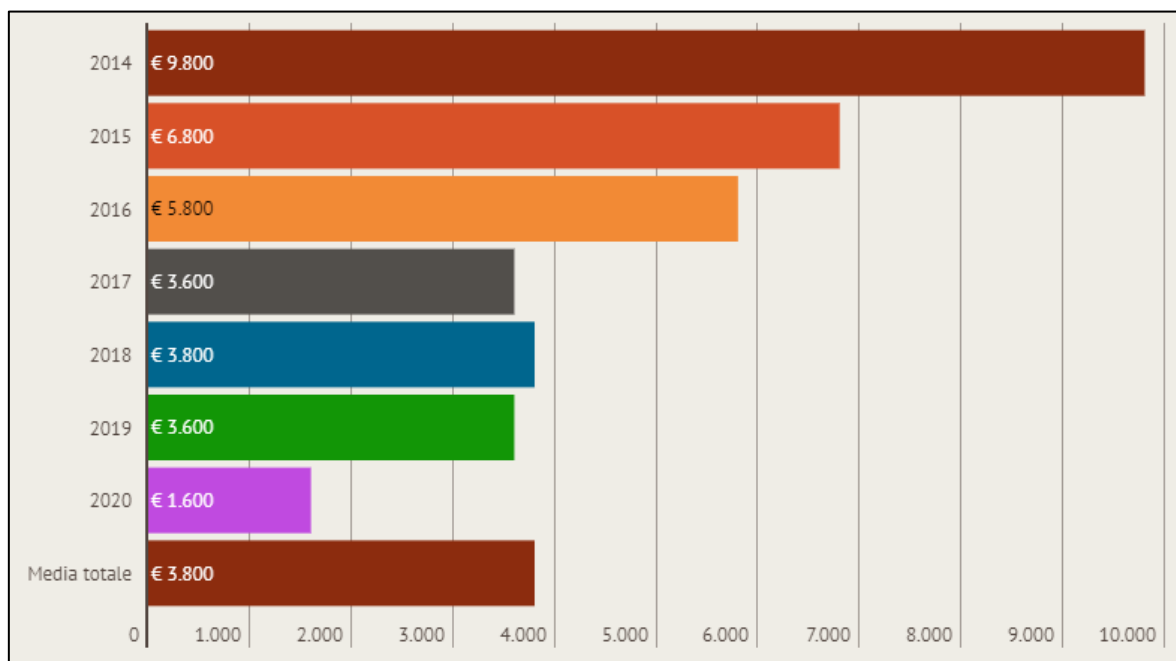
Figure 3.7: Average individual investment amount per year on ECF successfully closed campaigns (Crowdfundingbuzz, 2020)

observatory of Politecnico of Milan, which collected data from both natural and legal persons investing in 166 successfully closed campaigns up to the first months of 2019. The sample is made of 10868 subscriptions divided between 10219 natural persons and 649 legal ones. It is immediately clear that ECF is used mostly by natural persons, the so-called retail investors, which amounted to the 94% of the total subscriptions from 2014 to the beginning of 2019, while institutional investors covered only the 6% of the total subscriptions.

Figure 3.7 illustrates the distribution of individual average investment relative to the sample of 166 successful campaigns from 2014 to the beginning of 2019. In line with the data from crowdfundingbuzz we can see that the majority of investments are lower than 5.000 euros, with almost the 50% lower than 1.000 euros. However, in 2018 the percentage of the average individual investment lower than 500 euros, category which includes mostly non-professional investors, amounted to the 35%. In 2019 we had a substantial reduction of this percentage, amounting to 25%. This figure highlights an increase in the average investment made, maybe linked to the promise increase in tax relief.
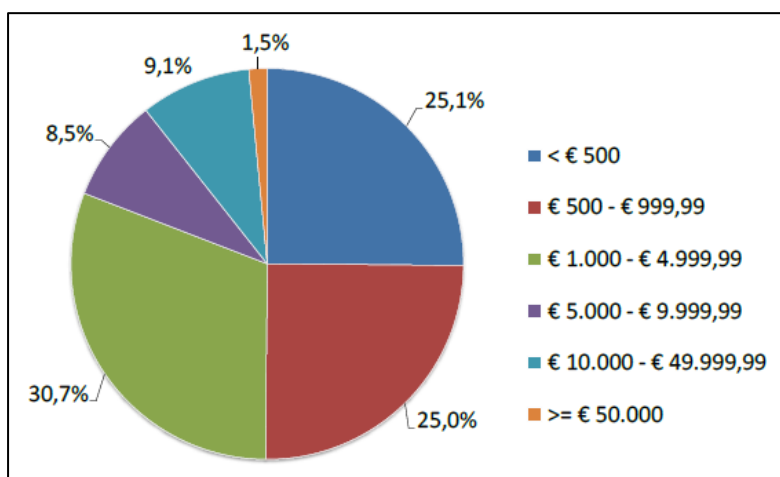
Figure 3.8: Distribution of subscriptions per individual investment made on a sample of 166 successfully closed campaigns from 2014 to the beginning of 2019 (Politecnico of Milano, 2019)

Overall, if we combine figure 3.5 with 3.6 and 3.7 we can observe that, starting from 2017 ECF acquired consideration from a higher crowd of investors, mostly retail ones, which committed capital for an average of about 3.000/4.000 euros, keeping this figure quite stable in the last 3 years of ECF, with the % of investors committing less than €500 decreasing from 2017 to 2019,. The category with higher individual investments largely includes legal persons and professional
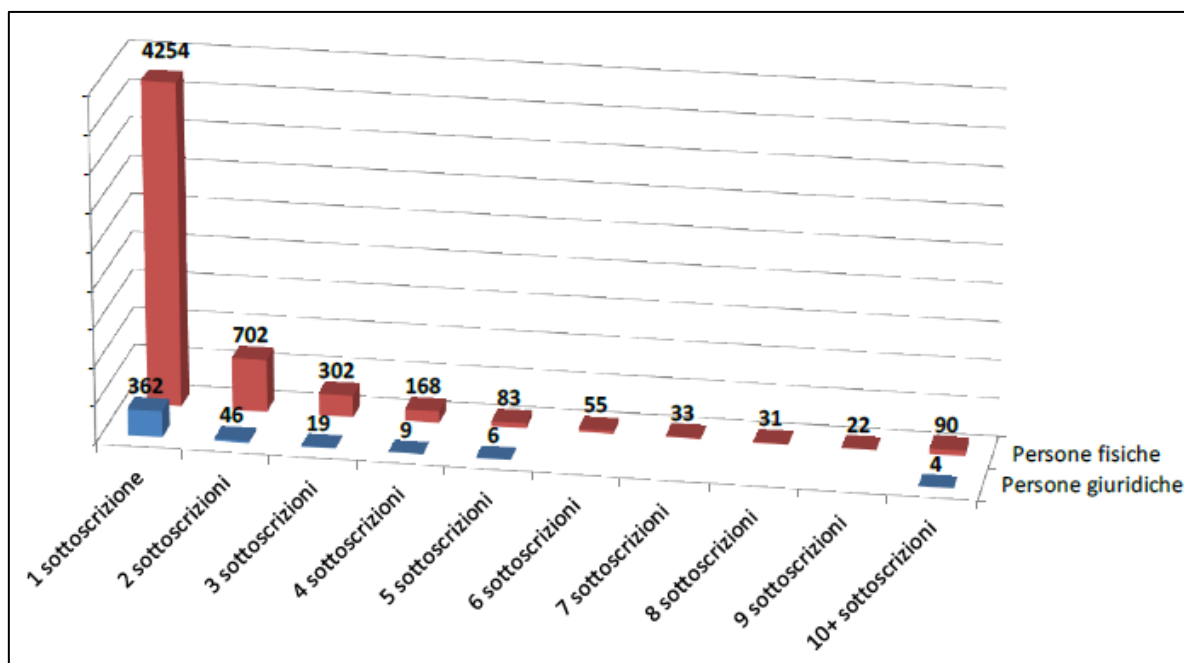
Figure 3.9: Number of campaigns supported by single investors from 2014 to the beginning of 2019 (Politecnico of Milano, 2019)

investors, among which business angels, which look at ECF as an alternative mean for scouting and origination of their investment in early-stage ventures (Osservatori Entrepreneurship & Finance 2019). Another aspect concerns the number of companies supported by single investors. As figure 3.8 illustrates, the vast majority of backers, both retail and professional investors, chose to fund only one campaign.

66

A further analysis can be done on investors' characteristics in terms of age and gender. Figure 3.9 shows the distribution of the 5740 retail investors recorded in the Politecnico of Milano sample. Firstly, it is evident how male investors represent the majority of the sample, amounting to the 86% of total investors. Secondly, the distribution of the age shows that ECF in Italy is supported mostly by adult investors, with an age between 36 and 50 representing the 47% of backers. Looking at the statistics about the professional investors represented in Figure 3.10, it is possible to observe that the majority of them comes from the category of consultancy firm, trading companies and holdings.
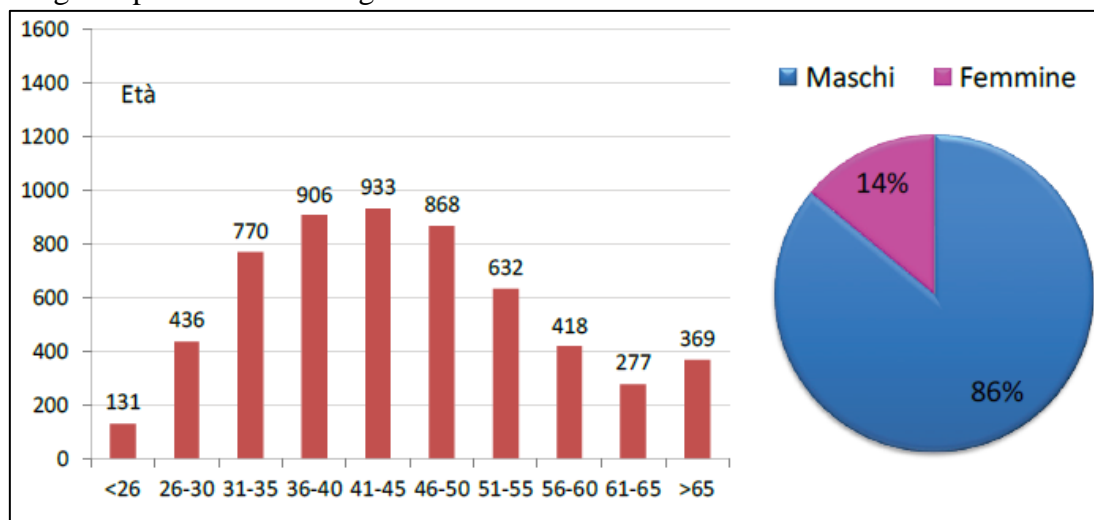
Figure 3.10: Distribution of retail investors per gender and age, from 2014 to the beginning of 2019 (Politecnico of Milano, 2019)
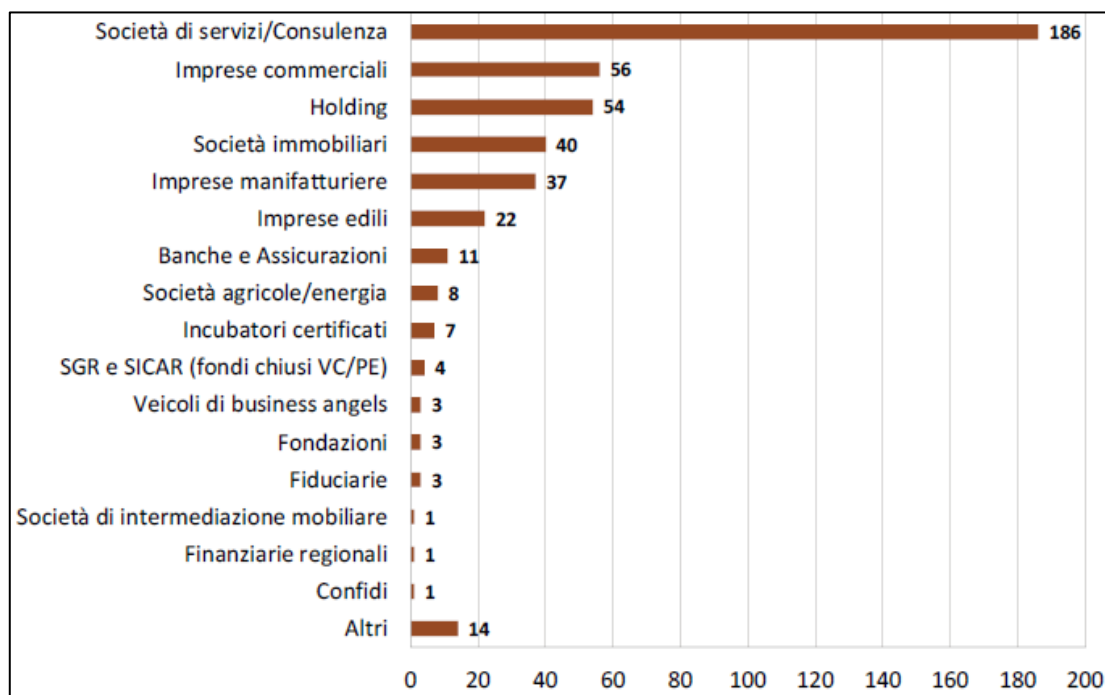
Figure 3.11: categories of professional investors who backed ECF campaigns from 2014 to the beginning of 2019 (Politecnico of Milano, 2019)

Campaigns and Proponents' characteristics

The crowdinvesting observatory of Politecnico of Milano published a statistic which shows characteristics of the 401 recorded campaign in terms of target amount to be raised and percentage of equity offered at that amount. All data are shown in Figure 3.11. Each fundraising round is legally a capital increase. Therefore, each campaign must follow the parameters of the capital increase deliberated by the company. Usually in the practice each capital increase provides either an indivisible part ("parte inscindibile"), and a divisible one ("parte scindibile"). The indivisible part is set in the campaign as the minimum amount parameter, below which the fundraising campaign is considered null and above which any amount collected (divisible part) up to a maximum amount is instead valid.

Target di raccolta medio (€)	Valore medio	Valore mediano	Valore minimo	Valore massimo
Progetti non immobiliari	191.956	100.000	20.000	3.000.000
2014	284.745	250.000	99.200	636.000
2015	421.201	325.000	80.000	1.000.227
2016	210.233	149.980	50.000	720.000
2017	174.001	120.000	40.000	1.507.908
2018	182.477	100.000	36.000	3.000.000
2019 (primo semestre)	139.027	100.000	20.000	1.000.000
Progetti immobiliari	664.231	500.000	85.000	1.500.000
2018	500.000	500.000	500.000	500.000
2019 (primo semestre)	927.000	1.000.000	85.000	1.500.000
Quota del capitale offerta (%)	**Valore medio**	**Valore mediano**	**Valore minimo**	**Valore massimo**
Tutto il campione	10,4%	6,4%	0,17%	99,0%
2014	27,0%	20,0%	5,1%	86,7%
2015	20,9%	19,7%	0,95%	49,4%
2016	17,2%	11,5%	1,7%	53,2%
2017	10,9%	8,0%	0,20%	99,0%
2018	7,4%	5,3%	0,17%	40,1%
2019 (primo semestre)	6,5%	5,6%	1,3%	33,3%

Figure 3.12: Target amount parameters and percentage of equity offered for the 401 campaigns of the sample (Politecnico of Milano, 2019)

The table is divided among general projects and real-estate projects since the latter, as mentioned before, require a higher amount for the nature of the project. Real-estate projects of the sample are 13, all concentrated in 2018 and 2019 when the law opened ECF to all kinds of SMEs. The median value of € 100.000 for not real-estate projects indicates that half of the companies aimed to raise a target below this threshold. The average target in the last years amounted at about € 190.000. As we can see from the table, this figure decreased over time. At

the same way, the percentage of equity offered in exchange for money decreased from 2014 to 2019, passing from an average value of 27% in 2014 to an average of 7.4% in 2018. However, this percentage refers to the portion of equity offered in the case in which the campaign reaches its target amount. At the end of the campaign the figure can change depending on the amount collected. Nonetheless, the reduction in percentage offered to the crowd, both in median and average terms, indicates the founders' inclination to maintain control over the business, retaining the absolute majority of shares and voting rights. For what concerns the minimum chip of investment required to crowdfunders, there are various different approaches. The vast majority of campaigns comprises minimum chips which range from € 101 and € 1000, of which the 52% are between € 101 and € 499.99 and the remaining 34% from € 500 and € 1000. Quite small is instead the percentage (just 1%) of campaigns which required a minimum chip of more than € 5.000 (Figure 3.12). Moving from this point and analysing the characteristics of the proponents, Figure 3.13 illustrates the structure of the 369 companies of the sample. The 79.4 % of the sample is made of innovative startups, which was initially the only legal form allowed to raise funds though ECF before the law opened this opportunity also to SMEs. Indeed, the remaining 18 % comprises most of all SMEs, of which the 10% are innovative SMEs. A small percentage is represented by investment vehicles.
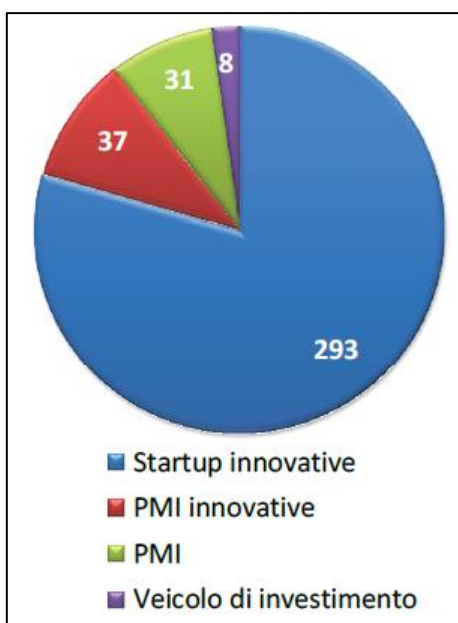
Figure 3.14: Categories of firms raising funds through ECF from 2014 to the first semester of 2019 (Politecnico of Milano, 2019)
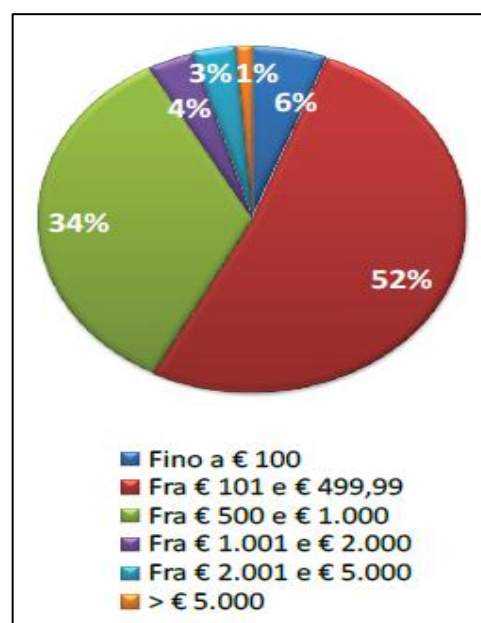
Figure 3 13: Distribution of the minimum chip of investment from 2014 to the first semester of 2019 (Politecnico of Milano, 2019)

It is visible how, despite the law opened the doors of all types of SMEs, innovative startups still dominate the market of ECF. Other statistics divide the projects proponents according to their location in Italy and the industry in which they operate (respectively Figure 3.14 and 3.15).
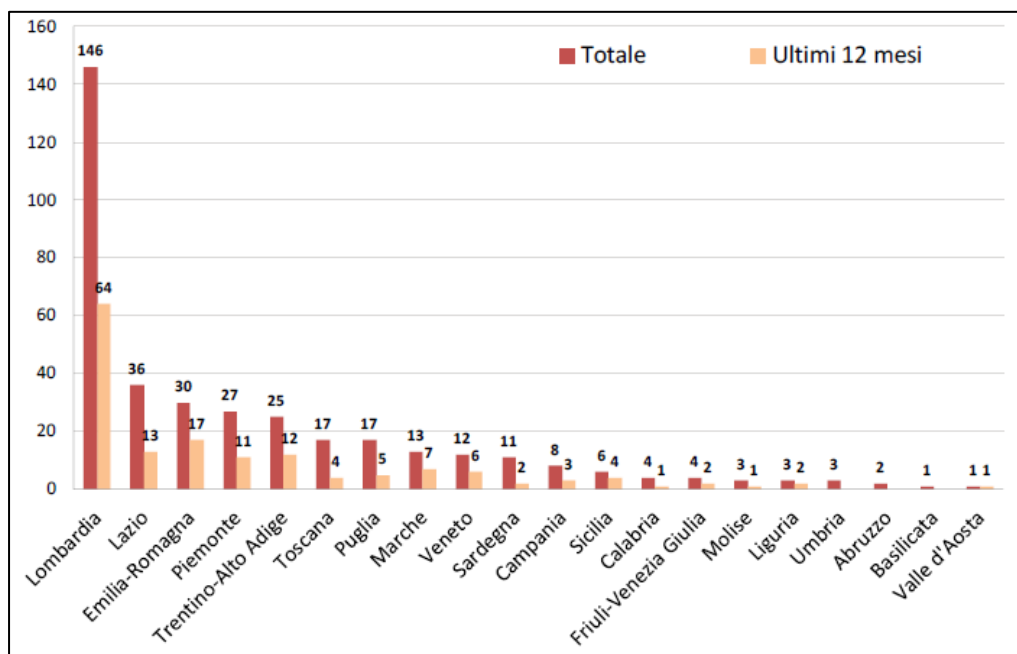
Figure 3.15: Geographic location of firms raising funds through ECF from 2014 to the first semester of 2019 (Politecnico of Milano, 2019)

Lombardia leads the market with the majority of firms coming from that region, followed by Lazio and Emilia-Romagna. For what concern the industry, the communication and information services represent the main category, with 155 firms operating in that sector.
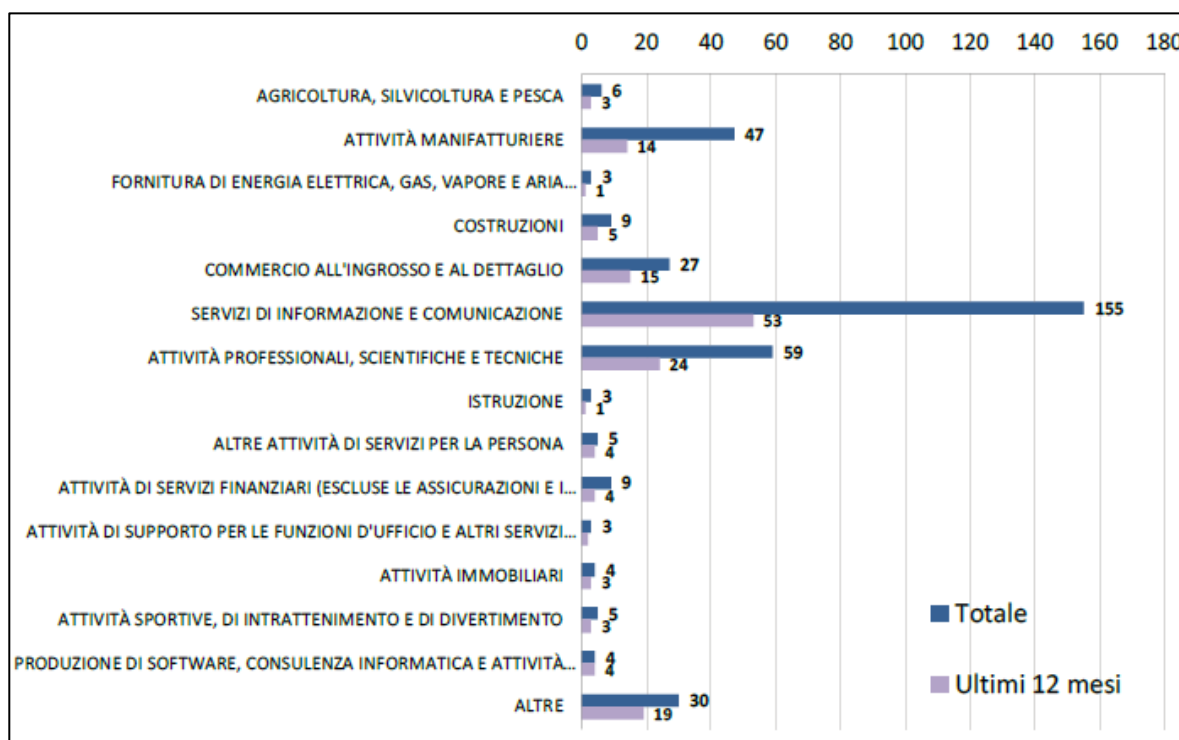
Figure 3.16: Industries in which firms raising funds through ECF from 2014 to the first semester of 2019 operates (Politecnico of Milano, 2019)

This datum has been also confirmed by Edi Beez in a more recent statistic about the all 140 successful campaigns concluded in 2019 (Figure 3.16). 82 of them operates in the service industry, 43 in the production of goods, and the remaining 15 in the real-estate sector. Figure 3.17 instead shows financial data for the sample of companies from Politecnico di Milano statistics. These data should be analysed taking into consideration that the majority of companies using ECF are at their first year of life. Hence, they don't have an history of financials and their figures relating to revenues and net profits is equal to 0. Indeed, the age variable, with an
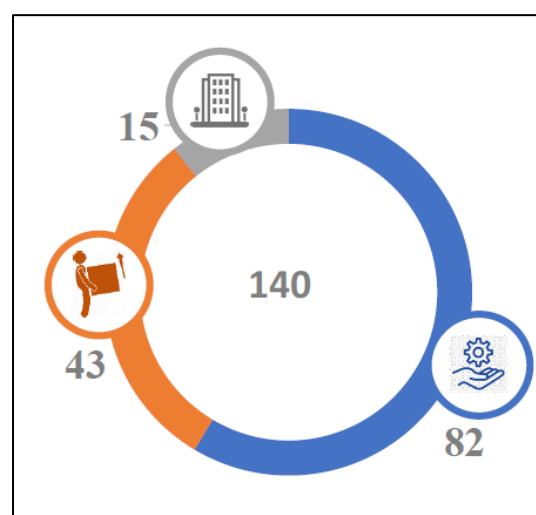
Figure 3.17: Industries in which firms raising funds through ECF in 2019 operates (EdiBeez 2020)

	Valore medio	Valore mediano	Valore minimo	Valore massimo
Patrimonio netto pre-offerta (€)	115.804	25.000	- 555.372	4.521.847
Età	3,0	2	Zero	30
Fatturato da ultimo bilancio disponibile (€)	346.955	43.875	Zero	50.214.561
Utile netto da ultimo bilancio disponibile (€)	- 51.320	- 20.003	- 3.115.804	4.076.692
Numero di soci pre-offerta	6,2	4	1	79
Valutazione pre-money implicita (€)	1.509.098	1.500.015	10.000	43.478.261

Figure 3 18: Financial data of firms raising funds through ECF from 2014 to the beginning of 2019 (Politecnico of Milano 2019)

average value of 3 years, as well as the median value of revenues, which amount to 43.875 euros, confirms the young nature of startups enterprises. Another indicator of the startup nature of the firms' sample is the fact that the net profit is almost always negative, as we can deduct from the median and average value in the table.

