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### **THE GROWTH AND PERFORMANCE OF COMPANIES AFTER AN EQUITY CROWDFUNDING CAMPAIGN: THE ROLE OF PIVOTAL INSTITUTIONAL INVESTORS**

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## ABSTRACT (ENGLISH)

In this dissertation work, it has been implemented a study concerning the presence, behavior, and influence that "pivotal institutional investors" have on startups, after an equity crowdfunding campaign. The sample analyzed, provided by the "Osservatorio Crowdfunding" from Politecnico di Milano, has a size of 286 Italian equity crowdfunding campaigns that took place between 2014 and 2019, all with a positive outcome and the possibility of acquiring shares with voting rights. Thanks to the collection of financial data for each startup, it was possible to evaluate the operational performance obtained after the end of the campaign. The analysis focused on two groups: startups with "pivotal institutional investors" and startups without. In this way, it was possible to appreciate, thanks to an in-depth study of the data, a greater growth in operating performance for the first group compared to the second one. Furthermore, after using statistical methods to strengthen the thesis, the analysis shifted to one of the possible causes for which startups are positively influenced by "pivotal institutional investors": their activism. In fact, after having collected the data related to each specific shareholders' meeting (both ordinary and extraordinary), it was possible to conclude that their attendance at the meetings is higher and their behavior is more active than other investors.



## ABSTRACT (ITALIAN)

In questa tesi è presente uno studio riguardante la presenza, il comportamento e l'influenza che i "pivotal institutional investors" hanno sulle startup, dopo una campagna di equity crowdfunding. Il campione analizzato, fornito dall'Osservatorio di Crowdfunding del Politecnico di Milano, ha una dimensione di 286 campagne italiane di equity crowdfunding avvenute tra il 2014 e il 2019, tutte con esito positivo e possibilità di acquisire quote con diritto di voto. Grazie ad una raccolta dei dati finanziari per ogni startup, è stato possibile valutare le performance operative ottenute dopo la fine della campagna. L'analisi si è focalizzata su due gruppi: le startup aventi tra gli investitori "pivotal institutional investors" e le startup senza. In questo modo è stato possibile apprezzare, grazie ad uno studio approfondito dei dati, una maggiore crescita delle performance operative per il primo gruppo rispetto al secondo. Inoltre, dopo l'impiego di metodi statistici utilizzati con l'intento di rafforzare la tesi, l'analisi è ricaduta su una delle possibili cause per cui le startup siano influenzate positivamente dai "pivotal institutional investors": il loro attivismo. Infatti, dopo aver raccolto i dati relativi ad ogni specifica assemblea degli azionisti (sia ordinaria che straordinaria), è stato possibile concludere che la loro presenza alle assemblee è maggiore e il loro comportamento è più attivo rispetto agli altri investitori.

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# 1. EXECUTIVE SUMMARY

Equity crowdfunding is becoming one of the most used methods adopted by startups and SMEs to collect funds. It consists in selling the shares of the company to investors, which get the right to be part of the cash flow generated by the firm in the future. This mechanism is implemented through online portals, to which is possible to have access through the internet. Nowadays its diffusion is growing, with the presence of several platforms guaranteeing this service, and many startups and investors that are using it.

Its importance and diffusion are also underlined by the regulations defined to manage it, both within a single country (in Italy through Consob Regulation), and at a continental level (in Europe through ECSP). According to the Italian market, the growth registered from 2018 to 2020 regarding the total amount of money collected through equity crowdfunding is about 39,19%, with expected global growth in the world around 15%.

As a result of this important development, the academic literature referred to this topic increased in terms of both quantity and quality of content. Firstly, explaining the reasons for this trend, pointing out how it is caused by the growing presence of medium-small companies and startups, which are looking for alternative methods to raise capital.

Subsequently, several papers analyzed different aspects related to this methodology. In this dissertation work, the ones faced initially concern the preferences and criteria of investors in the selection of the projects. Afterward, the performances of the startups post-equity crowdfunding campaign have been considered, with a focus on the benefits guaranteed by this mechanism and the factors contributing to the success. Finally, a study referred to the institutional investors has been taken into consideration, being them an important element of this dissertation work.

According to what has already been studied in the academic literature, it has been noticed the absence of an analysis regarding the impact given by specific type of investor on the startup's growth post ECF campaign. In particular, it has been considered the pivotal institutional investor since, among the institutional ones, investment activity is one of its main businesses, and so is characterized by higher resources, knowledge, and effort put in place than the others. For this reason, the aim of this dissertation work consists in demonstrating the following hypothesis: *the presence of at least one pivotal institutional investor in the*

*crowd participating in the equity crowdfunding campaign is positively correlated in terms of the company's follow-up growth and performance.* This paper is realized also for searching for other possible correlations with different parameters. For this reason, two additional hypotheses have been formulated, which are in detail: 1. There is a positive correlation between the operating performance and the fundraising success rate; 2. There is a positive correlation between the operating performance and the number of investors present in the crowd.