The table also reports the average pre-money valuation of the companies. This figure is higher than 1 million euros in the majority of cases, and in some cases even higher than 10 million euros (Osservatori Entrepreneurship & Finance 2019). In 2018 the trend saw an increase in companies with valuations between € 1 and € 5 million. In 2019 the average pre-money valuation slightly increased from 2018, reaching € 3.9 million, as shown in Figure 3.18.
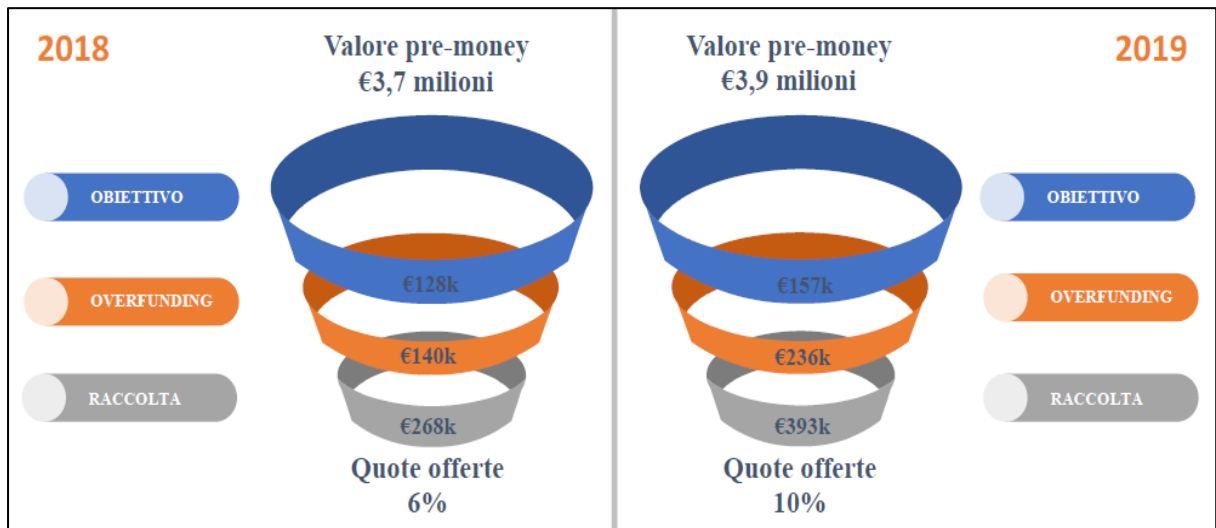
Figure 3.19: Campaign parameters of firms raising through ECF in 2018 and 2019 (EdiBeez 2020)

Post-campaign results

This dissertation is intended to analyse the evolvement of financial data of companies which raised through ECF to see if the expected results confirmed or not the projections made before the fundraising campaign. Hence, in this section will be presented some statistics on the results of the campaigns in terms of target hitting and post-campaign outcomes, in average values for the firms' sample from 2014 to 2019. *Crowd-funding.cloud.it* published statistics on the success rate of ECF campaigns until 2018: the results are shown in Figure 3.19. The success rate represents the percentage of campaign successfully closed on the totality of campaign proposed in ECF platforms. Therefore, the percentage of the campaigns which hit the fundraising minimum target.
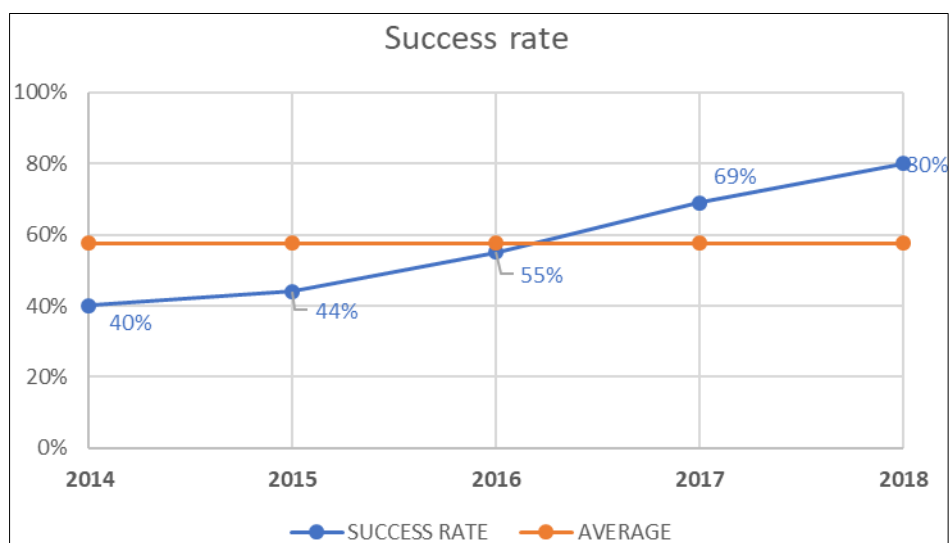
Figure 3.20: Success rate of campaigns posted between 2014 and 2018 on all Italian ECF platforms (Crowdfunding-cloud 2019, personal adaptation)

Figure 3.20 shows the relation between the total amount collected and the company pre-money valuation. Each colour represents an Italian ECF platforms. The graph summarizes what presented before about average target and average valuation. Overall, the majority of valuations are under 10 million euros and the funds raised are below 500.000 euros. There are some outliers which published very high valuations but only in rare cases they were able to collect more than 2 million euros.

For what concern overfunding, as reported in Figure 3.18, in 2018 the average overfunding was of 140.000 euros on an average target amount of 128.000 euros, accounting for about the 109%. This figure increased in 2019 reaching an average overfunding of about 150%. With respect to the previous years these figures increased tremendously. Indeed, in 2014 overfunding amounted to 5,14%, in 2015 to 9.5%, in 2016 to 29%, and in 2017 89%. This is in part due also to the average decrease of funding target from 2014 to 2017.

For what concerns the operating results following an ECF campaigns, Figure 3.21 identifies the main variable of a company financials and present the change in those figures in three selected periods: the year before the campaign (year -1), the year of the campaign (year 0), and the year after the campaign (year 1).
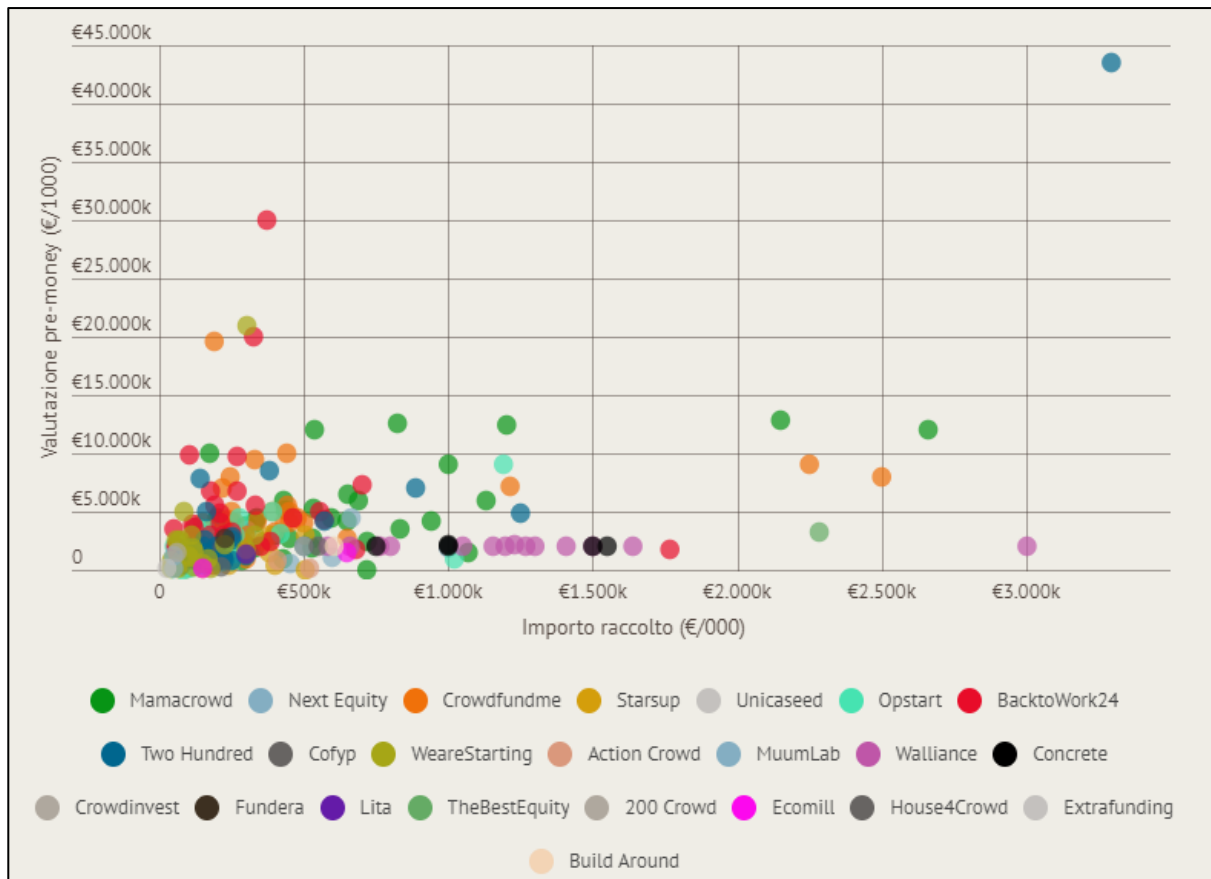
Figure 3 21: Relation between pre-money valuation and total amount raised by firms from 2014 to date (Crowdfundingbuzz 2020)

The official data for the year following an ECF campaign are available for 38 firms from 2014 to 2017. The graphs represent the trend of revenues, EBITDA, and net profits of the sample firms.

The tendency which emerge is that of two groups of companies: those who even after the campaign show negative or null revenues and those who instead show a progressive increase in revenues.

The same trend is evident also in the EBITDA and in the Net profit graphs, where the distinction is among firms who are able to increase margins and generate profits and on the other end firms who continue to burn cash and account negative profits. This can be due to the high costs incurred in the implementation of the business plan. A deepen analysis will be offered in chapter 4, in which will be analysed the business cases of the companies which raised through ECF campaigns from 2014 to 2016, studying the evolvement of their financials in the following years up to 2018 and verifying if the objectives prefixed in the business plan have been achieved, overcame, or not achieved.
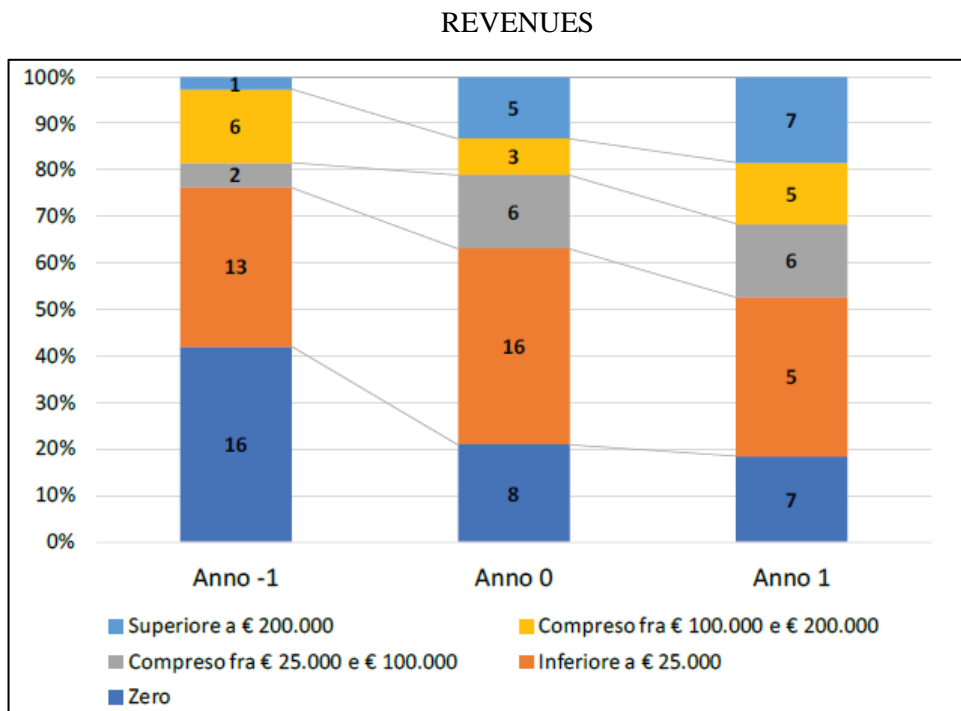
REVENUES

Figure 3.22: Revenues, EBITDA, and Net profits trends of a sample of 38 companies raising through ECF between 2014 and 2017. (Politecnico of Milano 2019)

EBITDA
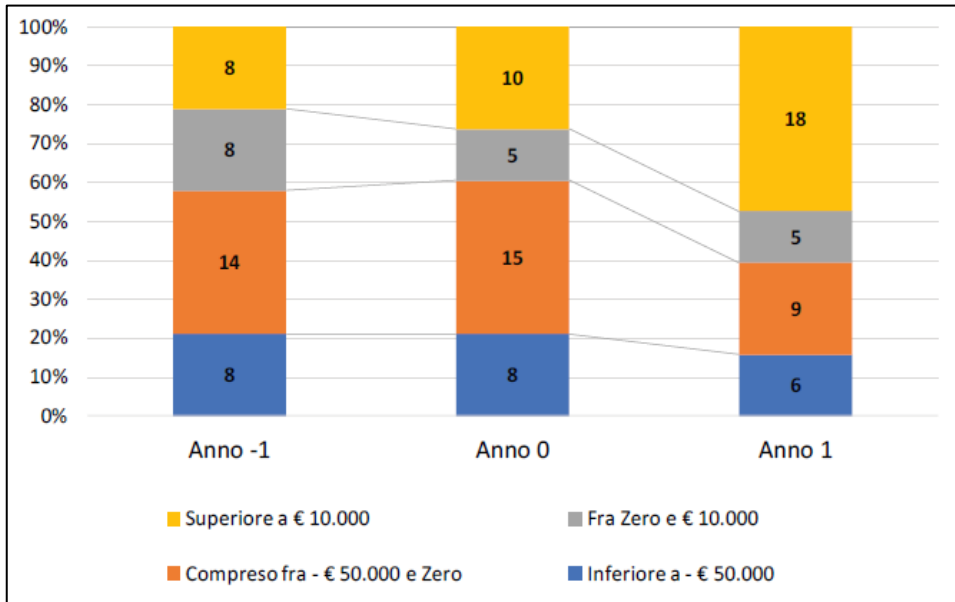
NET PROFITS
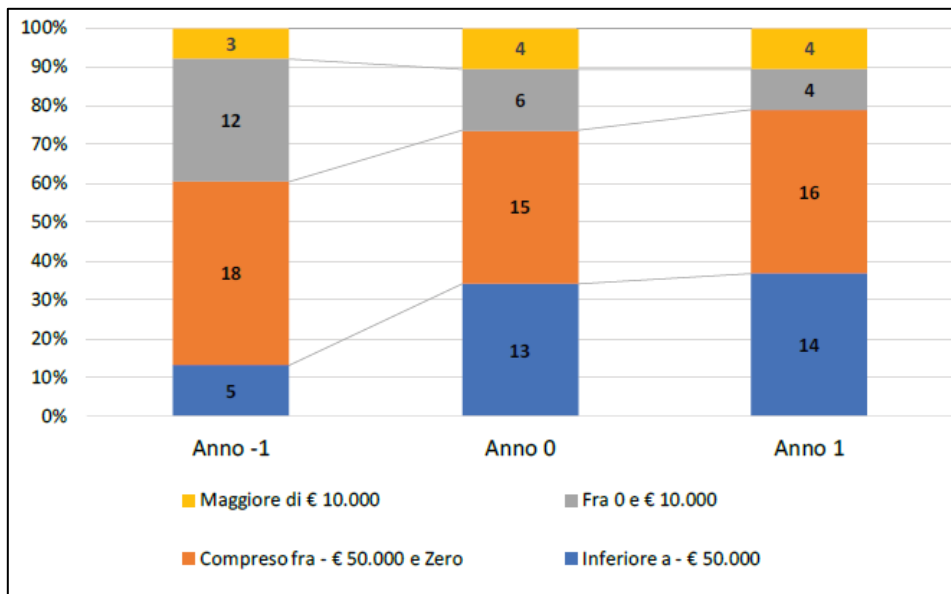
CHAPTER 4 – POST-CAMPAIGN RESULTS: An analysis on case studies

This chapter aims to analyse the current financial situation of companies which raised through ECF campaigns between 2014 and 2016. The analysis focuses on this specific period in order to draw a significative picture of the post-campaign outcomes, looking at the main economic variables in at least 2 years following the campaign, and comparing them with the business plan objectives in order to verify whether there is congruence or not.

4.1. Methodology and Data collection

The analysis has been structured in 3 main steps.

First, the CONSOB platforms register has been consulted to understand which were the active platforms since the birth of ECF in Italy until the end of 2016. 2016 has been selected as the last period of the analysis, in order to be able to collect financial data for at least 2 years following the ECF campaign. Indeed, at the time of the writing of this essay it has been possible to find companies' financial statements until the end of 2018.

After having drawn a list of the active platforms in that period, the analysis focused on identifying the successful campaign, i.e. those campaign which were able to hit at least the minimum fundraising target amount and successfully close the capital increase. There were identified 30 successfully closed campaigns, undertook by 29 companies. In fact, "Cynny S.p.a" closed two campaigns in 2015 through two different platforms. An excel sheet was then created with a list of all the successful ECF campaigns in the selected period. Consequently, information about each single campaign has been searched on the respective ECF platforms and all available data have been collected into the excel sheet. Specifically, these data include: legal information about the company (VAT number, business name, industry), the year in which the campaign was running, the portal through which the campaign was undertaken, information about the parameters of the campaign (minimum and maximum amount, percentage of equity offered), the final amount collected, the company pre-money valuation, and, where available, information about the class of shares as well as their nominal value and price premium.

In particular, the *pre-money* valuation has been calculated by means of the available information on the percentage of equity offered relative to the maximum fundraising target. With the available data has been possible to compute the *post-money* valuation. Then, the pre-money value of equity has been calculated subtracting the amount raised from the post-money valuation. The entire formula used is the following:

$$Pre.money = \frac{target\ amount}{\%\ of\ equity\ offered} - Total\ amount\ raised$$

The second step of the analysis was to conduct a research about the documentation that startups provided to potential investors at the time of the campaign, particularly the business plan. Platforms are required to ask entrepreneurs a certain level of disclosure when engaging in an ECF campaign, therefore founders are required to publish some documents such as the legal information about the capital increase, the by-law, the chamber view, and the business plan. However, once the campaign closes and the transaction finalises, founders are no longer required to keep this information available to the public, thus they eventually remove them from the campaign page. For this reason, it was possible to rescue and collect information about the companies for which the business plans published at the time of the campaign is still available on the campaign page. The total number of companies for which it has been possible to find past projections amount to 12 out of 29, the 41% of the sample. One of these 12 companies, given the peculiarity of its core business, was not relevant for the purposes of this analysis. The company in question, Paulownia s.r.l., is involved in the growing of a special variety of trees, which takes 4 years to be ready for commercialization. Therefore, since the projections for this company started from 2019, it was not taken into consideration. Moreover, not all the companies presented the same level of projections: some of them were quite detailed, with entire balance sheets available, while others published projections only on some strategic economic variables. For this reason, the analysis has been focused on the main 2 economic variables, for which was possible to find figures for almost the entire companies' sample. This set of variables or KPIs includes *Revenues* and *EBITDA*.

After having collected all data about projections in the excel sheet, the third step consisted in downloading from the web the companies' financials, relative to the years following the campaign. For instance, if a campaign was closed in 2014, the financial statements collected were those of 2015, 2016, 2017, and 2018. Whereas, if a campaign was closed in 2016, the financial statements collect were only those of 2017 and 2018. The resources used to download companies' private financial information were two: *Aida* from Bureau Van Dijk, and *Cerved*[25].

Therefore, all the figures relative to the main selected KPIs have been extrapolated from the companies' financials. Finally, once all the data about past business plans projections and actual financial figures were collected into the excel sheet, the analysis was concluded elaborating some descriptive graphs and tables about the comparison between expected results and actual results.

---

[25] https://www.cerved.com/it

4.2. The Sample

As mentioned in the first paragraph of the chapter, the companies which approached ECF between 2014 and 2016, closing successful campaigns, were 29. The platforms active in that period and hosting these successful campaigns were 11 (Figure 4.1): 200Crowd, Actioncrowd, Backtowork24, Crowdfundme, Investi-re.it, Muumlab, NextEquity, Opstart, StarsUp, UnicaSeed, WeAreStarting. At the time of this dissertation three of the listed platforms were no longer active: Actioncrowd, Investi-re.it, and UnicaSeed. All the other platforms are still active and running ECF campaigns. From 2014 to 2016 the total amount of ECF campaigns was 59, of which 29 successful and 30 not, with a success rate for the triennium of 49% (Figure 4.2). The highest success rate was registered in 2016 with 33 campaigns which hit the fundraising target.

Sito web	Società gestore	Data autorizzazione
Unicaseed.it	Unica SIM	Sezione speciale
Tifosy.com	Tifosy Limited	Sezione speciale
Starsup.it	Starsup Srl	18/10/2013
Actioncrowd.it	Action crowd Srl	26/2/2014
200crowd.com	The Ing Project Srl	18/6/2014
Nextequity.it	Next equity crowdfunding marche Srl	16/7/2014
Crowdfundme.it	Crowdfundme Srl	30/7/2014
Muumlab.com	Muum lab Srl	6/8/2014
Mamacrowd.com	Siamosoci Srl	6/8/2014
Fundera.it	Fundera Srl	10/9/2014
Ecomill.it	Ecomill Srl	29/10/2014
Wearestarting.it	Wearestarting Srl	16/12/2014
Backtowork24.com	Backtowork24 Srl	14/1/2015
Investi-re.it	Baldi Finance SpA	28/1/2015
Crowd4capital.it	Roma Venture Consulting Srl	8/10/2015
Opstart.it	Opstart Srl	11/11/2015

Figure 4.1: Platforms authorized by CONSOB in Italy since the birth of ECF up to 2015 (Politecnico of Milano, 2019)
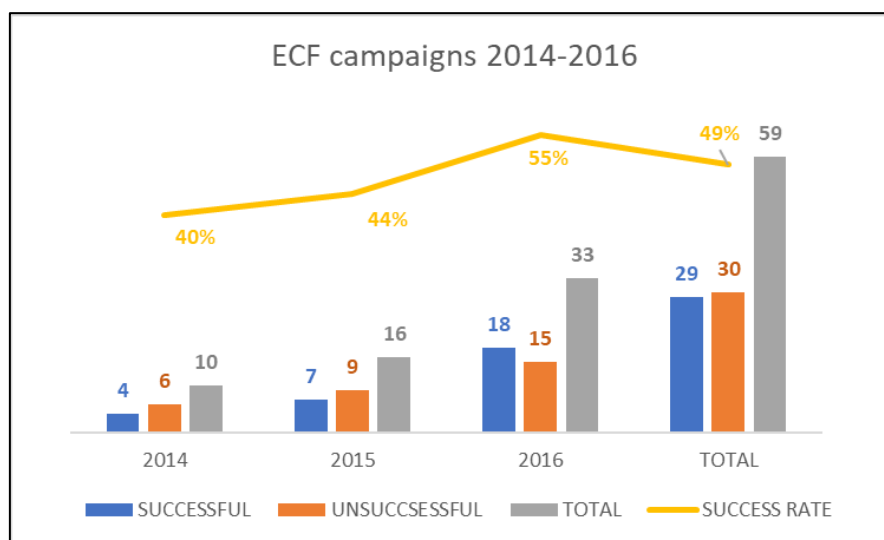
Figure 4.2: Flow of ECF campaigns from 2014 to 2016 and relative success rate
(Politecnico of Milano 2019, personal adaptation)

The protagonist companies of the 29 positive campaigns are those that constitute the analysis' total sample. Below a brief description of each company and relative campaign:

1. *Cantiere Savona S.r.l.:* founded in 2010 by a team of shipyards expert with the aim to design and build an innovative yatch, made by a hybrid engine between electric and solar energy. The 2014 fundraising through *StarsUp* hit its maximum target at € 380.000, provided by 44 investors, in exchange of the 20% of equity.

2. *Diaman Tech S.r.l.:* born as a spin-off of Diaman Holding with the aim to develop a software for facilitate investment decisions of finance professionals. This was the first Italian successful campaign, closed on 2014 through *UnicaSeed* and raising € 157.780 from 75 investors, in exchange of a 19% of his equity.

3. *Nova Somor S.r.l.:* startup in the green-economy field which proposed to create a helio-pump in order to substitute electric energy with solar energy. It raised € 250.000 in 2014 through *StarsUp* from 3 investors for a 17% of its equity.

4. *Paulownia Social Project S.r.l.:* The main goal of this startup was to grow plantations of rapid growth paulownia trees in order to sell the final product as raw material for the wood industry. It raised through *Actioncrowd* in 2014 a total amount of € 520.000 by 12 funders, giving away the 87% of its equity.

5. *BIOerg S.r.l.:* founded by two university researchers in order to produce dextran, a specific polymer applicable to the pharmaceutical, cosmetic, and food industry, with their patented innovative process. They raised € 452.576 in 2015 through *NextEquity* platform. The 56 backers purchased the 44% of the company equity.

6. *Cynny S.p.a.:* startup operating in the broadcasting video industry which developed a technology for creating instantaneous videos. They run two consecutive campaigns in 2015 in two different platforms. The first was on *StarsUp* and the second on *Investi-re* for a total amount of € 171.117 from more than 50 investors.

7. *Enki Stove S.r.l.:* founded in 2015, with the aim to develop eco-sustainable biomass cooking, heating and lighting. It raised through *StarsUp* a total amount of € 240.000, from 41 investors, for a 34% of equity.

8. *Kiunsys S.r.l.:* born as a spin-off of Pisa University, it operates in the field of smart urban mobility, smart parking, and city logistic. It raised € 505.298 in 2015 through *StarsUp* from 19 for a 20% of equity stake.

9. *Shin Software S.r.l.:* This startup created a software, SHOWin3D, to convert CAD files in 3D interactive renderings, viewable to anyone through any browser. The campaign of 2015 on *Actioncrowd* closed at € 408.000, raised from 22 investors for a 45% of the startup's equity.

10. *Opentail S.r.l.:* The startup created "TocTocBox", a collaborative platform born to create an alternative to the normal existing shipping models, that put in contact those who need to ship goods, with those who make trips and journeys of all distances and looking for a way to cope with increasing expenses. In 2015 they raised € 94.626,00 on *Crowdfundme* from 31 investors, giving away the 39% of their equity.

11. *Nextop Italia S.r.l.:* The startup offers "Wayonara", a travel social commerce platform, to share travel experiences, bringing together in a single platform the posts that travelers normally share in an unrelated way on the various social networks. They raised € 135.000 in 2015 from 33 investors through *22crowd*, selling a 10% of their equity.

12. *Cleanbnb S.r.l.:* the startup offers a full service for landlords to manage the short-term rentals on their properties. The campaign of 2016 was the first of 2 consecutive campaigns on the same platform, *Crowdfundme*. The second campaign was undertaken in 2018 in order to prepare the startup for the listing at AIM (Alternative Investment Market), which happened in 2019. In its campaign of 2016, the startup raised € 126.702 from 90 investors, in exchange of a 24% of its equity.

13. *Nexapp S.r.l.:* the startup created FILEclic, a smart browser for files, independent from the platform and operating system, that allows users to organize, publish and immediately find the files they are looking for with extreme simplicity and speed, wherever they are. It raised € 65.100 in 2016 in exchange of a 10% of equity through the platform *Opstart.*

14. *Glassup S.r.l.:* The startup proposes an innovative model of glasses to implement augmented reality. In 2016 they raised € 250.000 through *200crowd* from 46 investors, for a 9% of equity stake.

15. *Maxtrino S.r.l.:* Maxtrino is a software designed and built for Companies, Public Administrations and Accountants that allows the automated recording and digital archiving of passive invoices in an average time of seven seconds, without changing the compatibility program. They raised € 226.652 through *StarsUp* in 2016 from 49 investors, in exchange of 10% equity stake.

16. *Me Group Srl:* Innovative startup, creator and owner of the patent and design of "ME Electric Scooter", made of innovative lightweight material. It raised € 300.000 from 10 investors offering a 20% of equity through *200crowd* platform.

17. *Media Vox Pop S.r.l.:* Vox Pop is a platform that allows journalists and the user community to communicate through a short video-based question-answer system. In 2016 they raised € 60.000 with *WeAreStarting*, offering a 18% equity stake to 39 new investors.

18. *Ricetta Italiana S.r.l.:* the startup created "My cooking box", boxes containing all the ingredients necessary and portioned to make some typical local dishes. In 2016 they collected € 200.000 with *Crowdfundme*, for a 20% of equity offered to 85 new investors.

19. *P2R S.r.l.:* The startup has designed NiuRion, a professional kit for interactive neuromotor rehabilitation, which allows to verify and self-correct in real time the movements of physiotherapy exercises, through the help of a software platform of interactive video games connected to inertial sensors for analysis and motion capture. In 2016 they raised through *Opstart* 150.000 euros for a 28% equity stake.

20. *Papem S.r.l.:* The Sicilian startup offers an app (Papem) that helps to find every day offers exclusively reserved to the community by fashion stores. They raised through *Backtowork24* in 2016 an amount of € 60.000 from 4 investors for a 6% equity stake

21. *Primary system research s.p.a.:* they created Primary Advisory Network, an international network of professionals, such as accountants and lawyers, whose members are selected among the best and most established consulting firms in the country where they operate. They raised € 71.500 in 2016 through *WeAreStarting*.

22. *Brainseeding Srl:* The startup offers the ProntoVet24 platform, a professional home veterinary service supported by fixed facilities in the area. The customer decides when to receive the service at home, which is available 7 days a week and 24 hours a day, makes the payment and waits comfortably at home for the arrival of the vet. It is the only successful campaign of the sample which raised with the platform *Muum Lab*. In 2016 they collected € 50.000 from 1 investor, in exchange of a 20% equity stake.

23. *Safeway Helmets S.r.l:* It operates in the design and production of 'intelligent' helmets equipped with luminous signals. The startup raised € 400.000 in 2016 through *StarsUp,* offering the 48% of its equity to 41 new investors.

24. *Sharewood S.r.l:* it is a sharing marketplace where you can temporarily make sports equipment available to those who are away and need it. In 2016 they raised € 247.255 from 176 investors through *Crowdfundme.*

25. *Skymeeting S.p.a.:* The innovative SME has launched "Sky Accounting", a software of billing and accounting with which customer and accountant share everything in the cloud. They raised through *StarsUp* in 2016 € 159.000 from 21 investors.

26. *Synbiotec S.r.l.:* The company conducts research, development and production activities in the field of probiotics, live microorganisms that have a beneficial effect on human and animal health. They closed the most successful campaign in the period between 2014 and 2016 collecting € 1.000.227 from 38 investors in the *NextEquity* portal. They gave away the 35% of the startup equity.

27. *Miropass S.r.l.:* the startup launched "Tupassi", a tool to plan users' appointments, pay for services and exchange documentation related to any appointment without queuing up. *Backtowork24* hosted this campaign in 2016, closed at € 250.174 collected from 13 investors.

28. *Upsens S.r.l.:* The startup produces devices with sensors that detect the air quality or the level of electromagnetic smog. The startup raised € 196.200 from 34 investors on *StarsUp* in 2016.

29. *Xnext S.r.l.:* Xnext is an innovative startup established in January 2014, with the aim of developing and commercializing advanced in-line X-ray inspection systems for industrial and safety controls. In 2016 they closed their campaign on *Backtowork24*, collecting € 462.412 from 32 investors.

4.3. ECF Campaigns' Outcomes

Table 4.1 summarizes all the main parameters and outcomes of the 30 ECF campaigns undertook by the 29 companies listed in the paragraph above. Cynny S.p.a is the only company which closed two campaign in the period of the analysis, both in 2015.

The information and data shown in the table come from the websites of the platforms which hosted the campaign, when the campaign page was still available. Diaman Tech campaign page on UnicaSeed platform was the only one not available, since the platform closed its activity and the website is no longer online. When campaigns' parameters were not explicit in the campaign page, they have been rescued from the capital increase legal documents supplied by the company (where available). Three of the platforms which hosted the sample campaigns in the selected period are now no longer active. These are: Actioncrowd, UnicaSeed, and Investi-re. Moreover, four of the sample companies are insolvent since 2018 or 2019. These are: Nextop Italia S.r.l., Media Vox Pop S.r.l., Papem S.r.l., Brainseeding S.r.l.

The 29 sample companies operate in a variety of industry, as shown in Figure 4.3, but the main sectors are two: production of software and web portals. This indicates that the prevalent industry of Italian startups using ECF is the IT and digital. Indeed, the two main categories cover the 45% of the sample alone, showing a prevalence of startups involved in the creation of web portals and applications and software or IT solutions, underlying the digital nature of the market.

CAMPAIGN	PLATFORM	YEAR	MINIMUM TARGET	TOTAL AMOUNT RAISED	OVERFUNDING	% OF EQUITY OFFERED	PRE-MONEY VALUE	# OF INVESTORS	MINIMUM CHIP
Cantiere Savona	StarsUp	2014	€ 350.000	€ 380.000	109%	20%	€ 1.518.102	44	€ 400
Diamant Tech	UnicaSeed	2014	€ 147.000	€ 157.780	107%	19%	€ 619.176	75	€ 490
Nova Somor	StarsUp	2014	€ 225.000	€ 250.000	111%	17%	€ 1.250.600	3	€ 450
Paulownia	Actioncrowd	2014	€ 520.000	€ 520.000	100%	87%	€ 79.769	12	N.A.
BIOerg	NextEquity	2015	€ 224.000	€ 452.576	202%	44%	€ 576.006	56	€ 1.600
Cynny	Investi-re.it	2015	€ 116.829	€ 116.829	100%	N.A.	N.A.	N.A.	€ 108
Cynny	StarsUp	2015	€ 54.288	€ 54.288	100%	1%	€ 5.642.249	52	€ 96
ENKI STOVE	StarsUp	2015	€ 120.000	€ 240.000	200%	34%	€ 461.549	41	€ 480
KIUKSYS	StarsUp	2015	€ 375.000	€ 505.298	135%	20%	€ 2.021.192	19	€ 400
SHOWin3D	Actioncrowd	2015	€ 400.000	€ 408.000	102%	45%	€ 994.426	22	N.A.
TOCTOCBOX	Crowdfundme	2015	€ 80.000	€ 94.626,00	118%	39%	€ 213.066	31	€ 250
Wayonara	200Crowd	2015	€ 135.000	€ 135.000	100%	10%	€ 1.215.000	33	€ 405
CLEANBNB	Crowdfundme	2016	€ 50.000	€ 126.702	253%	24%	€ 405.659	90	€ 250
FileCLIC	Opstart	2016	€ 65.100	€ 65.100	100%	10%	€ 585.900	N.A.	€ 150
GLASSUP	200Crowd	2016	€ 250.000	€ 250.000	100%	9%	€ 2.500.275	46	€ 1.000
Maxtrino	StarsUp	2016	€ 175.000	€ 226.652	130%	10%	€ 2.039.868	49	€ 315
ME scooter	200Crowd	2016	€ 300.000	€ 300.000	100%	20%	€ 1.200.000	10	N.A.
Media Vox Pop	WeAreStarting	2016	€ 60.000	€ 60.000	100%	18%	€ 272.779	39	€ 60
MY COOKING BOX	Crowdfundme	2016	€ 50.000	€ 200.000	400%	20%	€ 785.222	85	€ 250
NiuRion	Opstart	2016	€ 150.000	€ 150.000	100%	28%	€ 395.455	N.A.	€ 150
Papèm	Backtowork24	2016	€ 60.000	€ 60.000	100%	6%	€ 940.000	4	€ 5.000
PRIMARY SYSTEM RESEARCH	WeAreStarting	2016	€ 50.000	€ 71.500	143%	3%	€ 2.560.079	N.A.	€ 500
ProntoVet24	Muum Lab	2016	€ 50.000	€ 50.000	100%	20%	€ 200.000	1	N.A.
SAFEWAY	StarsUp	2016	€ 200.000	€ 400.000	200%	48%	€ 436.995	41	€ 500
SHAREWOOD	Crowdfundme	2016	€ 75.000	€ 247.255	330%	8%	€ 3.006.100	176	€ 250
SKYMEETING SPA	StarsUp	2016	€ 150.000	€ 159.000	106%	12%	€ 2.442.457	21	€ 500
SYNBIOTEC	NextEquity	2016	€ 700.017	€ 1.000.227	143%	35%	€ 1.857.564	38	€ 1.523
TuPassi	Backtowork24	2016	€ 250.000	€ 250.174	100%	7%	€ 3.253.664	13	€ 350
UPSENS SRL	StarsUp	2016	€ 195.000	€ 196.200	101%	20%	€ 1.303.800	34	€ 500
Xnext	Backtowork24	2016	€ 250.000	€ 462.412	185%	17%	€ 2.470.139	32	€ 499

Table 4.1: Campaigns' Outcomes (own elaboration)
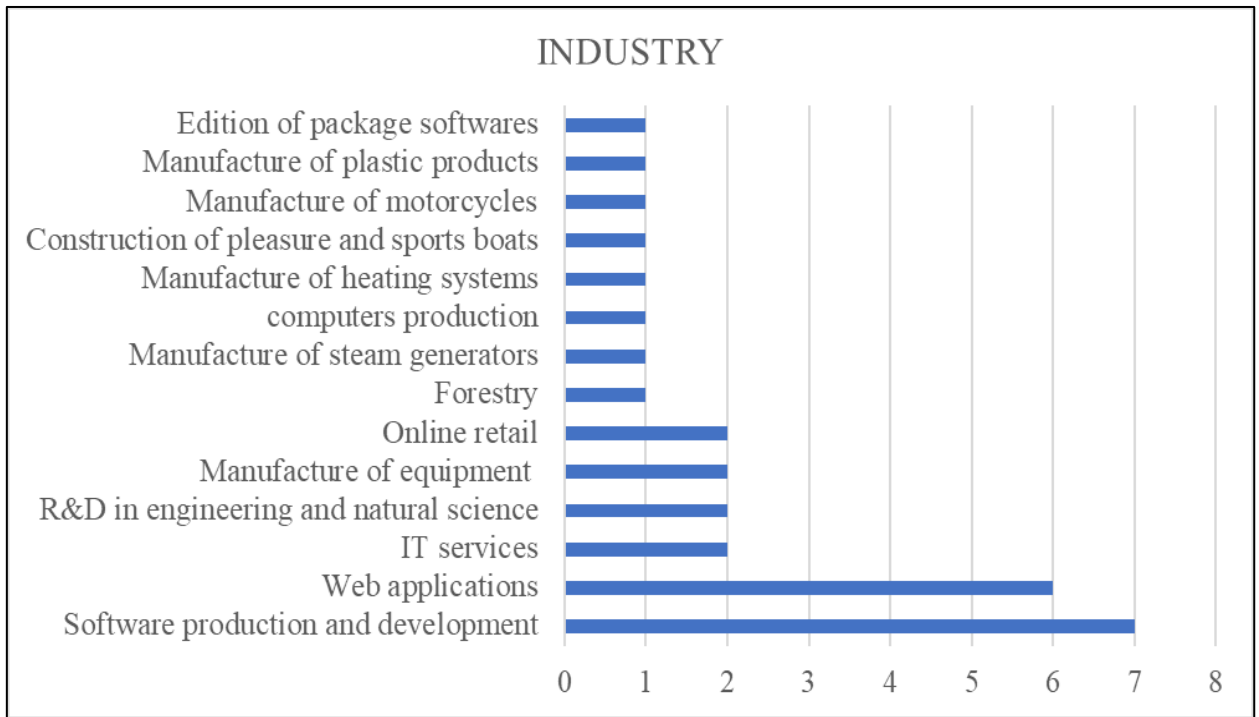
Figure 4 3: Industries in which operate the sample companies (own elaboration)

Table 4.2 summarize the average campaign's parameters and outcomes. The *average* amount raised showed a decline in the triennium from more than 300.000 euros in 2014 to almost 200.000 euros in 2016. On the contrary, the percentage of overfunding increased. Overall, the amount raised by companies from 2014 to 2016 was on average 252.987 with a 142% of overfunding. The minimum target is the figure on which overfunding is calculated. This figure decreased from 2014 to 2016 in average values, as well as the % of equity offered, showing a growing willingness of founders to keep control over their businesses. For what concerns the number of investors and the minimum chip of investment required from them to enter a funding round, they both increased from 2014 to 2016 with a global average of 41 investors and 634 euros of minimum chip.

The total amount raised in the triennium is shown in Figure 4.4. in 2015 the trend registered a +53% growth, while in 2016 a +113%.

	MINIMUM TARGET	MAXIMUM TARGET	AMOUNT RAISED	OVERFUNDING	% of EQUITY OFFERED	PRE-MONEY VALUATION	INVESTORS	MINIMUM CHIP
2014	€ 310.500	€ 326.945	€ 326.945	107%	36%	€ 869.607	34	€ 447
2015	€ 188.140	€ 282.499	€ 250.827	132%	28%	€ 1.589.070	36	€ 477
2016	€ 171.118	€ 272.332	€ 237.512	155%	17%	€ 1.480.886	45	€ 737
AVERAGE 2014-2016	*€ 194.241*	*€ 282.325*	*€ 252.987*	*142%*	*22%*	*€ 1.422.685*	*41*	*€ 634*

Table 4.2: Average value of campaign parameters from 2014 to 2016. (personal formulation)
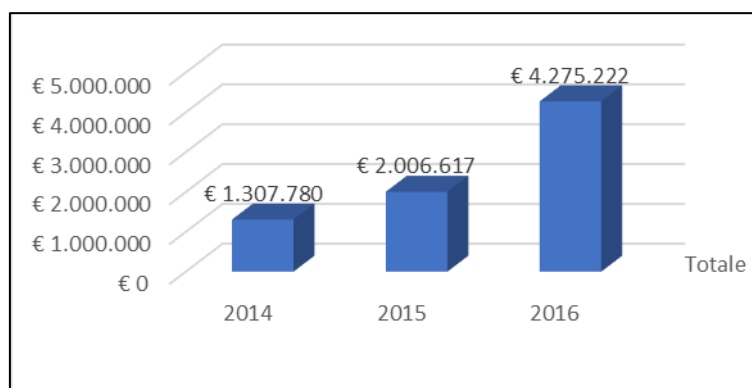
Figure 4.4: Total Amount raised by year. 2014-2016 (personal formulation)

The campaign which raised the highest amount was that of Synbiotec S.r.l., on *NextEquity* in 2016, which collected more than 1 million euros. The second highest was Paulownia Social Project s.r.l. in 2014 with 520.000 euros. Paulownia was also the campaign which offered the highest percentage of equity (87%), while the second highest offer was almost half the value (48%). The minimum percentage of equity was offered by Cynny S.p.a. in his first campaign of 2015 on *StarsUp,* and the lowest amount was raised by Brainseeding S.r.l. (Prontovet24), which collected the 100% of its target of 50.000 euros. The companies which offered the highest and the lowest percentage of equity, with respect to their fundraising targets, also showed the lowest and the highest pre-money valuation. Indeed, Paulownia had a pre-money value of about 80.000 euros while Cynny S.p.a. pre-money value exceeded 5.5 million euros.
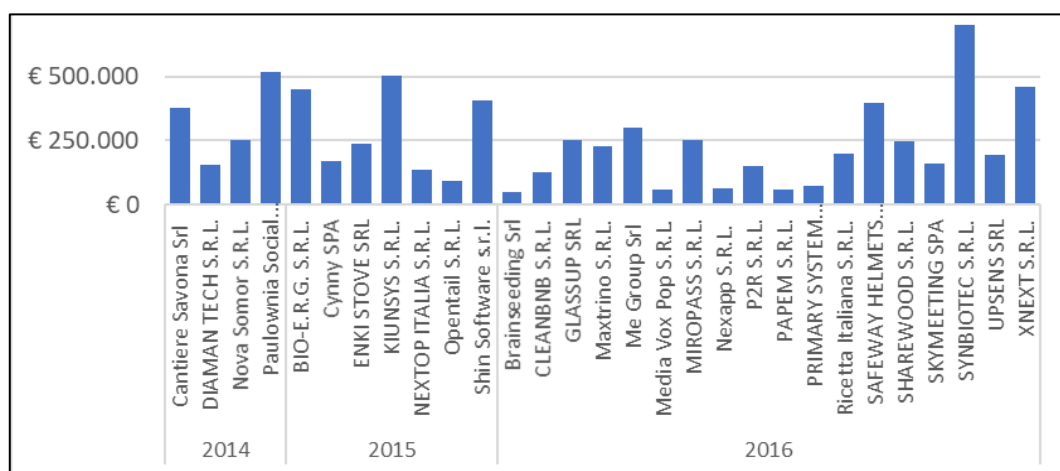
Figure 4.5: Total Amount raised by year. 2014-2016 (personal formulation)

The highest minimum chip was asked by PAPEM S.R.L. in 2016, which required backers to invest at least 5.000 euros to enter the ECF campaign.

It is interesting to notice how the dynamics of campaign parameters changed, maybe due to accumulated experience in setting efficient values, allowing for a higher overfunding. Figure 4.6 illustrates this change in dynamics through 3 different graphs, one per each year of the triennium. As we can notice, the overfunding increase from 107% to 155%. This growth is

justified by the decrease in the target amount. Indeed, both target amount and total amount raised decreased from 2014 to 2016. This could imply that companies kept the target at lower amounts in order to increase the probability of a successful fundraising. Indeed, as was mentioned in chapter 3, if a campaign does not reach its minimum fundraising target it is considered unsuccessfully closed and the fundraising fails. Moreover, for marketing purposes it has been shown that a positive overfunding could give signals of project quality to potential investors and increase the probability of campaign success until the end of the campaign period.
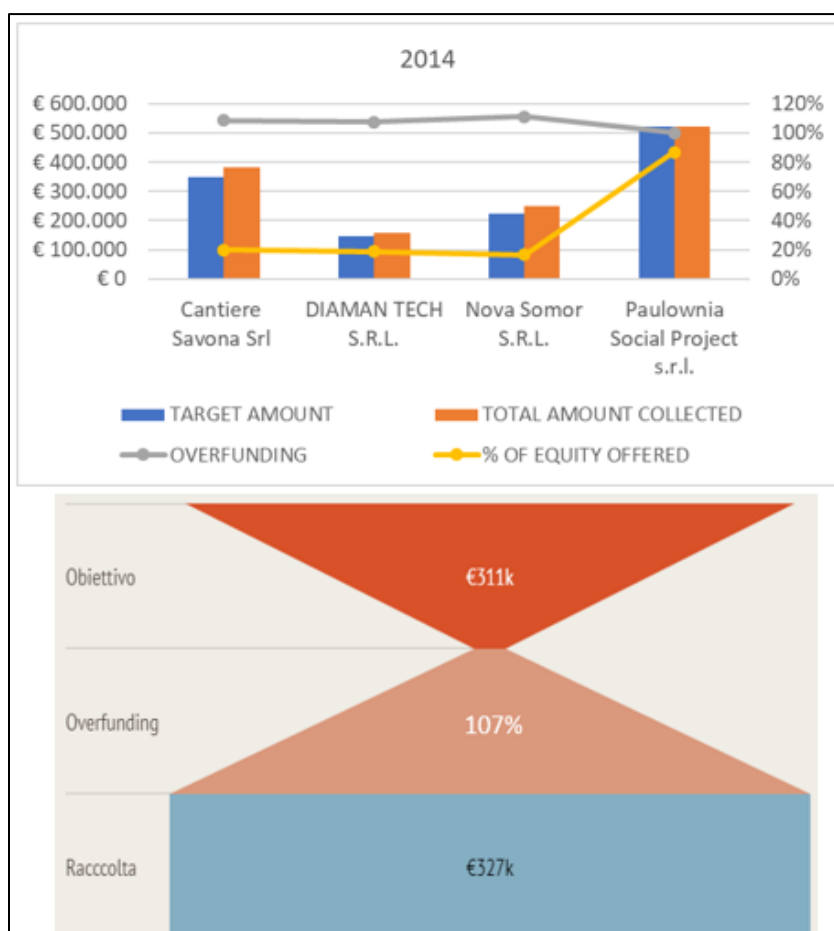
Figure 4.6: Campaigns' parameter dynamics 2014-2016 (own elaboration)
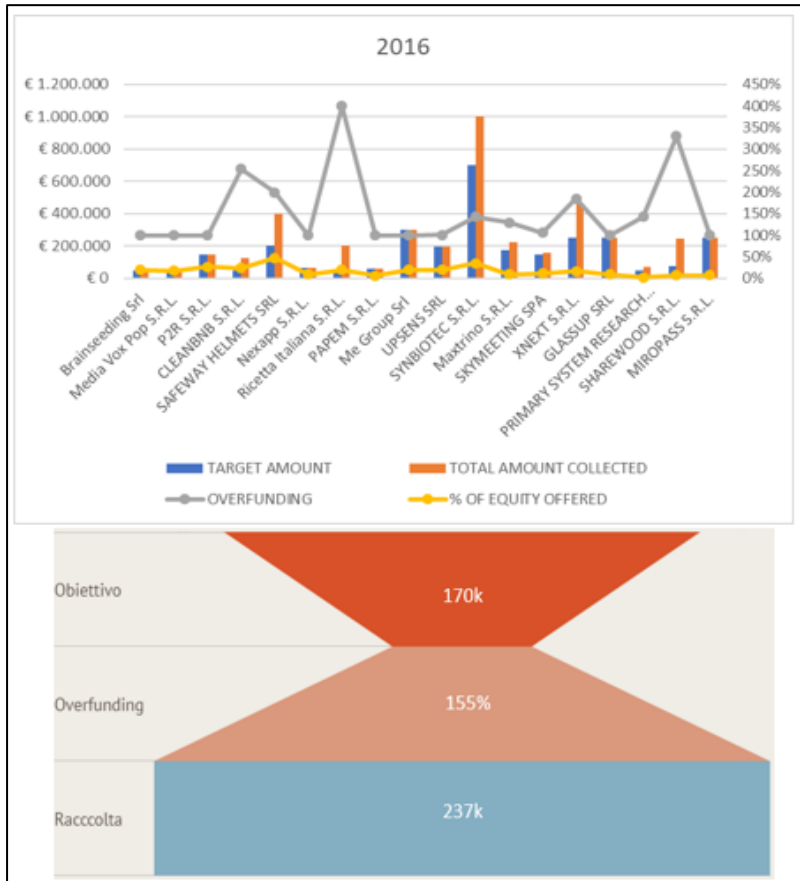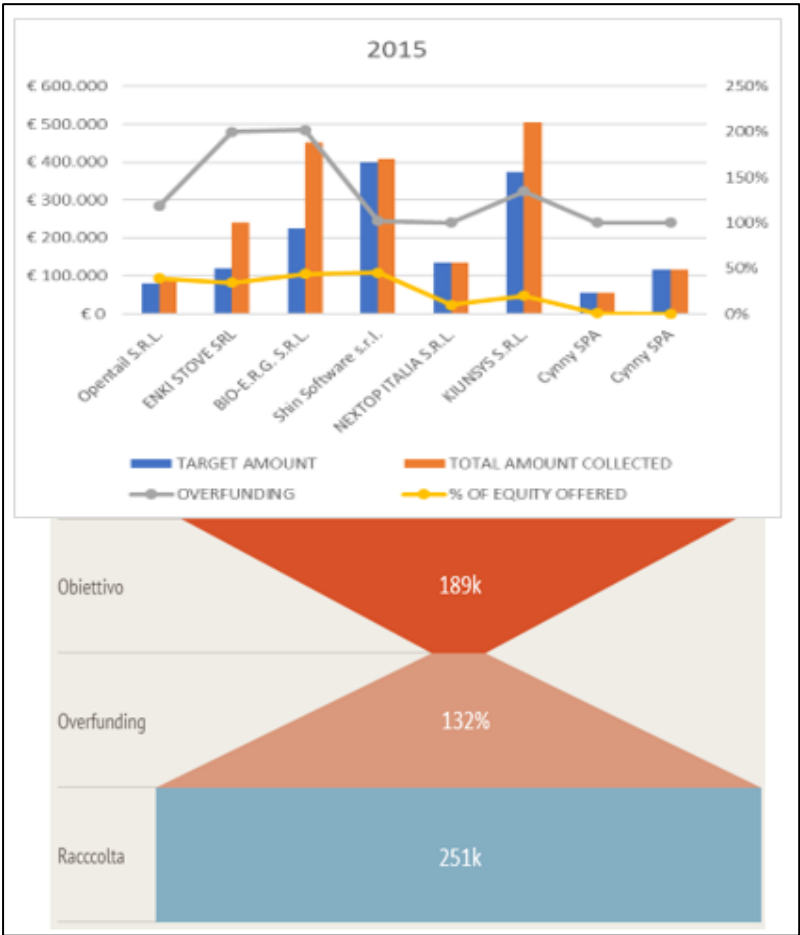
Looking at platforms' results, Figure 4.7 illustrates the amount collected by platform per year. *StarsUp* was the most active platform from 2014 to 2016, hosting 9 campaigns for a total amount of more than 2.4 million euros. *Crowdfundme* was the second which hosted the majority of campaigns (4) after Starsup but the total amount raised was among the lowest ones.

The majority of platforms were mostly active in 2016, while 2 out of 3 that were active in 2014 are now inactive or closed. *NextEquity* achieved the second highest fundraising in 2016 but it came from just one single campaign (Symbiotec S.r.l.).
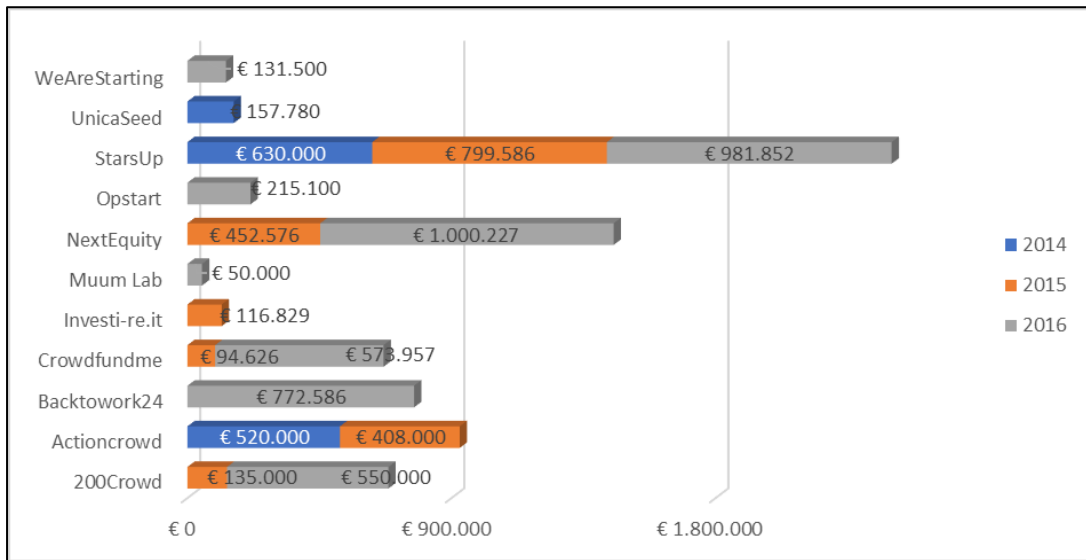
Figure 4. 7: Platforms results of successful campaigns, 2014-2016 (own elaboration)
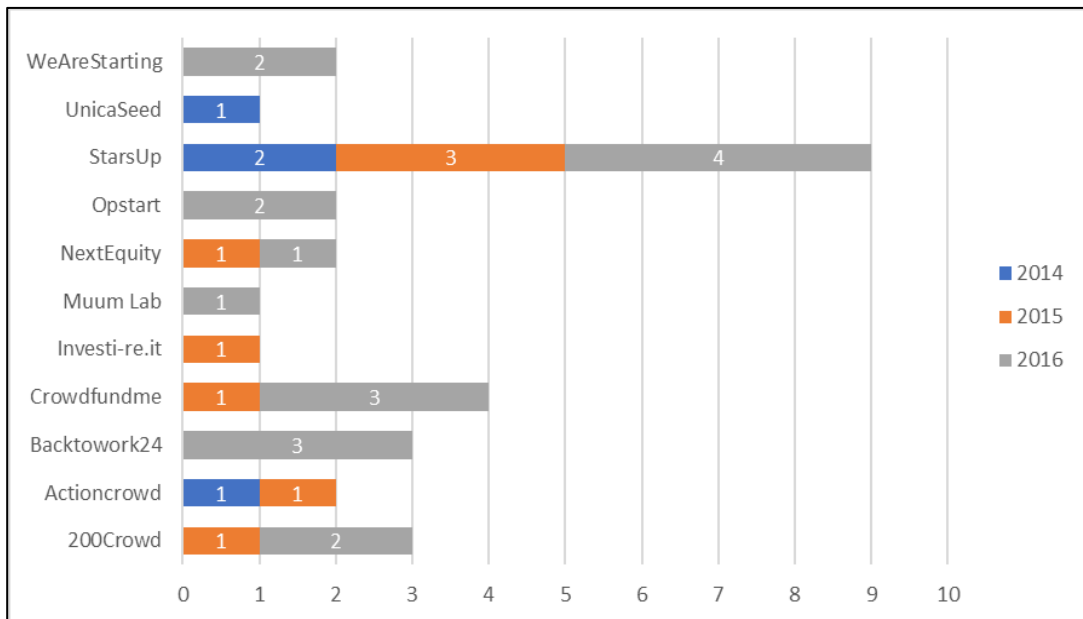
Figure 4. 8: Number of campaigns closed per platform 2014-2016 (own elaboration)

4.4. Case-Studies Analysis: Business Plan vs Actual Financial Performance

The remainder of this chapter is focused on each single case-study analysis. For each company, business plan forecasts made at the year of the ECF campaign have been illustrated, with a brief overview of the company innovative idea and business model. Consequently, the business plan values have been compared to the actual values founded into the yearly company's financial statement (downloaded from Cerved). The analysis was conducted on two main variables: Sales and EBITDA, representative of the sturtups' economic performance. Finally, for each company, the possible causes of discrepancies among business plan projections and actual financial results have been searched into the available documents (such as the explanatory note to financial statement and the report of shareholders' meetings).

4.4.1. BIOerg S.r.l.

ENTREPRENEURIAL IDEA: BIOerg's vision was to become a market leader in the production of low-cost dextran, providing a product with chemical-physical characteristics comparable to the different categories of dextran, currently used on the market, but at a much lower price (10 to 100 times lower than the current price). Dextran is a natural synthetic polymer obtained by fermentation. It is very versatile and currently used mainly in the pharmaceutical industry, but with potential application in other different industrial sectors. The innovation is focalized on optimizing the process, reducing the production costs of the finished product, making it competitive on the market. This new innovative process is standardized, modular (scalable to achieve high production according to market requirements) and replicable on different operating units. This makes it possible to introduce the use of dextran powder in new areas, such as food industry (in gluten free products, ice cream and low-fat cheese production), cosmetics industry (in the production of creams and conditioners) and in wastewater treatment industry (where high molecular weight dextran is able to seize metal cations that remain in the wastewater of some industrial processes). This new low-cost industrial production process for dextran represents the startup's innovative technology, for which an international patent application was filed in February 2014. The patent received a positive answer, allowing for an exclusively commercial exploitation by BIOerg.

STRATEGY: for what concerns the company's competitive position, BIOerg differs from peers both in terms of scope (narrower) and strategy. Indeed, as the founders explained in the 2015 BP, most hydrocolloid producers operate in an enlarged market (serving more than 100 countries worldwide) and base their competitive strategy on differentiation, offering a wide range of hydrocolloids in different fields of application. BIOerg, on the contrary, has adopted a

different strategy, targeting a niche market and offering a single hydrocolloid (dextran), customised according to the scope of application. However, the strengths of this project are the competitive selling price and the features of the finished product, characterized by good quality standards and extreme versatility. In the food sector BIOerg has already tested the effectiveness of dextran powder in some recipes (developed for this purpose). The company can also count on several collaborations with Italian and European research groups, which are using or have used in their formulations the dextran powder supplied for free by BIOerg.

REVENUE STREAM: During the first year of activity the sales targets were identified in the food and cosmetics industry. The entry of dextran powder produced by BIOerg in the pharma market (pharma grade dextran) requires more time and higher quality standards (in particular the purity of the finished product and a reduced molecular weight). Pursuing this goal and extending the sale of the product also to the pharmaceutical market it is possible, but to be planned in later periods, after adding purification steps to the standard product and implementing the quality requirements of the dextran powder.

ECF OFFER: At the time of the ECF offer, BIOerg was owned by the two founders, Giulia Cinti (80% of the shares) and Alessandra Micozzi (20% of the shares). BIOerg offered investors the 44% of company's equity, in order to raise funds for applying the research's results to the market. The total amount collected coincided with their maximum fundraising target: € 452.576. Therefore, their post-money valuation was € 1.028.582. The table below synthesizes the main 2015 ECF campaign's parameters. The percentage of overfunding is calculated on the minimum target, that is the minimum amount for which the campaign is considered successful and the capital increase can be confirmed.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 224.000
TOTAL AMOUNT RAISED	**€ 452.576**
OVERFUNDING	202%
% OF EQUITY OFFERED	44%
POST-MONEY VALUATION	**€ 1.028.582**

ASSUMPTIONS and FINANCIALS: BIOerg's business and financial plan develops over 5 years, but for this analysis, just four year of projections have been considered, up to 2018.
From March 2015 it is planned to put into operation the production plant that requires an investment of € 220,000 (including VAT) for capital goods and the use of two employees/technicians. The financial plan has been developed considering the sale of dextran powder at a price of 30€/kg.

The starting assumptions were(BIOerg S.r.l. 2015):

- For the first 2 years, 10.000 kg are produced, the third and the fourth year 30.000 kg and the fifth year 60.000 kg

- 2015: half of the dextran will be sold, and stocks will be fully absorbed in 2018.

- 2016: file for 2 new patent applications

- 2017: the cost of €100,000 is incurred to extend patent coverage worldwide. In 2017 the economic and financial plan shows how, by supporting an investment of a further €50,000 (for capital goods) and hiring two more employees, it would be possible to increase production up to 30,000 kg of dextran per year. Table 4.3 summarizes the values of the two variables selected to analyse the financial performance of the start-up: Sales and EBITDA. The lines "projections" shows the business plan forecasts made by the company in 2015. The lines "actual results" instead shows the actual values coming from the company yearly financial statements. In this way it was possible to compare the two values and create a *realization rate* and a *variation rate*. The former is calculated simply dividing the actual value by the projection value for each year. The latter is the delta between the two values divided by the projection value (in absolute terms), thus it represents the variation (increase or decrease) from the expected forecast.

Company	C. year	Status		
BIOerg	2015	Active		
€/.000	**2015**	**2016**	**2017**	**2018**
SALES				
Projections	150	300	900	1050
Actual results	0	0	0	0
Delta	-150	-300	-900	-1050
% of Realization	**0%**	**0%**	**0%**	**0%**
% Variation	**-100%**	**-100%**	**-100%**	**-100%**
EBITDA				
Projections	-24	28	221	139
Actual results	-4	-31	-28	-41
Delta	20	-59	-249	-180
% of Realization	**17%**	**-109%**	**-13%**	**-29%**
% Variation	**83%**	**-209%**	**-113%**	**-129%**

Table 4.3: Business plan projections and actual results of BIOerg S.r.l. (own elaboration)

The innovative startup is still active and from the company's income statements it emerges that it did not account for any sales through the first 3 years of activity, contrary to what was expected from the business plan. In the notes to the financial statement, the only information available concerns the R&D expenses which, given the null revenues, obviously contributed to a negative EBITDA. The 2018 shareholders meeting's report is the most updated document which gives indications of current business developments. In this document it was affirmed that, among the activities concluded during 2018, the company started the implementation of NextDext (brand name of their dextran product) industrial production. This information justifies the null revenues from 2015 to 2017, since the actual production of the dextran was launched just starting from 2018, and not from 2015 as the founders planned before the ECF campaign. Furthermore, in 2017 the startup introduced into their business model also the production of processed dextran-based food, in order to sell them to new commercial partners. Unfortunately, the company does not have a website (it results under construction). This could have a negative impact on the business, especially because it is a company who raised funds from a crowd of 56 investors. Indeed, the lack of a common platform like a website, in which not only investors but also potential customers can stay updated on the business development, is not a positive sign for a company, especially in its start-up phase, when the need of visibility in the market is quite high.
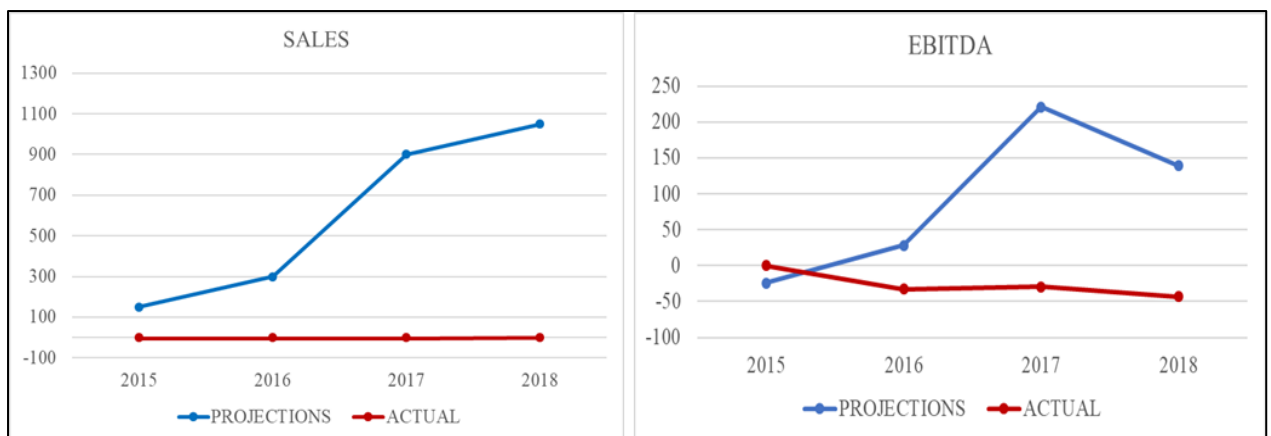
Figure 4. 9: Projections vs actual results of BIOerg s.r.l. (own elaboration)

4.4.2. Shin Software S.r.l.

ENTREPRENEURIAL IDEA: The company's vision is to make objects explorable in 3D and customizable online via any device, while the mission is to bring the expressive power of 3D graphics in the world of business. The goal of the company is the creation of online applications for various uses: presentation and configuration of products, virtual manuals, virtual fairs, virtual tours, remote staff training. Indeed, the innovative startup intended to spread the use of

its software for the realization of interactive 3D renderings, with the final goal to make its software become a new media tool for communication and e-commerce. Shin Software's design is based on SHOWin3D: a web and mobile application that makes available to SMEs and professionals a new tool for:

− communicate more effectively online by creating interactive 3D presentations

− enrich and enhance e-commerce and online catalogues through 3D product configurators

− create interactive manuals and e-learning projects that can be consulted online

SHOWin3D technology allows, through a totally automated web platform, to upload and convert CAD files, making them interactive.

BUSINESS MODEL & REVENUES STREAM: The business model is based on sales of licenses to companies and professionals who will allow the public to access, for free or for a fee, the 3D rendering of their products. The revenues stream comes from the offer of the following services(Shin Software S.r.l. 2014):

− Transfer of the Licenses for the use of the platform, directly or through resellers (web agencies, web agencies, web agencies, web agencies, etc.)

− Provision of extra capacity of cloud services: storage space (HDD) and extra connectivity (bandwidth)

− Supply of service management

− Software applications: Product configurators/Catalogues/Virtual Tours/Systems of

E-Commerce integrated with 3D solutions/Interactive 3D systems for remote training/Interactive 3D systems for statistics based on web activity monitoring (current core business of Shin Software). The platform was already active in 2015 and in beta phase and customers of different sectors and of different sizes have been acquired.

ECF OFFER: Shin Software offered to the public the 45.35% of the share capital for a total of 636,000.00 euros and with a minimum target of 400.000 euros. At the end of the campaign the startup raised 408.000 euros, giving away the 29% of its equity. The owner of the project before the ECF campaign were Stefano Provenzano (60%) and Marcello Figoli (40%). With this capital the company was willing to complete the development of the product for mass distribution and cover the investments necessary for marketing. However, since the platform was already created at the time of the campaign, the capital raised was mainly destined to support the commercial activity and sales development. The table below shows the main

parameters of the 2015 capital increase through an ECF campaign on the platform Actioncrowd. The percentage of overfunding is calculated on the minimum target.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 400.000
TOTAL AMOUNT RAISED	**€ 408.000**
OVERFUNDING	102%
% OF EQUITY OFFERED	45%
POST-MONEY VALUATION	**€ 1.402.426**

ASSUMPTIONS and FINANCIALS: The sales forecasts were based on assumptions about customer acquisition's success rate, as a consequence of the marketing campaigns implemented. In particular:

- as regards marketing through "pay per click" campaigns, a rate of conversion of 0.09% in the first year, rising to 0.27% in the third year

- an important channel was identified in the DEM (direct mail marketing) which was supposed to bring a conversion rate of 0.0428% in the first year, and 0.075% in the third year.

Table 4.4 summarizes the values of the two mains economic KPIs as forecasted by the company. As we can see from Figure 4.10, 2015-EBITDA was the only value which performed better than the forecasts. Actual recorded sales have been from 80% to 90% lower than the forecasts.

Company	C. year	Status		
Shin Software	**2015**	ACTIVE		
€/.000	**2015**	**2016**	**2017**	**2018**
SALES				
Projections	380	1466	1906	2478
Actual results	54	173	293	529
Delta	-327	-1293	-1613	-1948
% of Realization	**14%**	**12%**	**15%**	**21%**
% Variation	**-86%**	**-88%**	**-85%**	**-79%**
EBITDA				
Projections	-443	144	296	552
Actual results	45	-4	70	137
Delta	488	-147	-226	-415
% of Realization	**-10%**	**-3%**	**24%**	**25%**
% Variation	**110%**	**-103%**	**-76%**	**-75%**

Table 4.4: Business plan projections and actual results of Shin Software S.r.l. (own elaboration)

2015: the company closed the financial year with a net loss - € 1.129. This can be deemed a good result, considering that it was mainly a year of investment, in which the startup's

innovative software products have been developed. Indeed, the BP projections forecasted a net loss of -€ 454.630, much higher than the recorded one.

2016: from this year the company lost its status of startup and acquired the one of innovative SME. From the shareholders' meeting if 2016 it emerged that the company was struggling to sell its product (SHOWin3D) because the audience of potential customers didn't still have an adequate digital culture to see it as a need. As a consequence, it took a major commercial and marketing effort to close contracts. At the end of 2016 the orders were more concentrated, and the positive trend continued in the first quarter of 2017, but the long payments and the development time of the orders led to a significant cash flow problem. The year closed with a net loss of € -63.760. In 2016 and 2017 the revenues trend saw a positive growth, as well as EBITDA, which became positive, even if far from the projections, probably because of the cash-flows problems mentioned above.

2017: A first research of a partner for resale of SHOWin3D subscriptions and related projects was launched at the end of the year. This activity continued in 2018, starting to show its first positive effects. For what concerns sales, 2017 ended with a significant increase in sales, break-even was not achieved, because the company had payment problems with a particularly important project, and they were unable to compensate with additional sales. During the year 2017 the company carried out development activities for technological innovation in relation to the SHOWin3D software: for the implementation of this project the company sustained a total cost of € 176.712,44.

2018: During the year the company carried out applied research and development activities for technological innovation and directed its efforts in particular to the same project initiated in 2017. The research of partners for the resale of SHOWin3D subscriptions and related projects continued in 2018, generating positive effects on the business; the company confirmed the intention to continue and to intensify its efforts in this direction in order to launch an important multiplier effect on sales. 2018 closed with a significant increase in turnover and a 96% growth in EBITDA, although break-even point was not achieved even in this year.

Moreover, in the shareholders' meeting of 2018 the president communicated to shareholders the willingness to look for new financial funds, with the possibility to introduce new potential investors through a capital increase. Therefore, in 2018 the company decided to organize the offer in order to find investors interested in sustaining the company growth through additional capital. The startup's income statement growth trend is an indicator of business continuity,

which is also confirmed by the several examples of successful works done with some customers, available on Shin Sowftware website[26].
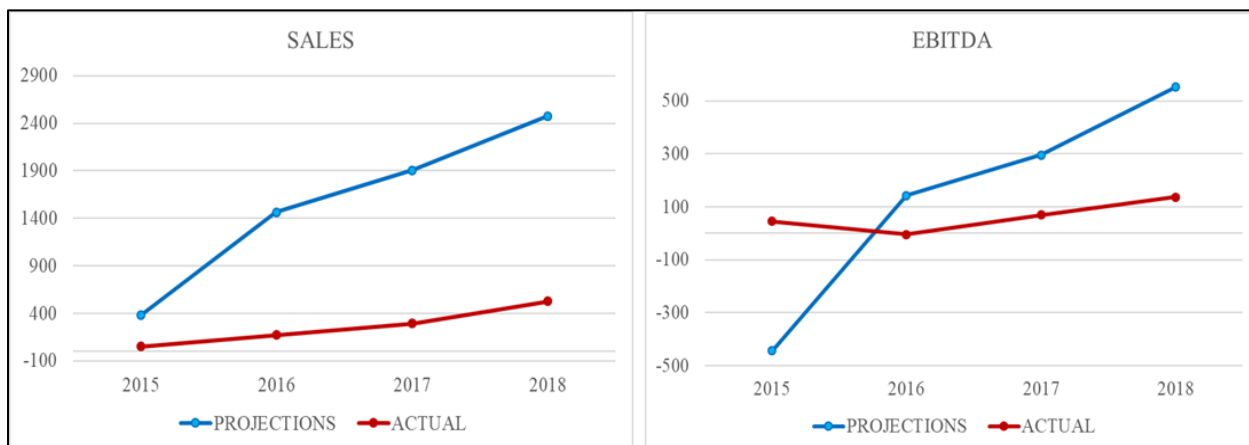
Figure 4.10: projections vs. actual results of Shin Software s.r.l.

4.4.3. Nexapp S.r.l.

NexApp is a spinoff of Easytech s.r.l., a consolidated firm in the market, operating in the supply of IT solutions, specialized mainly in the analysis and requalification of IT infrastructures, virtualization systems and help desk management. The 3 founding partners created NexApp with the goal to sinergically complement the activity of Easytech, through the supply of innovative software and web and mobile solutions. Thus, NexApp is a provider of a wide range of IT services for the world of small and medium enterprises, which are divided into several categories, among which the main are software development and consultancy.

ENTREPRENEURIAL IDEA: NexApp aims to provide technical expertise, methodology and support in a software development niche targeted at small and medium enterprises. In particular, through its ECF campaign of 2016 on Opstart, the company proposed an innovative application, called "FILEClic", created to help people to organize and immediately and easily find all the files in a person's network and archive, whether they are on the pc or on the cloud. The technology is the result of a project that NexApp developed for a company that needed to inventor and catalogue all the files stored on its network, so that it could search and find them in seconds. The start-up goal is to make FILEclic become the leading software for corporate networks which work with any operating system and any device, thanks to its user-friendly interface, a quick and easy training program, and an always present assistance. However, the

---

[26] Available at: https://shinsoftware.com/it/come-lavoriamo/

company's business plan did not mention the FILEclic project and did not explain the company business model. The only information available about the application comes from the ECF campaign page on Opstart.

ECF OFFER: in its 2015 campaign NexApp asked to the crowd of potential investors funds for € 65.100, claiming the intention to use the capital raised to simplify the software installation by making it manageable by any user within the company. At the closing date they raised the 100% of the target amount for a 10% equity stake in the company. The post-money valuation was € 651.000.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 65.100
TOTAL AMOUNT RAISED	**€ 65.100**
OVERFUNDING	100%
% OF EQUITY OFFERED	10%
POST-MONEY VALUATION	**€ 651.000**

ASSUMPTIONS and FINANCIALS(Nexapp S.r.l. 2015): Regarding the financial projection, the company illustrated briefly some milestones that were intended to be achieved in the 3 years after the campaign.

The target area to which NexApp initially intends to offer its services is that of small and medium-sized enterprises in Northern Italy, i.e. those with a range of 10-100 users for IT services. Of the approximately 200,000 companies of this type existing in 2015 in this area, only 50% were considered to be potential customers. Hence, the target for the first 3 years was to acquire about 0.3% of the 100,000 target companies, i.e. 300 at the end of 2017 with a very strong growth trend throughout the triennium. In the first year, thanks to the customer base of the associated company Easytech, the start-up was expected to serve about 100 customers. At the end of the second year, thanks to the inclusion of a dedicated salesperson, the company forecasted to reach 200 customers, finally hitting the target of 300 at the end of 2017. For what concerns the technology development, the forecast was to start the production of the first packages in 2016 and start the commercialization in 2017, adding in 2018 the post-sale assistance.

Table 4.5 summarizes the Sales and EBITDA values for the 3 years after the ECF campaign. These values are related to the company financial performance as a whole and not only related to the sale of the FILEclic software. Nevertheless, the sales growth has been driven also by the introduction of FILEclic into the company product range[27].

---

[27] Products list available at: https://nexapp.it/prodotti/

Company	C. year	Status		
Nexapp	2016	ACTIVE		
€/.000		2016	2017	2018
SALES				
Projections		302	535	885
Actual results		376	611	614
Delta		74	76	-271
% of Realization		125%	114%	69%
% Variation		25%	14%	-31%
EBITDA				
Projections		31	88	189
Actual results		17	54	56
Delta		-15	-34	-133
% of Realization		53%	61%	30%
% Variation		-47%	-39%	-70%

Table 4.5: Business plan projections and actual results of NexApp S.r.l. (own elaboration)

During 2016, the Company carried out research and development activities, focusing its efforts on three particular projects: Fileclic, Moodle (Learning Management System), Odoo (management software with modular structure). For the development of these projects, the company incurred total costs of approximately 65,000 € in 2016, which were considered as operating costs and charged to profit and loss statement. The further development of these innovations has allowed the company to develop and commercialize new products, also customized to the needs of individual customers, with favourable effects on turnover and subsequent business results, explaining the revenues growth of 193% from 2016 to 2018, as well as the EBITDA growth of 240%.

The difference in results of 2018 is explained mainly by the lower amount of actual revenues compared to the forecasts. The start-up was expecting to perform better in 2018. The company forecasted to record a 2018 EBITDA accounting for 21% of sales but, in the reality, 2018 EBITDA amounted just to the 9% of sales. Looking at the 2018 income statement this variance comes from the revenues value. In fact, the total operating costs were slightly lower in the actual results than the projections. Profit for the year was also in line with 2017 levels, confirming the good performance of the business.

Moreover, starting from 2017, the company made small equity investments in 3 innovative startups:

- Easyfintech Srl, a company whose purpose is the development, the production and distribution of innovative technologies and innovative software services for the financial industry

- Verum srl, a company with the object of research, development and production and marketing of products or services with high technological value, in the context of animal and human nutrition

- Borass Srl, a company that owns and operates "Fight Eat Club" the first portal dedicated to online culinary challenges with prizes, among amateur cooks passionate about food.

For what concerns future developments, an increase in the number of staff was envisaged for the 2019 financial year, particularly with the inclusion of a coordinator for junior developers, alternatively a senior programmer or a project manager. In order to meet the need to identify qualified persons, the company began a new path towards the end of 2018 to create developers in collaboration with professional schools. Furthermore, also thanks to the collaboration with the ECF portal Opstart, the company received requests for custom software and mobile app developments. The startups in question asked to Nexapp S.r.l. to become a technology partner. The founders estimated that these opportunities could bring to a growth of about 20/30% of turnover in 2019.
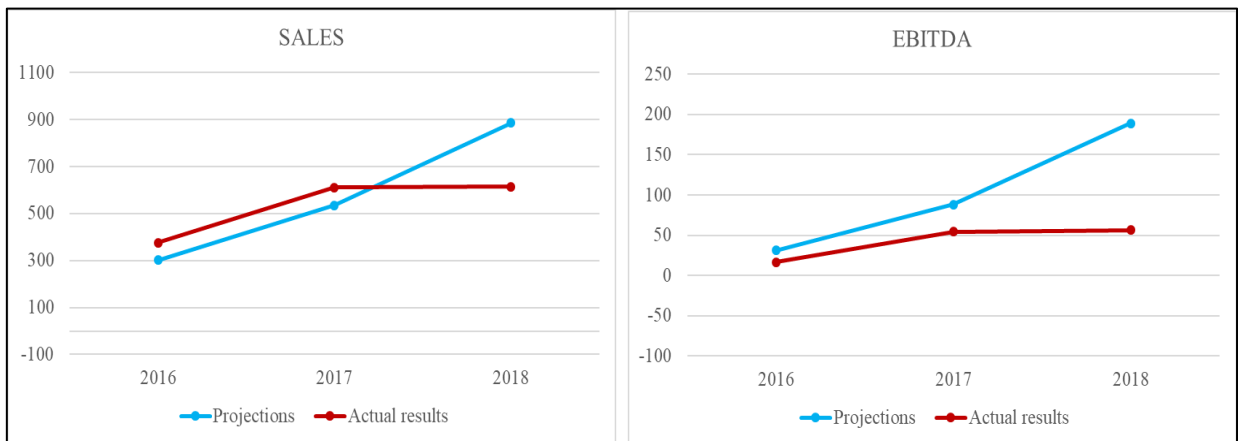
Figure 4.11: Projections vs. Actual Results of Nexapp S.r.l. (own elaboration)

4.4.4. Media Vox Pop S.r.l.

MediaVoxPop S.r.l. has declared insolvency in 2019, hence balance sheets up to 2018 were available on Aida. For the purpose of our analysis it has been studied the difference between projections and results up to 2018 in order to identify a trend or a cause that led the company to insolvency.

ENTREPRENEURIAL IDEA: "Nowadays, a third of the news on the network is created by users themselves, no longer by journalists. Media Vox Pop's vision is not to see this phenomenon as a threat, but to see it as a chance to create a more transparent, democratic and economically sustainable journalism, where journalists regain their role and acquire new

professional skills"(Media Vox Pop S.r.l. 2016). They intended to do it through Vox Pop: a platform designed for digital journalists who want to remotely interview their community; spreading video-demands to their audience and collecting, verifying and classifying user-generated videos in response to the question asked. Vox pop was thought as a support for traditional media and a complement to the digital ones, targeting mainly news providers. The startup's goal was to introduce the concept of "crowd interview", a massive collection of stories and opinions to give voice and image to the plurality of the web. After developing the idea and the first demo of the platform in Chile, thanks to the support of the incubator "Startup Chile", the founders decided to bring the project in Italy.

ECF OFFER: in its 2016 ECF campaign through WeAreStarting, Media Vox Pop raised €60.000 from 36 investors, totalizing the 100% of required target, in exchange of a 18% equity stake. With the funds collected through ECF, the company intended to hire new specialized team members for helping the founders to complete the prototype; development of product design; construction of the initial customer base; creation of online marketing campaigns.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 60.000
TOTAL AMOUNT RAISED	**€ 60.000**
OVERFUNDING	100%
% OF EQUITY OFFERED	18%
POST-MONEY VALUATION	**€ 332.779**

ASSUMPTIONS and FINANCIALS: The company valued a number of potential customers equal to 4,220 (Serviceable and Obtainable Market). In economic terms, the total achievable market corresponded to $25.3 million, with an estimated average monthly revenue of $500. The company stated the intention to use the funds collected through ECF for the following uses: team integration with the addition of skills specifications to complement the prototype, study and implementation of product design and of specific algorithms, construction of the initial customer base from which scaling up, creation of online marketing campaigns and events dedicated. The company business plan provided projections just for the two years following the ECF campaign, 2016 and 2017, thus for the year 2018 was not possible to compare projections and results.

€/.000	2016	2017	2018
Company	**C. year**	**Status**	
Media Vox Pop	**2016**	INSOLVENT	
SALES			
Projections	20	614	n.a.
Actual results	8	0	0
Delta	-12	-614	n.a.
% of Realization	**39%**	**0%**	**n.a.**
% Variation	**-62%**	**-100%**	**n.a.**
NET PROFIT			
Projections	-60	321	n.a.
Actual results	-4	-32	-15
Delta	56	-353	n.a.
% of Realization	**7%**	**-10%**	**n.a.**
% Variation	**93%**	**-110%**	**n.a.**

Table 4.6: Business plan projections and actual results of Media Vox Pop S.r.l. (own elaboration)

As it is visible from table 4.6, the company did not meet the expected results but, on the contrary, it underperformed and recorder only negative EBITDA and negative Net profit for the 2 years following the campaign. From February 2016 the startup was supposed to start a partnership with VICE MEDIA in New York (from business plan information), but there were no indications about the actual happening of this partnership. 2017 recorded a loss for the financial year of € -31,520, while in 2018 the loss amounted to € -14563. The yearly financial statements do not present any integrative explanatory note and the reports from yearly shareholders' meetings do not contain any information about the business development. Moreover, the website is empty of content. Therefore, the only information available is that at the date of 6 November 2018 the company was dissolved and a procedure for insolvency was open. From a strictly economic point of view, the negative financial performance of the 3 years of activity, derived from the fact that revenues were null or almost, but the company incurred in substantial costs for services, which concurred to a negative EBITDA. Since the fundraising was successful, the reasons of this startup's failure could be many. The clear outcome of this case study is that the founders probably forecasted revenues on mistaken assumptions and beliefs, which were not based on a valid and realistic market analysis.

4.4.5. P2R S.r.l.

ENTREPRENEURIAL IDEA: P2R vision is to realise an innovative system in order to allow physical rehabilitation to people in a funny and effective way: from this it comes the company name P2R (Play to Rehab). The innovative idea was born from a team of physiotherapists and

software developers who created Niurion: an application made up of a software for movement analysis, a kit of motion capture inertial sensors (inserted into dedicated clothing), a set of interactive videogames, in which the patient can play with its avatar while doing rehabilitation. At the time of the business plan redaction, P2R already realized a first prototype and it was looking for further capital in order to realize a second prototype and test the clinical efficacy of the application.

ECF OFFER: since 2015 the initial capital was provided by founders' own capital, by a bank overdraft, and by public funding obtained through regional calls. Through the 2016 ECF campaign the company opened the doors to the crowd, offering a 28% of its equity. At the closing date they raised the 100% of their target, which amounted to 150.000 euros.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 150.000
TOTAL AMOUNT RAISED	**€ 150.000**
OVERFUNDING	100%
% OF EQUITY OFFERED	28%
POST-MONEY VALUATION	**€ 545.455**

ASSUMPTIONS and FINANCIALS(P2P S.r.l. 2016): The company revenues stream comes from the sale of the kit Nurion along with the related services and assistance. In 2015 the company filed for patent protection. The unitary cost of the kit is 215 euros. The pricing strategy presented into the BP hypothesizes a final price for physiotherapists of 990 euros for the half body kit and 1.400 euros for the full body kit. The kit Nurion sold directly to end users instead has a price of 490 euros VAT included. The primary objectives of the company were to be able to commercialize the final product in 2016/2017 to professionals, end-users, and athletes. The company forecasted to enter the Italian market in 2017, the French and German market in 2018, Spain and UK in 2019, and USA in 2020. Moreover, they forecasted to market the product just to physiotherapists in the first year and open the market also to athletes and consumers from the second year of projections. Table 4.7 summarizes the company projections on revenues and EBITDA. From their forecast the start-up was supposed to reach the breakeven point already in 2017.

Company	C. year	Status		
NiuRion	2016	ACTIVE		
€/.000		2016	2017	2018
SALES				
Projections		0	819	3755
Actual results		0	0	19
Delta		0	-819	-3736
% of Realization		n.a.	0%	1%
% Variation		n.a.	-100%	-99%
EBITDA				
Projections		-350	41	2140
Actual results		-9	-82	-80
Delta		341	-123	-2219
% of Realization		3%	-199%	-4%
% Variation		97%	-299%	-104%

Table 4.7: Business plan projections and actual results of P2R S.r.l. (own elaboration)

2016: The zero revenues of 2016 are justified by the fact that during 2016, as expected, the company continued the research and development activities aimed at developing its first product NiuRion. For the development of the project, the Company incurred in total costs of approximately € 94,000, charged to the income statement. In addition, other expenses were incurred for about 11,000 euros for the international protection of the patent relating to the "neuro-motor rehabilitation system using environmental interactive systems" of which the company is the owner. These researches were expected to terminate at the end of the year and in 2017 the company was expecting to record the first sales. Contrary to the forecasts, the R&D activities for the development of Niurion took longer and it lasted for all the 2017.

2017: In 2017 they incurred in 200.000 euros for sustain the R&D activities. During 2017 the company also obtained a non-refundable grant of Euro 30,000 from the "Research and Innovation Call for Proposals" by "Unioncamere Lombardia".

2018: In 2018 the first revenues from the sale of the software, in particular the version of the system dedicated to the rehabilitation of the upper part of the body, started to be recorded. The development of this software ended in the course of 2018. "CE" certification of the product has also been obtained. However, as a result of the recognition of sales revenues, the amortization process has begun, and this had a negative impact of € 155,592 on the economic result. In 2018 the company also launched the production of the software for the lower part of the body, which development was expected to continue in 2019. The loss for the year was moderated by the capitalization of R&D expenses for about € 185,000. In this case, the nature of the start-up

implies a high need of research and development activties. Thus, the negative results of the first 3 years are related to this aspect.

For what concerns the last updates, in the course of 2019, the registration in the special section for innovative SMEs has been requested, because the 60 months have elapsed since company incorporation, and it can no longer retain the status of innovative starup. Looking at the company's website there is a special section in which a consumer can buy online the startup innovative products, which currently consist in the Niurion upper-body kit and other accessories among which the t-shirt, sensors, the docking station, and USB cables. The website is only in Italian thus it seems that at this moment the company is entering only the Italian market.
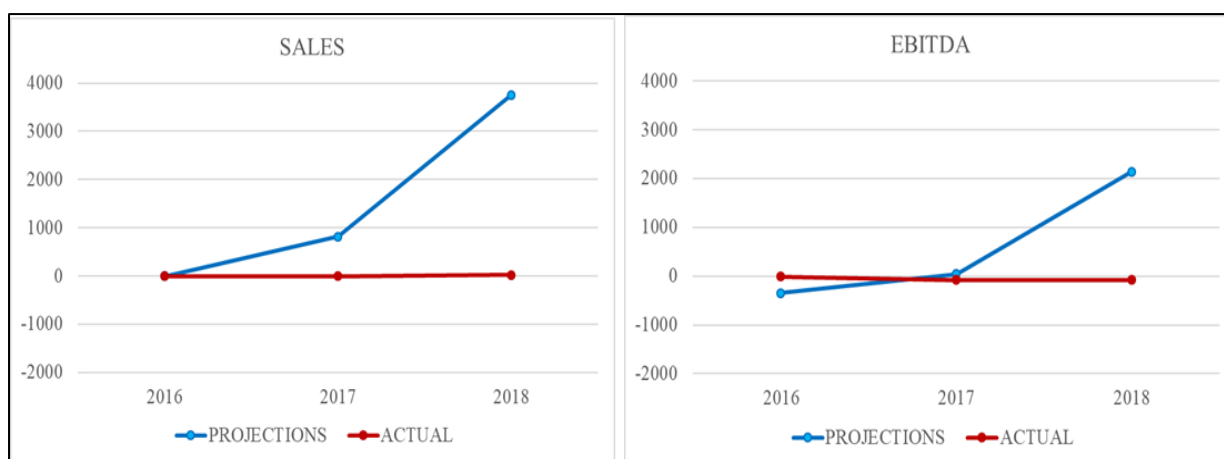
Figure 4. 12: Projections vs. Actual Results of P2R S.r.l. (own elaboration)

4.4.6. PAPEM S.r.l.

The company is insolvent since 2018.

ENTREPRENEURIAL IDEA: The company's vision was to break down barriers between physical and online shops. Papèm was an innovative tool to reach consumers with geo-localized content, and increase engagement, traffic and sales. For retailers and brands, Papèm was a marketing tool to attract a targeted in-store audience, and an analytics tool to monitor and constantly improve their performance. All this, spending less than on any other marketing channel. From users' point of view, the app helps them to find offers exclusively reserved to the community. Thanks to the iBeacon technology and his algorithm, Papèm sends content to the right audience, allowing shops to bring in customers with a higher purchase conversion rate. At the date of the ECF campaign, they affirmed to have already created a network of 180 stores including brands like Brooks Brothers, Lacoste, Timberland, Miroglio and dozens of multi-brand boutiques, artisans and emerging designers, in just three months. Moreover, they stated to have generated business for over 14.000 euros for their partners and created a community

that was growing by 30% per week. Their business model proposed a revenues stream coming from 3 main channels: a fee per visit, a commission, and a monthly fee.

ECF OFFER: the company asked funds to the crowd through the ECF portal Backtowork24 in order to further sustain the app growth and expand into several Italian cities, with the aim to revolutionize shopping. They raised € 60.000 in 2016, which corresponded exactly to their target amount, for a 6% equity stake in the company.

The post-money valuation amounted to € 1.000.000.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 60.000
TOTAL AMOUNT RAISED	**€ 60.000**
OVERFUNDING	100%
% OF EQUITY OFFERED	6%
POST-MONEY VALUATION	**€ 1.000.000**

ASSUMPTIONS and FINANCIALS(Lo Bue 2016): into their BP, the startup's founders forecasted a substantial growth, which would have seen 600 affiliated shops in 2017, with 100.000 downloads and 2.500 monthly visits, totalizing total revenues of € 20.000 per month. Following their assumption in 2018 the company was supposed to reach the breakeven. The table below illustrates the main KPIs on which the assumptions were based. In 2018 the app was expected to enter the market in 20 Italian cities, and in 2020 in 69.

Summary	2016	2017	2018	2019	2020
KPIs					
Downloads	39.259	252.998	1.088.360	3.183.296	7.084.584
Visite	1.087	34.446	555.804	2.409.089	5.929.035
Città	2	7	20	45	69

€/.000	2016	2017	2018
Company	C. year	Status	
Papèm	2016	INSOLVENT	
SALES			
Projections	20	261	2356
Actual results	9	23	0
Delta	-11	-237	-2356
% of Realization	**45%**	**9%**	**0%**
% Variation	**-55%**	**-91%**	**-100%**
EBITDA			
Projections	-196	-822	-2149
Actual results	-49	-216	0
Delta	147	606	2149
% of Realization	**25%**	**26%**	**0%**
% Variation	**75%**	**74%**	**100%**

Table 4. 8: Business plan projections and actual results of Papèm S.r.l. (own elaboration)

Table 4.8 shows the projection and actual results for Papem s.r.l. from 2016 and 2018, year in which insolvency was declared.

The unusual aspect of these projections is that EBITDA was expected to have a negative trend from 2016 to 2018 (Figure 4.12), to then recover in 2019 and jump from € -2M to € +7M in 2020. These figures are explained by the fact that it was forecasted to sustain costs higher than revenues in the first three years of activity for expanding in new Italian cities.

2016: The total value of the production was € 66.000, while the total cost of production was € 127,000, with a loss equal to € -61.000. the loss was mainly due to investments made for the development of the software and consultancy, classified as "cost for services". The value of production is derived from both revenues (€ 19.602) and R&D receivables matured during 2016, as well as from the contributions received from Lazio Innova for the victory of a grant.

2017: in 2017 the loss was much greater than the previous year, amounting to -€ 294.054. This loss amounted for more than one third of the share capital. Given these results, in 2017 the company applied for insolvency. The main causes identified by some shareholders which emerged from the last shareholder meetings, were attributed to the bad management of the founders, who were considered responsible for the negative economic results, mainly because they changed the business plan several times within few months, and based it on erroneous assumptions. There were also some discussions on the use of funds, which were probably employed in a wrong way, paying too much for worthless services.
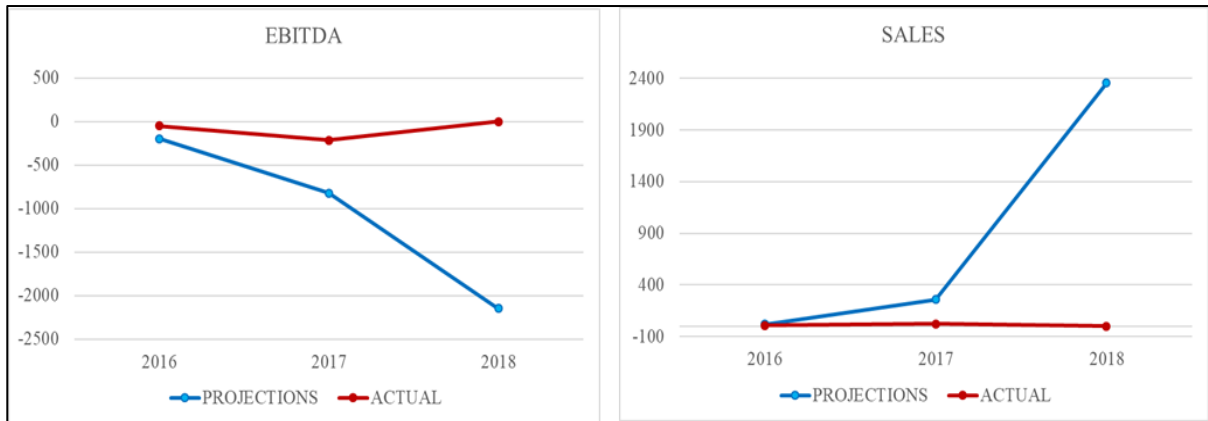
Figure 4. 13: Projections vs. Actual Results of Papem S.r.l. (own elaboration)

4.4.7. Primary System Research S.p.a

The company proposed a project called Prime Advisory Network, which consists in an international network of professionals, such as accountants and lawyers, whose members are selected among the best and most established consulting firms in the country where they operate.

ENTREPRENEURIAL IDEA: The company's vision is to be able to provide a complete consulting service to companies. Prime Advisory Network's mission is not only to offer a faster and safer international work system for professional firms, but also to make efficient and better the accounting, tax and legal assistance for entrepreneurs willing to internationalize their company. Prime Advisory Network intended to set up a "natural" and systematic networking system for independent professional firms, with the goal of giving them the opportunity to compete on a global base with the services currently provided by the Big Four[28]. Starting from an analysis on the methodologies with which the "Big Four" consultants distribute their consulting services globally, the startup focused on their weaknesses in order to build a "new" methodology suitable for rapid expansion and to involve all the high quality consultancy/accounting firms located in different countries around the world. The company then conceived a web application suitable to implement the planned network system, of which during 2015 a first version was developed. What the startup identified as a novelty factor in its project was the management through an open community, accessible through the Internet, of an international working group, made up of accountants, accounting consultants and lawyers located anywhere in the world, able to share clients and documents.

---

[28] Pricewaterhousecoopers, Ernst & Young, Deloitte, Kpmg

BUSINESS MODEL and REVENUES STREAM:

The corporate structure of the company was organized in the following way.

Primary Research s.p.a. is the parent company, based in Italy, intended to complete the research and development activities of the project and to act as an operational holding company for the group which controls.

Prime Advisory Network Ltd., is a joint stock company wholly owned by Primary System Research S.p.A., based in London, designed to develop the Prime Advisory Network's service commercially on a global scale.

Prime Advisory Back Office Shpk will be a joint stock company under Albanian law, wholly owned by Primary System Research S.p.A., with headquarters in Durres, Albania, to manage the administrative back office of the service.

The sources of revenues are different for the 3 companies.

For what concern Prime Advisory Network Ltd., the identified revenues stream comes from the commissions earned on the network, retained directly from end customers and from accessory services. The main drivers of the simulation were given by the number of participating firms, which would have gone from 80 participating professionals expected in 2016, up to 150 in 2017, to 500 in 2018, and growing in the following years up to 20,000 members expected in 2022. The average cost per client was forecasted to be 5,000 euros. The following is a breakdown of the allocation of total turnover produced:

- 75% to the member professional who carries out the work

- 10% to the member professional who brings the client

- 15% to the Prime Advisory Network

For what concerns Primary Research s.p.a., the revenues stream was identified in:

- royalties granted by the company to its English subsidiary for the use of Community trademarks, software and patents

- fees from the sale of the license to use the software

- management fees for the management of foreign subsidiaries

- interest income on intra-group loans.

For simulation purposes, royalties are estimated at 5% of the turnover achieved by the English subsidiary with the distribution of Prime Advisory Network. Interest income is estimated at 6%.

The software comes at a fee of Euro 1,000 per year for each participating professional firm.

For what concerns Prime Advisory Back Office Shpk, the sources of revenue estimated were:

- from a fixed periodic service fee to the network

- a variable fee, set at 1% of turnover.

The simulation drivers are related to the trend of the Network's overall turnover.

ECF OFFER: The Project, in order to be carried out, required an initial operating capital of about € 200,000, and planned investments of € 160,000, necessary to cover the development costs of product distribution activities. The financing of the start-up was planned to be provided both through access to "Medio Credito Centrale"'s funds and through private capital fundraising, for € 450,000. Among these private capital contributions, the company launched its ECF campaign in 2016, raising €71.500 in exchange of a 3% equity stake. Hence, the post-money valulation was calculated at € 2.631.579.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 50.000
TOTAL AMOUNT RAISED	**€ 71.500**
OVERFUNDING	143%
% OF EQUITY OFFERED	3%
POST-MONEY VALUATION	**€ 2.631.579**

ASSUMPTIONS and FINANCIALS(Primary Advisory System S.p.a 2016): The Business Plan estimated the acquisition of 0.0009% of customers in the global market in the first year, 0.003% in the second year and 0.012% in the third year, up to the acquisition of 0.123% of global turnover in 2022.

The project development was articulated as follows:

- 1° phase, by the end of 2016: Collection of funds from private individuals for € 450,000 by means of paid-in capital increases, also through the launch of an ECF campaign.

Launch of marketing campaigns to boost sales. International launch of the Prime Advisory Network platform. Extension of activities to 40 countries. Continued development of the Web Application with completion of the social network.

- 2° phase, by the end of 2017: Extension of services to 100 countries, Proceeding of research and development activities, Completion of commercial network distribution, Introduction of translation services and services for members, Completion of Prime Advisory Network portal and services, International marketing, Reaching full operability.

- 3° phase, by the end of 2018: Extension of services to 200 countries, Completion of research and development activities, Expansion of commercial network distribution, Completion of translation services and services for members, International marketing, Consolidation.

Since the startup presents a complex corporate structure, the analysis should be focused separately on each single subsidiary. Of the three subsidiaries, Prime Advisory Back Office Shpk has ceased its activity in 2018. Among the other two, the only available financial statement is the one from the company registered in Italy, which is also the parent company: Primary Research s.p.a. Therefore, the comparison between expected and actual values has been made on Primary Research s.p.a. business plan data and its financial statement data. The following table illustrates the main economic variable values, both in expected and actual terms.

Company	C. year	Status		
Primary System Research	**2016**	ACTIVE		
€/.000		**2016**	**2017**	**2018**
SALES				
Projections		11	308	792
Actual results		9	22	72
Delta		-1	-286	-720
% of Realization		**86%**	**7%**	**9%**
% Variation		**-14%**	**-93%**	**-91%**
EBITDA				
Projections		-82	56	129
Actual results		-9	1	-44
Delta		73	-54	-173
% of Realization		**11%**	**2%**	**-34%**
% Variation		**89%**	**-98%**	**-134%**

Table 4.9: Business plan projections and actual results of Primary Research System S.p.a. (own elaboration)

In 2016 the company realized revenues were very closed to the forecasts, while the EBITDA value was negative, but it registered a lower negative value than expected. Indeed, the company forecasted expenses in higher figures, in particular the one related to the director's remuneration, which was supposed to amount to € 50.000, but in actual terms it amounted just to € 3.776. What most influenced the performance of 2017 and 2018 was instead the big difference in expected and actual revenues. In fact, actual revenues were drastically lower than forecasts. This, given the level of costs which the startup had to sustain for the development of its software and its network, created a negative impact on EBITDA. Moreover, the negative EBITDA value of 2018 is due to the line "miscellaneous operating costs", which was almost 20 times higher than the year before, but the explanatory note does not specify what this cost relate to. However, revenues grew by 692% from 2016 to 2018, showing a continuity of the business. A sign of this continuity can be also found in the company website, which is active and continuously updated with latest news and developments. Figure 4.15 shows the global

coverage of the Prime Advisory Network platform, retrieved from the company website and updated to January 2020, which gives indication of the startup's growing activity.

Figure 4. 15: Prime Advisory Netowork global coverage (company website 2020)
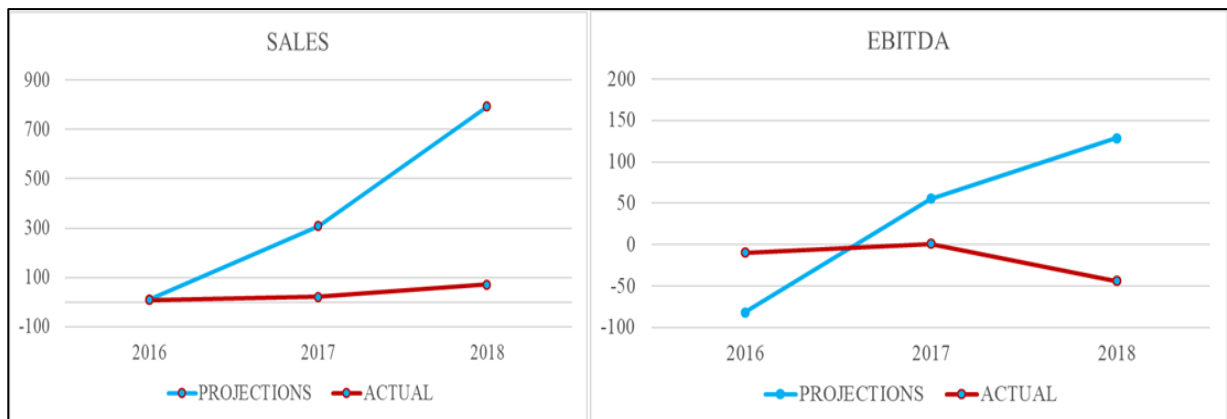
Figure 4.14: Projections vs. Actual Results of Primary advisory system s.p.a. (own elaboration)

4.4.8. Brainseeding S.r.l.

The company is insolvent since 2019.

The innovative startup launched its ECF campaign in 2016 in order to finance the development of Prontovet24, a platform operating in the sector of pet-economy, which was intended to link users with veterinarians.

ENTREPRENEURIAL IDEA: the company's vision was to become the first contact for pet owners in Europe in 3 years, while the mission was to enter the homes of all pet owners by becoming the only reference for at-home veterinary medical services. ProntoVet24 was

intended to be the first platform to offer a professional at-home veterinary service supported by local veterinary facilities. The functioning is the following: the customer decides when to receive the service at home, which is available 7 days a week and 24 hours a day, makes the payment and waits comfortably at home for the arrival of the veterinarian. The vets who make home visits, are recruited online, geo-localized so as to know their position with respect to the user and can manage their availability via App on Smartphone. In case of need for surgery or diagnosis using specialist equipment (radiography, CT, etc..), home veterinarians refer to specified facilities affiliated with ProntoVet24. The business model of this startup is based on a revenue stream coming from commissions retained from the users' payments to veterinarians for the services provided through the platform.

ECF OFFER: ProntoVet24 is a product of Brainseeding SRL, a company founded by Massimiliano De Florio, Luca Laporta and the technological partner Applica SRL. Before the campaign, the two founders and creators of ProntoVet24 held 96% of the shares, the remaining 4% is held by Applica SRL. Through the ECF campaign of 2016 the company asked funds for a total of € 50.000, with the goal to invest them in the creation of the web portal. The campaign closed successfully, allowing the startup to reach the target amount, in exchange of a 20% of equity stake.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 50.000
TOTAL AMOUNT RAISED	**€ 50.000**
OVERFUNDING	100%
% OF EQUITY OFFERED	20%
POST-MONEY VALUATION	**€ 250.000**

ASSUMPTIONS and FINANCIALS(De Florio and Laporta 2016): The assumptions underlying the sales forecast were the followings. The force made up of freelance Veterinarians registered with ProntoVet24 works on average the days illustrated in the table below, with

	2016	2017	2018
Average visits/day	2,25	3,5	4,25
Average working days/month	4,25	8,75	10,5
Price/visit	37,5	40	42,5

relative average price per visit:

For the purposes of sales forecasts, it has been decided to refer only to the generic visit, with a price equal to 35€. Freelance Veterinarians who provide home services enter free of charge the ProntoVet24 circuit, which will only charge an intermediation commission on services

provided at home by Veterinarians of 10%. The fixed veterinary facilities acquire Premium status by joining the ProntoVet24 circuit for a subscription with a monthly value of € 30.00. Based on these assumptions the company provided projections, which are summarized and compared to actual results in table 4.10.

The first year, 1000 vets were supposed to generate 100,000 visits while, second- and third-years' registrations were forecasted to grow more slowly compared to the first year. Only 600 vets per year, which translates into 60% in year 2 and 37% in year 3.

Company	C. year	Status	
Brainseeding	2016	INSOLVENT	
€/.000	2016	2017	2018
SALES			
Projections	13	389	2177
Actual results	4	0	0
Delta	-9	-389	-2177
% of Realization	27%	0%	0%
% Variation	-73%	-100%	-100%
EBITDA			
Projections	-309	49	1813
Actual results	-3	-23	-3
Delta	306	-72	-1816
% of Realization	1%	-47%	0%
% Variation	99%	-147%	-100%

Table 4.10: Business plan projections and actual results of Brainseeding S.r.l.. (own elaboration)

From the business plan, 2016 was the year in which the founders were expected to simultaneously act on both the realization of the web portal and the app, and on the recruitment of veterinarians. All this in order to launch the portal starting from April 2016. As figure 4.16 illustrates 2016-EBITDA was better than forecasted, even if revenues were drastically lower. This is because the company expected to spend more than € 310.000 for services, but it actually spent € 4.967, creating less negative impact on EBITDA. During the year 2016, the company incurred research and development expenses amounting to € 17.000, closing the financial year with a loss of -€ 6.890. The negative results of 2017 and 2018 are totally driven by the revenues figures. In fact, the company realized almost null sales in both years, bringing to the voluntary decision to close the business. In 2018 the company declared insolvency.
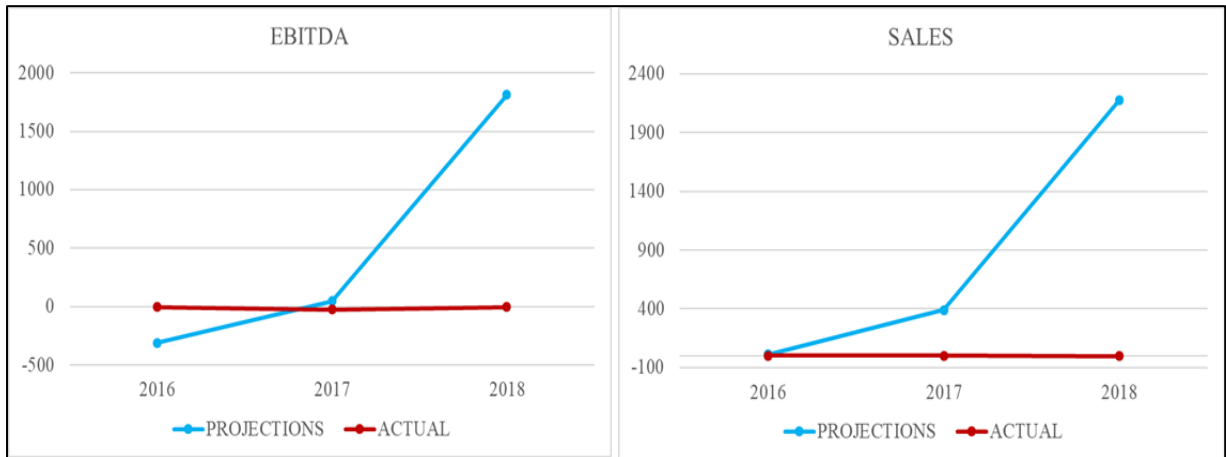
Figure 4.16: Projections vs. Actual Results of Brainseeding S.r.l. (own elaboration)

4.4.9. Safeway Helmets S.r.l.

ENTREPRENEURIAL IDEA: The company's mission is to reduce road accidents involving two-wheeled vehicles, from bikes to motorbikes. To do so, the startup created Safeway Helmets: full face helmets and Jets equipped with its technology, which consists in a system of lighting equipment controlled directly by the special gloves supplied with the helmet.
This innovative product comes in two different formats:

- basic model, which consists of a helmet equipped with warning lights indicating the direction, stop, position and emergency, whose impulses are transmitted via radio by the sensors on the gloves to the helmets.
- interactive model, which, in addition to being equipped with warning lights such as the basic one, is enriched with other functions that make it a real "Black Box" suitable to provide all the useful information to monitor the user's behaviour and to interpret any road accidents.

Moreover, the technology provided also the presence of a so called eCall system: a safety system that automatically alerts emergency services in the event of an accident. If the eCall device inside the helmet detect a strong impact, it would generate automatically an emergency call to the nearest emergency call centre by transmitting the exact accident location and other data.

ECF OFFER: the company offered the 48% of its equity through an ECF campaign and raised € 400.000. The percentage of equity offered was higher compared to the other startups, because the pre-money valuation was based on the nominal value, without any premium.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 200.000
TOTAL AMOUNT RAISED	**€ 400.000**
OVERFUNDING	200%
% OF EQUITY OFFERED	48%
POST-MONEY VALUATION	**€ 836.995**

ASSUMPTIONS and FINANCIALS[29]: The company's revenues stream was planned to come from three different channels: dealers, online shop, with a sales price of about the 10% less than dealers, and insurances. For what concerns the economic plan, the management in the first months was planned to focus on marketing, advertising and commercial aspects.

The startup's business plan presents the forecasts that are reported in the tables below in ultra-synthetic form and which refer only to the income statement data (costs and revenues). Financial statement data were not proposed because they were considered to be of little significance due to the business model adopted that foresaw, at least in the start-up phase, a strong outsourcing of the production phases and therefore a reduced impact of investments in tangible fixed assets. Below an overview of the investment plan that was expected on the basis of the financial resources raised through the capital increase.

MARKETING		€ 256.000
Pubblicità	220.000	
Ricerca di mercato	24.000	
Ricerca tendenze	12.000	
SVILUPPO TECNOLOGICO E INDUSTRIALE		€ 144.000
Ricerca e sviluppo	40.000	
Estensione brevetti	52.000	
Personale	52.000	
TOTALE		€ 400.000

---

[29] (Safeway Helmets S.r.l. 2016).

Table 4.11 illustrates the business plan values and the actual value of sales and EBITDA for the 3 years after the campaign.

Company	C. year	Status		
Safeway Helmets	**2016**	ACTIVE		
€/.000		**2016**	**2017**	**2018**
SALES				
Projections		450	5038	10530
Actual results		0	0	0
Delta		-450	-5038	-10530
% of Realization		**0%**	**0%**	**0%**
% Variation		**-100%**	**-100%**	**-100%**
EBITDA				
Projections		-45	1580	4894
Actual results		-100	-140	-228
Delta		-55	-1720	-5121
% of Realization		**-223%**	**-9%**	**-5%**
% Variation		**-123%**	**-109%**	**-105%**

Table 4.11: Business plan projections and actual results of Safeway Helmets S.r.l. (own elaboration)

The company's projections represented an optimistic scenario, with positive revenues for more than € 450.000 from the first year and with a growth of 1019% in 2017 and of 109% in 2018. The actual values from financial statement instead registered zero revenues for all the 3 years after the ECF campaign. In 2016 the company incurred in expenses relating to pre-competitive and competitive development, such as experimentation, prototyping and development of the business plan for € 31.000, the cost of incubation services provided by certified incubators for € 28.000, legal fees for the registration and protection of intellectual property, terms and licenses of use for € 4.786, which all concurred for a negative EBITDA. The financial year closed with a net loss of € -75.128.

In 2017 the same costs for experimentation, prototyping and development of the business plan amounted to € 18.500. However, the most impacting cost item is represented by "costs for services" which grew from 2016 to 2018 of almost 200%, negatively impacting on results, most of all because sales continued to be null for the entire period. During 2018, the costs for R&D (amounting to € 126.649,78), enabled the company to benefit from tax credit for research and development activities. 2017 closed with a loss of € -110.027 and 2018 with a loss of € -182.604. This negative trend, exacerbated by the absence of revenues, created discontent among shareholders who, during the 2018 shareholders meeting, formalized their disappointment with the management of the company and asked for an opinion of a third-party expert.

Moreover, from the analysis of the company's website, which presents itself as no more than a lending page, it is not clear to what this absence of sales is due to. It seems than the company already tested the prototype on some drivers, as they affirmed in a promotional video, thus it could be that the negative economic results come from a bad management of the business and in particular from a failure in the marketing plan.
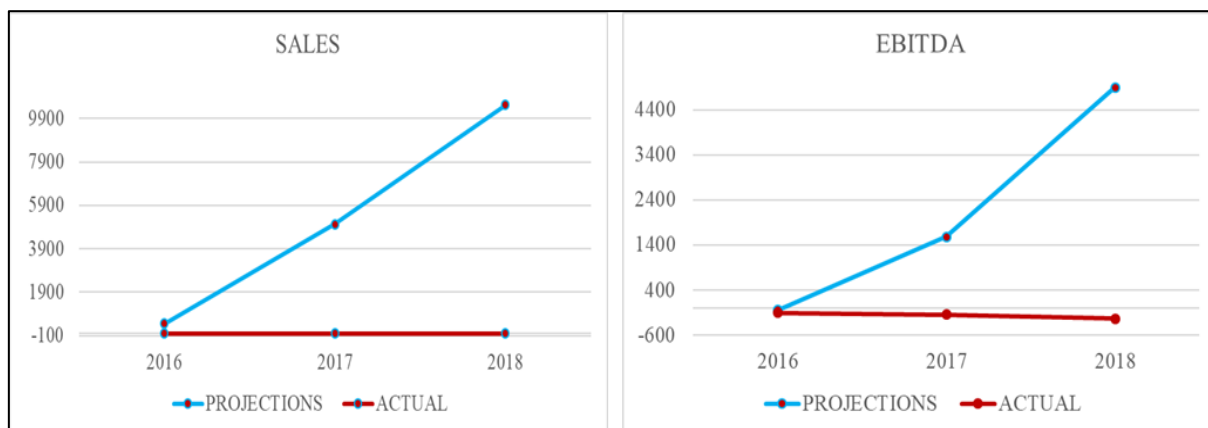
Figure 4.17: Projections vs. Actual Results of Safeway Hemelts s.r.l. (own elaboration)

4.4.10. Skymeeting S.p.a.

ENTREPRENEURIAL IDEA: Skymeeting s.p.a. is an innovative SME with the mission to create an accounting system online that can ensure the data sharing between accountants, companies and banks. To do this, they created a suite of computer products capable of interact with each other and allowing each protagonist to get economic savings, thanks to the simplification and automation of the various processes. The innovative software they developed is called SkyAccounting: an accounting system for professional companies, associations and accountants. It's been designed for the use on the web, based on a cloud technology and viable in SaaS (Software-as-a-Service) mode. The business model is based on the direct involvement of accountants, category associations, and Banks. The goal is to create a network of companies that perform administrative activities, daily managerial and financial management through a shared online SkyAccounting account.

ECF OFFER: before the ECF campaign, the company invested mainly for the workforce, financed mostly by founders' own capital. In 2016 they successfully closed the campaign, collecting € 159.000 and giving a 12% of its equity to crowd investors.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 150.000
TOTAL AMOUNT RAISED	**€ 159.000**
OVERFUNDING	106%
% OF EQUITY OFFERED	12%
POST-MONEY VALUATION	**€ 2.601.457**

ASSUMPTIONS and FINANCIALS(Skymeeting S.p.a. 2016): SkyAccounting's business and financial plan was based on the initial hypothesis of a penetration on the national market. The company planned the involvement of a progressive number of accountants for the next 5 years. They classified in three macro-categories the organizations that will be involved in the project and for each macro-category they divided into different targets their potential customers and the relative revenues the agreed price on which the business plan is based.

Revenues from the sale of accounts to professionals and company:

- Corporate Companies account: annual cost € 1,490
- Ordinary Company account: annual cost € 1190
- Company Account Simplified: annual cost € 990
- professionals account: annual direct cost € 99

Revenues from the sale of additional paid services in Pay per Use mode: 0,30 € every 10 minutes of effective connection

Revenues from the sale of tax programs in Pay per Use mode: 0,30 € every 10 minutes of effective connection

Revenues sale automatic recording by scan or photo in Pay per Use mode: 0,30 € each passive cycle document automatically recorded.

Revenues from sales, training and assistance in Pay per Use mode: 1,00 € every minute of effective connection

The baseline scenario was developed on the assumption of the acquisition of market share by accountants ranging from 0.12 % in 2017 to 0.60 % in 2022, with a spread of the system "SkyAccounting Certified Public Accountants" in free version in about 700 studios in 2022, with a total turnover of €13.6 million and a gross margin of over €5 million(Skymeeting S.p.a. 2016). Based on these assumptions, the company projected their budget forecasts from 2017 to 2022, of which the ones relative to 2017 and 2018 are summarized in Table 4.12

Company	C. year	Status	
Skymeeting	**2016**	ACTIVE	
€/.000		**2017**	**2018**
SALES			
Projections		932	2346
Actual results		587	653
Delta		-345	-1693
% of Realization		**63%**	**28%**
% Variation		**-37%**	**-72%**
EBITDA			
Projections		406	1267
Actual results		286	362
Delta		-120	-905
% of Realization		**70%**	**29%**
% Variation		**-30%**	**-71%**

Table 4.12: Business plan projections and actual results of Skymeeting s.p.a. (own elaboration)

The year 2017 closed with a net loss after tax of € -13.015,22. However, during 2017, the company continued the activities of development and innovation of their software products on tablets and smartphones, mainly optimizing the product according to the reports received from market testing. The chairman of the board pointed out that the business idea and strategy was going in the right direction and should rather be pursued with greater commitment by the whole company, also by virtue of the profound transformations that will characterize the reference market in the coming years. In 2017 the company started the development of Skyaccounting LITE, particularly in the mobile version, to be integrated with the other Skyaccounting applications. The commercialization has been planned to start at the beginning of 2018, enhancing the company's competitive advantages, thanks to the offer enrichment.

The activities of software development continued through the 2018 but the overall performance improved, closing the year with a net profit of € 39.703.

Overall, the company seems to grow, as we can see from both EBITDA and revenues values, but for more realistic and significant results, the 2019 financial statement should be analysed and see if the trend was confirmed in the last year. Moreover, the fact that the website is active and presents references and case studies of customers who used the company services, as well as video tutorial and guides on how to use the software, gives a signal that the business is working and attracting new users.

4.4.11. Synbiotec S.r.l.

Synbiotec is a research and development company, spin-off of the University of Camerino, founded as a limited liability company in December 2004.

ENTREPRENEURIAL IDEA: The mission of Synbiotec S.r.l. is to improve the health of people and animals by acting through the intestine and the microbial cells that live inside it. Based on research carried out over the years in the field of probiotics applied to humans, the company has developed food supplements and medical devices.

The applications of probiotics, both as supplements and functional foods, in the human sector are constantly increasing. "The awareness that the intestinal microbiota is connected with all the districts of our organism has opened interesting strands of research that will lead to the creation of new probiotic products to be used both in the preventive and therapeutic spheres"(Synbiotec S.r.l. 2016). The company aimed to search funds in order to increase its investments in research in this context of probiotics products for the human organism. Along with these products, the company intended to develop and commercialize also probiotic products to apply in the field of animal industry, for both farm animals and pets.

REVENUES STREAM: the company revenue stream was expected to come from:
- production and sale of products containing high quality probiotics, as SYNBIO®, SYNBIO®DUO, SYNBIO®CIOC, SYNBIO®TRAVEL and SYNBIO®GIN, already regularly sold in Pharmacies
- probiotics applied to the food industry for the production of functional foods, as was already the case for yoghurt in the Czech Republic (Immunel, Lipanek) and for cheese in the Canton of Ticino (Buscion).
- probiotics for the animal world (the company already had customers in the pharmaceutical industries that used probiotics made by Synbiotec)
- aquaculture sector (international studies and projects carried out demonstrated the beneficial action of these probiotics on the life and reproduction of farmed fish)
- research on behalf of third parties
- Synbiotec's shareholdings: 15% share of the capital of Synbiofood, a restaurant chain that uses only its probiotics, with ten restaurants, which were expected to become 200 in the following three years; 26% share of Afroinnova, a Cameroonian spin-off company whose aim is to promote technological innovation projects for Africa; 10% share of the capital of Proherbalcare, a spin-off company that uses probiotics in association with medicinal plants to make body care products.

ECF OFFER: Synbiotec was the company which collected more than all the other startups on the Italian ECF panorama in the years between 2014 and 2016, totalizing a fundraise of € 1.000.227, for a 35% of equity stake. The raised capital was expected to be used mainly for the creation of a strong commercial structure, the completion of the laboratory and the consequent strengthening of production process.

CAMPAIGN PARAMETERS	
MINIMUM TARGET	€ 700.017
TOTAL AMOUNT RAISED	**€ 1.000.227**
OVERFUNDING	143%
% OF EQUITY OFFERED	35%
POST-MONEY VALUATION	**€ 2.857.790**

ASSUMPTIONS and FINANCIALS: The analysis of markets and competition was carried out on the basis of the current value of the relevant markets (in 2016) and the company's possible market penetration capacity. Three specific markets were taken into consideration for sales assumptions.

- nutraceutical sector, for which they projected to acquire the 0.10 % of the Italian market in 2016, hitting the 0.30% in 2018.

- functional food sector, for which they projected to acquire the 0.15 % of the European market in 2016, hitting the 0.50% in 2018.

- animals industry, for which they projected to acquire the 0.006 % of the global market in 2016, hitting the 0.0020% in 2018.

Table 4.13 represents the summary of company's projections and actual results for sales and EBITDA from 2016 to 2018.

Company	C. Year	Status	
Synbiotec	**2016**	ACTIVE	
€/.000	**2016**	**2017**	**2018**
SALES			
Projections	905	1653	2827
Actual results	250	360	482
Delta	-655	-1293	-2345
% of Realization	**28%**	**22%**	**17%**
% Variation	**-72%**	**-78%**	**-83%**
EBITDA			
Projections	117	220	572
Actual results	103	121	293
Delta	-14	-99	-279
% of Realization	**88%**	**55%**	**51%**
% Variation	**-12%**	**-45%**	**-49%**

Table 4. 13: Business plan projections and actual results of Synbiotec S.r.l. (own elaboration)

2016 actual results are quite close to the forecasts. Overall, the company showed a positive trend in both EBITDA and revenues. Indeed, this company was founded in 2004 and it's affirmed in the market since more than 10 years. For this reason, its financial statement reflects a reality which is already profitable and growing through the years, differently from the majority of startup companies which raised funds through ECF from 2016 to 2018, which had just been founded for a year or two. Probably in this aspect it could be also found the reason of its successful fundraising. In fact, if potential backers can rely on historic performance which gives proof of profitability rather than on simple market forecast, they are probably more willing to invest. Looking into the company's financial statements it emerged than in 2016 they incurred extraordinary expenses related to the seismic event, while other expenses were supported during 2017 for the completion of the move of the company's equipment and materials. In fact, the company headquarter collapsed as a consequence of the earthquake and they lost part of the machineries. In 2017 the company enter the GDO sector, undertaking partnerships with "Allding" to promote Symbiotec's products into supermarkets.

In 2018 the company officially moved to a new headquarter. During the year , Synbiotec has continued to strengthen its main activities in the two directions towards the conception, the production and commercialization of probiotic products, and in parallel the activity of scientific research carried out on behalf of third parties at the specific request of other companies/entities. In March 2018, on the occasion of the event "Milan Vet EXPO 2018", the promotional campaign for the new SYFlorAn® DOG, SYFlorAn® CAT, SYFlorAn® cat and dog anti-diarrhoeal products began. 2018 also saw the expansion of the company's staff with the hiring of three additional employee for two years, in addition to other two professionals.
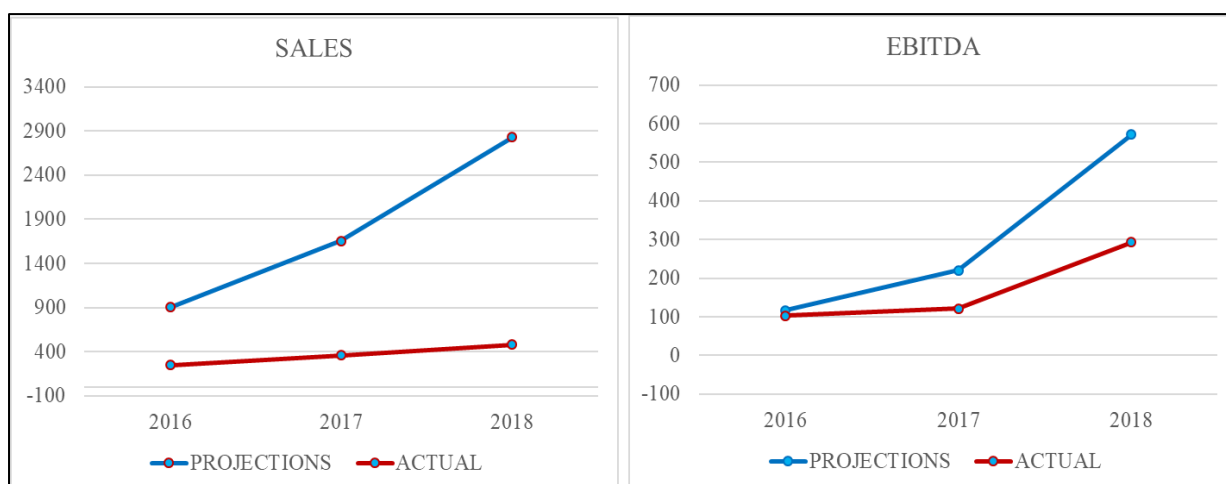

Figure 4.18: Projections vs. Actual Results of Symbiotec s.r.l. (own elaboration)

4.5. Results

This paragraph outlines the main results coming from the analysis of the 11 case-studies of paragraph 4.4. Table 4.14 summarizes companies' results for each year of business plan for the *sales* variable. The percentage showed is the *realization rate*, calculated dividing the actual performance by the projections' value. It represents how much of the expected value has been actually achieved at the closing of the financial year. For instance, the 14% related to 2015-Shin Software, means that in 2015 Shin Software sales value amounted to the 14% of what the company was expecting to achieve, according to business plan forecasts.

Looking at table 4.14, it is possible to notice that the minimum realization rate is equal to 0%. Bioerg s.r.l and Safeway Helmets s.r.l. were the worst performer: they both realized zero revenues for the entire period, without meeting any of their sales forecast. P2R s.r.l. showed the third lowest sales realization rate but we know from the analysis of its financial statement that in the 2 years after the business plan they were still involved in product development and this is the reason why they started to realize small revenues only at the ending of 2018. On the contrary, the company which realized the best performance in terms of meeting expectations was Nexapp S.R.L. with its "Fileclic" software. Indeed, it not only matched the expected results but in 2016 and 2017 the company performed better than the forecasts, accounting for higher revenues. If we analyse the total average and median for the year from 2016 to 2018 (2015 has to little data to be taken into consideration), we notice that the two values differ a lot, indicating that some outliers with very high or low values had a strong impact on the average. In particular, Nexapp s.r.l. deviates greatly from the average of the sample as we can see also from figure 4.19. In the figure is represented the average realization rate for the year 2015-2018 and the red line correspond to the average of the sample. The company Nexapp s.r.l. is the only one that surpass the 100% target, even if for a very small amount (103%). The second best "performer" (in terms of meeting expectations) was Skymeeting s.p.a. and it slightly overtakook the 40% of average realization rate.

SALES	2015	2016	2017	2018	Avg 2015-2018
Bioerg	0%	0%	0%	0%	*0%*
Shinsoftware	14%	12%	15%	21%	*16%*
Nexapp		125%	114%	69%	*103%*
Papem		45%	9%	0%	*18%*
Primary System Research		86%	7%	9%	*34%*
Brainseeding		27%	0%	0%	*9%*
Safeway Helmets		0%	0%	0%	*0%*
Symbiotec		28%	22%	17%	*22%*
MediaVoxPop		39%	0%		*19%*
Skymeeting			63%	28%	*45%*
P2R			0%	1%	*0%*
AVERAGE	**7%**	**40%**	**21%**	**15%**	**24%**
MEDIAN	**7%**	**28%**	**7%**	**5%**	**18%**
MINIMUM	0%	0%	0%	0%	0%
MAXIMUM	14%	125%	114%	69%	103%

Table 4.14: summary of realization rate for sales values from 2015 to 2018 (own elaboration)
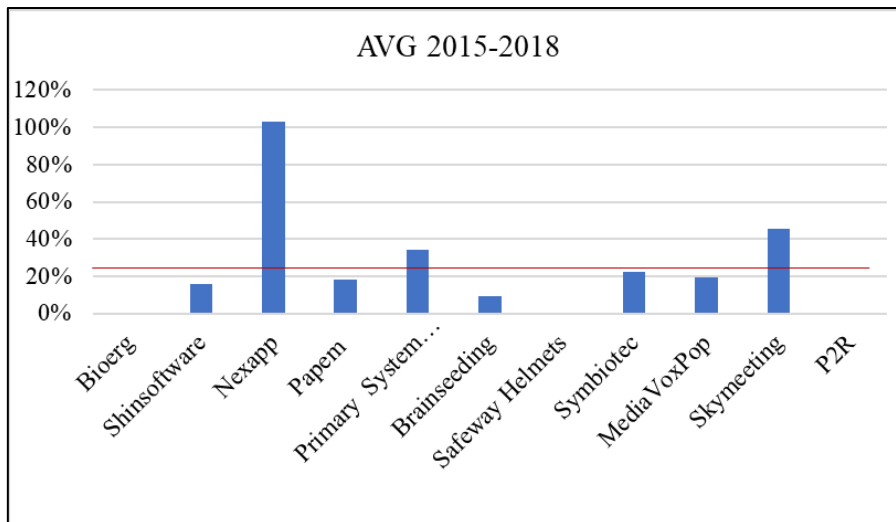

Figure 4.19: Average realization rate for the variable sales 2015-2018 (own elaboration)

Looking at pure economic results, the following figures show the realized sales for each company of the sample and for each fiscal year. Figure 4.18 gives a capture of the sales trend that each company had on the years following its ECF campaign. The majority of them almost didn't record any sale, while 4 out of 11 were able to account for more than 400.000 euros of sales in 2018. These are: Nexapp, Shin Software, Skymeeting, and Symbiotec. Among them, only Skymeeting and Nexapp were able to hit the threshold of 600.000 euros of sales at the end of 2018. However, Shin Software was the one which registered the strongest sales growth from 2016 to 2018, as we can see from figure 4.20. This figure illustrates the average revenues growth up to 2018 for the 11 sample's companies. Clearly, a positive growth was only registered by the four companies which were able to account for some sales. The interesting fact to notice is

that 3 companies out of 11 registered a negative growth. Not surprisingly, these three companies are the ones who applied for insolvency and ceased their business activity from 2018.

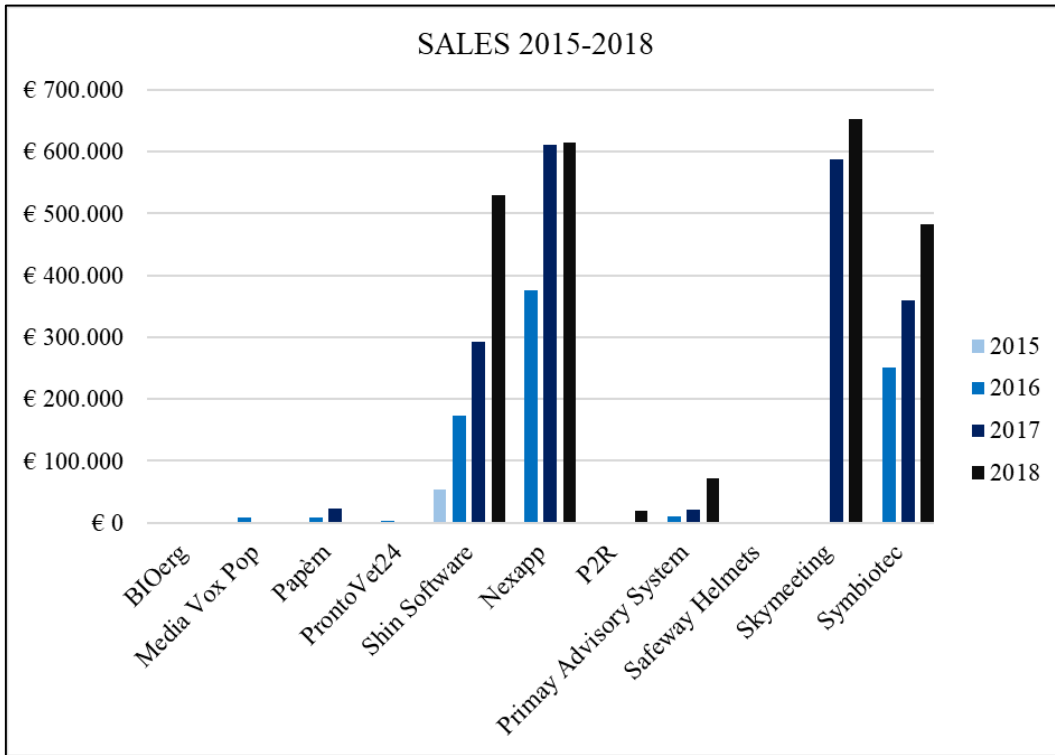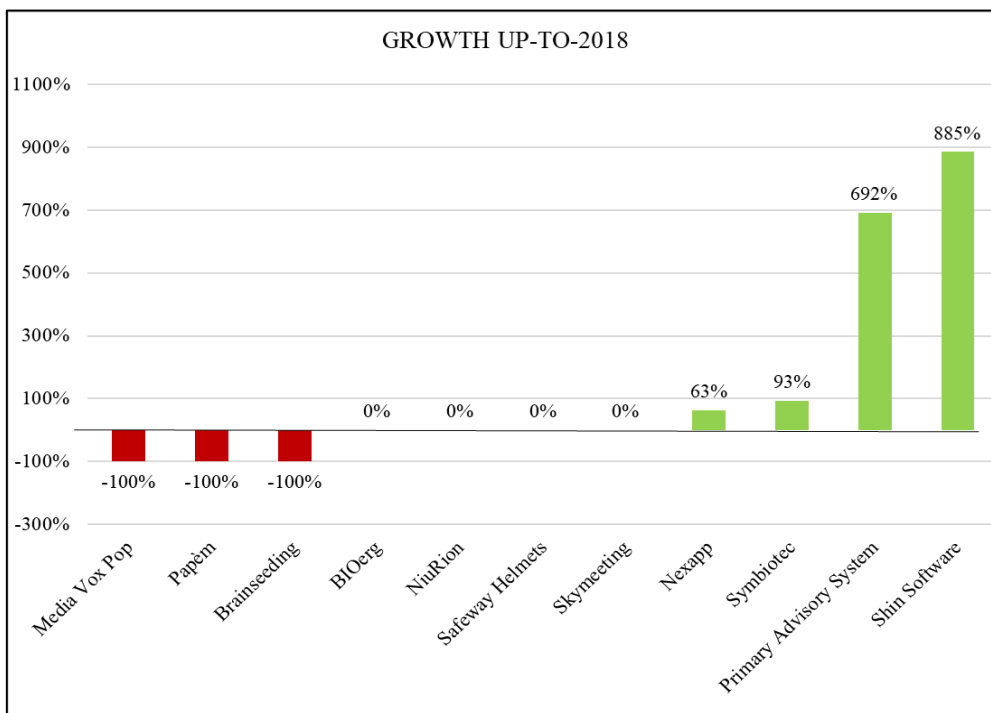*Figure 4.21: Sales trend for each company 2015-2018 (own elaboration)*

Figure 4.20: average sales growth 2015-2018 (own elaboration)

For what concerns EBITDA, the analysis is more significative if made on the *variation rate* rather than on the realization rate. Indeed, doing the analysis on the realization rate could be misleading because sometimes a negative percentage implies a positive result. On the contrary,

the variation rate has been calculated in absolute terms in order to take into consideration this aspect and allow for a consistent interpretation. Table 4.15 illustrates all the variation rate for the 11 companies of the sample. The percentages indicate the deviation of actual results from projections for the relative year of analysis, and it is calculated as the delta between actual results and projections' values divided by the projections' value (in absolute terms). Hence, for instance, Bioerg actual EBITDA of 2015 deviated by 83% from business plan forecasts. This means that the company recorded a better EBITDA result than what was expected. The table below gives a picture of which company was "more able" to predict future performance but does not illustrates the actual performance. For a more comprehensive understanding of the overall situation, we must look also at figure 4.22. On average, the only company which positively deviated from its business plan projections was Papèm. Nevertheless, even if better than expected, it was the worse "performer" in terms of EBITDA values, still recording negative results (figure 4.22), which brought the company to declare insolvency in 2018. On the contrary, Synbiotec and Skymeeting negatively deviated from their projections, meaning that they registered lower EBITDA results than expected, but they were the best performers, accounting for positive EBITDA, especially in 2018. The interesting fact arising from this analysis is that almost every company performed better than projections in their first year after the ECF campaign. This is probably due to an overestimation of costs or to a wrongly allocation of them into their forecasts, all concentrated in the first year of activity, rather than spread in the following years. Overall, all the companies were "optimistic" in their projections, while their actual results were on average the 40% lower than the forecasts.

EBITDA	2015	2016	2017	2018	Avg 2015-2018
Bioerg	83%	-209%	-113%	-129%	*-92%*
Shinsoftware	110%	-103%	-76%	-75%	*-36%*
Nexapp		-47%	-39%	-70%	*-52%*
Madia Vox Pop		93%	-110%	0%	*-6%*
P2R		97%	-299%	-104%	*-102%*
Papem		75%	74%	100%	*83%*
Primary System Research		89%	-98%	-134%	*-48%*
Brainseeding		99%	-147%	-100%	*-49%*
Safeway Helmets		89%	-98%	-134%	*-48%*
Synbiotec		-12%	-45%	-49%	*-35%*
Skymeeting			-30%	-71%	*-50%*
AVERAGE	**96%**	**17%**	**-89%**	**-70%**	**-40%**
MEDIAN	**96%**	**82%**	**-98%**	**-75%**	**-48%**
MINIMUM	83%	-209%	-299%	-134%	-102%
MAXIMUM	110%	99%	74%	100%	83%

Table 4.15: summary of variation rate for EBITDA values from 2015 to 2018 (own elaboration)

This highlight the fact that it is really hard to predict future performance when the company is in its start-up phase and cannot rely on past results. Indeed, the majority of early-stage ventures fails in understanding their potential target market and this wrongly estimation is then reflected in mistaken business plan financial projections.
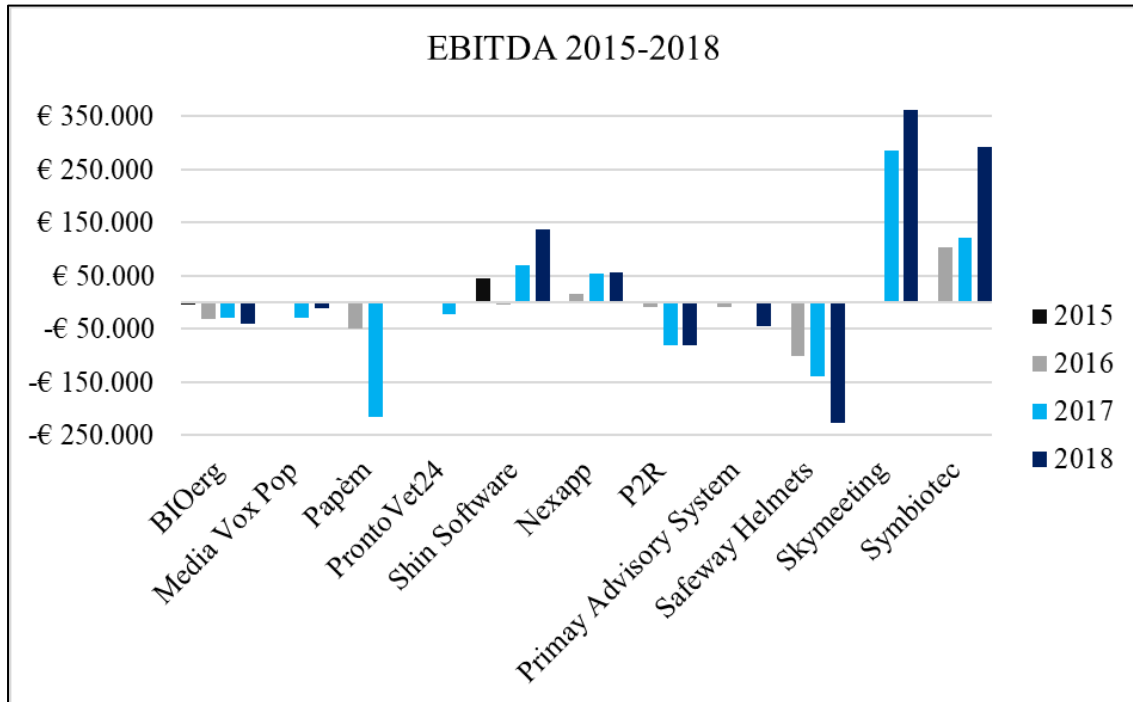

Figure 4.22: EBITDA trend for each company 2015-2018 (own elaboration)

CONCLUSIONS

As stated during this dissertation, equity crowdfunding is a new alternative finance tool for entrepreneurs who need to raise funds in order to fuel their business' growth and development. Even if ECF has some commonalities with traditional sources of funds, it differs in a variety of ways from business angels and early-stage venture capital. Indeed, the investor base is greater, the fundraising process is much shorter, the information provision is less, and contracts are standardized and simpler. Given the increases in efficiency of ECF fundraising process from the entrepreneurs' perspective, it is not surprising that equity crowdfunding has gathered such a momentum in recent years (Vulkan, Astebro, and Fernandez 2016). However, the lower amount of information's provision and the lower level of due diligence can alter investors' decisions in allocating capital, mainly because backer in ECF are non-professional investors. This dissertation has been aimed to investigate this point, analysing the difference among information provided into the business plan and actual results achieved through the years after the ECF campaign. At the end of the previous chapter, an overall picture of the results obtained

by this analysis has been provided. Overall, almost none of the startups in our sample achieved the expected results, few of them recorder a positive sales growth, and 3 of them ceased their activity declaring insolvency. This phenomenon is not unexpected, since the nature of the startup businesses is highly uncertain and risky. Indeed, many businesses fail because of uncertainty. Early-stage ventures should always work in order to understanding the uncertainties involved in the venture and reduce them, with the goal to minimize risk (Kaplan 2019). Given the risk involved in it, this type of investment is really hard to evaluate and hard to generate positive returns, also for venture capitalists. In fact, "somewhere between one-half and two-thirds of VC investments have lost money historically" (Kaplan 2019).

The reasons for failure can be manifold. The most important one is often identified in the absence of a clear strategy and knowledge of the market, which makes the business plan to be based on mistaken assumptions. As our analysis underlined, almost all the companies projected sales on the basis of a wrong market and customer analysis, and the consequences were that actual economic results were in most cases disappointing. Steve Kaplan (2019), after having analysed the American VC startups' selection process, explained how "it was fascinating to see companies make the same mistake during their 45-minute pitch. […] They miscalculated, spending their time talking about cool new technology, without addressing the most basic and important question: Will the company get customers?". Among other factor for failure, we can list the presence of a proper team. The founders' team is extremely important for the success of a startup: often, key elements of an effective management structure are missing, and the founders don't have the right capabilities or motivation to drive the business and make it grow. To sum up, quoting Wilson and Testoni (2014), "the lack of an adequate pre-investment screening, due diligence, weaker investment contracts, poorer post-investment support, and monitoring can make the risk associated with equity crowdfunding significantly higher than the risk usually borne by business angels and venture capitals. Moreover, while the potential for fraud is exacerbated in the equity crowdfunding setting, information asymmetry makes investments in the start-ups of even well-intentioned entrepreneurs riskier, since the competence of the entrepreneur and the quality of the business plan cannot be properly assessed".

In Italy ECF started to spread from the beginning of 2014, thus it is a relevant new phenomenon and there is still a lot to study. In particular, this thesis was based on the startups which raised funds between 2014 and 2016 when the phenomenon in Italy was not well known as today. In fact, the boom in number of campaigns and amount raised through ECF in Italy was mainly in 2018. Moreover, among the 29 companies which raised in those years, for only 11 it has been possible to find business plans information in order to compare them with actual results.

Besides, actual results were available only for a total of 3 years after the campaign which, in the case of startups, is a relative short period to analyse economic performance, since in the first years of activity the companies are often involved in R&D and software development, likely achieving small or null sales and record negative EBITDA. In any case, this thesis provided an indication on how to analyse if ECF can be a valuable and efficient fundraising option. This was made by comparing the amount and quality level of data on which the startups planned its economic results and thanks to which they raised funds, with the actual results achieved, trying also to investigate the main causes of this results discrepancies. Further studies should be conducted in this direction by future researches, especially because in few years it will be possible to collect a bigger sample of companies and a greater amount of data. Investors decide to back early-stage companies because, along with a higher risk is also associated a potential high return. However, an investor has to wait for an exit to see its investment realized and hopefully cash-in returns. Exit which, if it happens, takes place in about 10 years from the first fundraising round. Therefore, in the future would be interesting to study and analyse if the startups which raised through ECF will close important exits, and, if yes, which will be the return for ECF backers.

REFERENCES

1. Agrawal, Ajay, Christian Catalini, and Avi Goldfarb. 2011. *"The Geography of Crowdfunding."*

2. ———. 2015. "*Are Syndicates the Killer App of Equity Crowdfunding.*" MIT Sloan School of Management.

3. Allon, Gad, and Volodymyr Babich. 2019. "*Crowdsourcing and Crowdfunding in the Manufacturing and Services Sectors.*"

4. An, Jisun, Daniele Quercia, and Jon Crowcroft. 2014. *"Recommending Investors for Crowdfunding Projects."*

5. BAF, and Directorate European Commission. 2017. *"Understanding the Nature and Impact of the Business Angels in Funding Research and Innovation."*

6. Bates, Steve. 2020. "*Types of Funding Rounds and What They Mean."* Seedrs Entrepreneur Help Center.

7. Bayus, Barry L., and Venkat Kuppuswamy. 2013. *"Crowdfunding Creative Ideas: The Dynamics of Project Backers on Kickstarter"*.

8. Beahurst. 2018. *"The Deal - Equity Investment in the UK 2018."*

9. Beaulieu, Tanya, Sarmily Sarker, and et al. 2015. *"A Conceptual Framework for Understanding Crowdfunding."*

10. Beckwith, John Jack. 2016. *"Predicting Success in Equity Crowdfunding."* Joseph Wharton Scholars.

11. Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher. 2010. *"Crowdfunding : An Industrial Organization Perspective Crowdfunding : An Industrial Organization."*

12. ———. 2013. "*Crowdfunding : Tapping the Right Crowd.*"

13. Belleflamme, Paul, Nessrine Omrani, and Martin Peitz. 2015. *"The Economics of Crowdfunding Platforms."* Information Economics and Policy.

14. BIOerg S.r.l. 2015. *"Un Metodo Low Cost Di Produzione Del Destrano - Bioerg Business Plan."*

15. Bio-e.r.g. 2015 *Financial Statement*

16. Bio-e.r.g. 2016 *Financial Statement*

17. Bio-e.r.g. 2017 *Financial Statement*

18. Bio-e.r.g. 2018 *Financial Statement*

19. Bottiglia, Roberto, and Flavio Pichler. 2016. *"Crowdfunding for SMEs: A European Perspective."* London: Palgrave Macmillan.

20. Brabham, Daren C. 2008. *"Crowdsourcing as a Model for Problem Solving An Introduction and Cases."*

21. Brainseeding S.r.l. 2016 *Financial Statement*

22. Brainseeding S.r.l. 2017 *Financial Statement*

23. Brainseeding S.r.l. 2018 *Financial Statement*

24. Bue, Alberto Lo. 2016. *"La Prima App Che Abbatte Le Barriere Tra La Vendita Fisica e Online - Business Plan Papem S.r.L."*

25. Caselli, Stefano, and Giulia Negri. 2018. *"Private Equity and Venture Capital in Europe: Markets, Techniques, and Deals."* Academic Press.

26. Cassar, Gavin. 2004. *"The Financing of Business Start-Ups."*

27. Catalini, Christian, Ajay Agrawal, and Avi Goldfarb. 2014. *"Some Simple Economics of Crowdfunding."*

28. Chen, Liang, Zihong Huang, and De Liu. 2016. *"Pure and Hybrid Crowds in Crowdfunding Markets."* Financial Innovation.

29. CONSOB. 2019. *"Regolamento Sulla Raccolta Di Capitali Tramite Portali On-Line."*

30. Correia, Sandra, Miguel Sousa, and Elísio Brandão. 2019. *"Drivers of Fundraising Success in Equity Crowdfunding."*

31. Crisanti, Andrea, Elitsa Pavlova, and Julien Krantz. 2019. "*THE VC FACTOR - Data-Driven Insights about VC-Backed Start-Ups in Europe."* European Investment Fund.

32. crowd-funding.cloud. 2019. *"Le Antiche Origini Del Crowdfunding: Dalle Borse Valori Alla Statua Della Libertà."*

33. Cumming, Douglas, and Gerrit K.C. Ahlers. 2017. *"Signaling in Equity Crowdfunding."*

34. Cumming, Douglas J, Gael Leboeuf, and Armin Schwienbacher. 2014. "*Crowdfunding Models : Keep-It-All vs . All-or-Nothing."*

35. Deff, Catherine, and Agata Sudolska. 2014. "*Radical Innovation And Early Stage Financing Gaps: Equity Based Crowdfunding Challenges.*" JPM - Journal of Positive Management.

36. Directorate European Commission. 2017. "*Identifying Market and Regulatory Obstacles to Cross- Border Development of Crowdfunding in the EU Final Report"*.

37. EBAN. 2018. "*Eban Statistics Compendium - European Early Stage Market Statistics."*

38. Esho, Ebes, and Grietjie Verhoef. 2018. "*The Funding Gap and the Financing of Small and Medium Businesses : An Integrated Literature Review and an Agenda."*

39. European Commission. 2012. "*European Commission Action Plan: European Company Law and Corporate Governance - a Modern Legal Framework for More Engaged Shareholders and Sustainable Companies."*

40. Ferrary, Michel, and Mark Granovetter. 2009. "*The Role of Venture Capital Firms in Silicon Valley 's Complex Innovation Network.*"

41. Florio, Massimiliano De, and Luca Laporta. 2016. *Business Plan Prontovet24*.

42. Gajda, Oliver, Matthias Klaes, Jamie Hartzell, Liam Collins, Paulo Silva Pereira, and Simone Dean-johns. 2012. *"A Framework for European Crowdfunding"*.

43. Gammelgaard, Flemming Binderup, and Claus Bossen. 2018. *"Navigating Uncertainty in Equity Crowdfunding."*

44. Gerber, Elizabeth M, Julie S Hui, and Pei-yi Kuo. 2012. *"Crowdfunding : Why People Are Motivated to Post and Fund Projects on Crowdfunding Platforms."*

45. Hemer, Joachim. 2011. *"A Snapshot on Crowdfunding."*

46. Howe, By Jeff. 2006. "*The Rise of Crowdsourcing.*"

47. infoDev/The World Bank. 2013. "*Crowdfunding ' s Potential for the Developing World.*"

48. InvestEurope. 2018. *"European Private Equity Activity 2018."*

49. Kaplan, Steve. 2019. "*The Right Questions to Ask for Startup Success,*" .

50. Kleemann, Frank, Guenter Voss, and Kerstin Monika Rieder. 2008. *"Un(Der)Paid Innovators: The Commercial Utilization of Consumer Work through Crowdsourcing."*

51. Magnani, Alberto. 2019. *"Equity Crowdfunding, Come Funziona in Cinque Punti."* IlSole24ore.

52. Massolution. 2015. *"2015 CF - The Crowdfunding Industry Report."*

53. Media Vox Pop S.r.l. 2016. *"Media Vox Pop - Offerta Di Quote Societarie Mediante Equity Crowdfunding - Business Plan."*

54. Media Vox Pop S.r.l. 2016 *Financial Statement*

55. Media Vox Pop S.r.l. 2017 *Financial Statement*

56. Media Vox Pop S.r.l. 2018 *Financial Statement*

57. Mills, Tom. 2020. *"Public Campaign Time Limit."* Seedrs Entrepreneur Help Center.

58. Mollick, Ethan. 2013. "*Swept Away by the Crowd ? Crowdfunding , Venture Capital , and the Selection of Entrepreneurs.*"

59. ———. 2014. "*The Dynamics of Crowdfunding: An Exploratory Study."* Journal of Business Venturing, January.

60. Nexapp S.r.l. 2015. *"Business Plan ' NexApp .'"*

61. Nexapp S.r.l. 2016 *Financial Statement*

62. Nexapp S.r.l. 2017 *Financial Statement*

63. Nexapp S.r.l. 2018 *Financial Statement*

64. Osservatori Entrepreneurship & Finance. 2019. *"4° Report Italiano Sul CrowdInvesting."* Politecnico Di Milano - School of Management.

65. P2P S.r.l. 2016. "*Piano Aziendale - P2P2 S.r.l. - Play to Rehab.*"

66. P2R S.r.l. 2016 *Financial Statement*

67. P2R S.r.l. 2017 *Financial Statement*

68. P2R S.r.l. 2018 *Financial Statement*

69. PAPEM S.r.l. 2016 *Financial Statement*

70. PAPEM S.r.l. 2017 *Financial Statement*

71. PAPEM S.r.l. 2018 *Financial Statement*

72. Paschen, Jeannette. 2017. "*ScienceDirect Choose Wisely : Crowdfunding through the Stages of the Startup Life Cycle.*" Business Horizons.

73. PREQIN. 2018. "*Venture Capital Activity In 2017.*"

74. Primary System Research S.p.a. 2016. *"Business Plan Primary Advisory Network."*

75. Primary System Research S.p.a 2016 *Financial Statement*

76. Primary System Research S.p.a 2017 *Financial Statement*

77. Primary System Research S.p.a 2018 *Financial Statement*

78. Quaranta, Gianluca. 2016. *"Crowdfunding. Il Finanziamento Della Folla, o Dei 'Folli'?"*

79. Safeway Helmets S.r.l. 2016. *"Business Plan 2017-2021 Safeway Helmets."*

80. Safeway Helmets S.r.l. 2016 *Financial Statement*

81. Safeway Helmets S.r.l. 2017 *Financial Statement*

82. Safeway Helmets S.r.l. 2018 *Financial Statement*

83. Schwienbacher, Armin, and Benjamin Larralde. 2010. *"Crowdfunding Of Small Entrepreneurial Ventures".*

84. Shin Software S.r.l. 2014. "*Shin3d Software Business Plan.*"

85. Shin Software s.r.l. 2015 *Financial Statement*

86. Shin Software s.r.l. 2016 *Financial Statement*

87. Shin Software s.r.l. 2017 *Financial Statement*

88. Shin Software s.r.l. 2018 *Financial Statement*

89. Skymeeting S.p.a. 2016. "*Skyaccounting Business Plan 2017-2022 Per Valutazione Investimento In Equity Crowdfunding.*"

90. Skymeeting S.p.a. 2016 *Financial Statement*

91. Skymeeting S.p.a. 2017 *Financial Statement*

92. Skymeeting S.p.a. 2018 *Financial Statement*

93. Sohl, Jeffrey. 2018. "*The Angel Market In 2018 - More Angels Investing In More Deals At Lower Valuations.*" Center for Venture Research.

94. Surowiecki, James. 2004. "*The Wisdom Of Crowds.*"

95. Synbiotec S.r.l. 2016. "*Business Plan Synbiotec S.r.L.*"

96. Synbiotec S.r.l. 2016 *Financial Statement*

97. Synbiotec S.r.l. 2017 *Financial Statement*

98. Synbiotec S.r.l. 2018 *Financial Statement*

99. Vismara, Silvio. 2016. *"Information Cascades Among Investors in Equity Crowdfunding."*

100. Vulkan, Nir, Thomas Astebro, and Manuel Fernandez. 2016. "*Equity Crowdfunding : A New Phenomena."*

101. Wetterhag, Emelie, and Maxence Dècarre. 2014. *"Uncovering the Outcomes of Equity Crowdfunding."*

102. Wilson, Karen E, and Marco Testoni. 2014. *"Improving The Role Of Equity Crowdfunding In Europe ' S Capital Markets."*

103. Zhang, Gaoqing, Xin Wang, Chao Tang, and Lin Nan. 2019. *"Learning from and Disclosing to the Crowd."*

104. Ziegler, Tania, Rotem Shneor, Karsten Wenzlaff, Ana Odorović, Daniel Johanson, Rui Hao, and Lukas Ryll. 2019. *"SHIFTING PARADIGMS: The 4th European Alternative Finance Benchmarking Report."* Cambridge Centre for Alternative Finance.