In *Chapter 4* the database used for the analysis is described. It has been built starting from the one given by "Osservatorio Crowdfunding", which characteristics are written in the Annex section. It provided a list of 286 successful Italian equity crowdfunding campaigns, in which several information about the projects and the financing requested by each startup were reported. Moreover, it has been provided the list of all the investors participating in these campaigns, with attached additional information, both personal and on the investments made. Starting from this amount of data, the database used in this dissertation work has been realized. In the first part, information about the meetings done for each ECF campaign (in particular, the date, if ordinary or extraordinary, eventual notes, and the outcome) have been reported. In the second part, financial data about all the startups after the equity crowdfunding campaign (revenues, profit/loss, EBIT, and EBITDA) have been collected. Finally, before starting the analysis, the list of pivotal institutional investors has been identified, to differentiate them from the ones that are not pivotal institutional.

After having completed the creation of the first part of the database, an analysis from a macroscopical point of view has been implemented to determine the main trends present according to the data collected. Specifically, for each startup, the percentual growth of the financial parameters considered has been calculated year by year, from the end of the equity crowdfunding campaign until 2020. Comparing the averages and medians of these values referred to the companies having at least one pivotal institutional investor in their crowd with respect to the ones without, it has been noticed a better result when pivotal institutional investors are present. This analysis is useful to show that there seems to be, from a microscopical point of view, a positive correlation between the financial performance of startups and the presence of pivotal institutional investors. Naturally, this cannot be considered enough, and a deeper statistical study has been implemented.

Initially, the significance of the data of the pivotal institutional investors compared with the non-ones has been checked through two different methods: the T-test, based on the averages, and the Mann-Whitney U Test, based on the medians. The results obtained are mostly not significant, meaning that is not possible to affirm the presence of a strong relationship between the financial performance of a firm with the presence of pivotal institutional investors, but not even the opposite. Subsequently, a detailed analysis referred to the revenue growth has been implemented since, among the four financial parameters considered, it is the best indicator to check how much a startup is growing and performing over time. According to this, the correlation matrix has been studied, to analyze the relation between the number of investors and the fundraising success rate with the average revenue growth. The results obtained show that the relationship between the number of investors and the average revenue growth is slightly negative, meaning that an increase in the first parameter causes a decrease in the second one (in opposition to the initial hypothesis realized). This can be explained by the fact that, initially, it has been thought that the higher the number of investors, the higher the number of entities that believed valuable the project, without considering the possible presence of huge investments done by few investors. This means that, even if the startup is considered valuable by the majority, the crowd can be composed of a small number of investors since some of them invested a great amount of money, achieving rapidly the maximum capital collectible and so excluding other interested investors. Another reason could be that, in a crowd composed of a high number of entities, the probability of finding retail investors is greater than in the small ones since pivotal institutional investors tend to invest a high quantity of money, reducing the space for the others. As studied in this dissertation, the absence of pivotal institutional investors could be a sign of low attractiveness of the campaign as they are characterized by more experience and competencies in the selection of the projects in which invest. Regarding the covariance between fundraising success and average revenue, there is a lack of dependence since the growth is close to zero (partially in contrast with what was supposed initially). The reason for this independence probably is given by the fact that all the campaigns considered are successful, meaning that every one of them achieved at least the minimum target requested. Considering the presence of maximum capital collectible, generally not too far from the minimum, the fundraising success rates calculated are similar; instead, the revenues collected are different since the startups belong to different sectors, with different projects.

This chapter ends with a regression analysis, done to verify the aim of this dissertation work (specifically, if there is a positive relationship between the presence of pivotal institutional investors and the company's growth and performance after the equity crowdfunding campaign). According to the results obtained, there is not a significant correlation between these two variables; however, the p-value obtained is equal to 0,288, which means a 71,2% of possibility that the relationship expressed is true. For this reason, even if there is no significance, it is possible to believe that the presence of pivotal institutional investors has a positive impact, more or less large, on the revenue growth of the startups that have raised funds through an equity crowdfunding campaign.

In *Chapter 7*, the reasons why the presence of pivotal institutional investors has a positive impact on a company's post-ECF campaign performance have been explained. Specifically, there are two possible motivations, which are the high participation in the management of the startup by this type of investor, and/or its ability in the selection of the project in which invests (cherry picking). The focus has been given to the first possible reason, building the third part of the database used in this dissertation work in which the presence and activism of investors have been verified. According to the results obtained, it is possible to affirm that pivotal institutional investors, with respect to the retail ones, tend more to invest a high quantity of money to get the voting right (almost 70% of the cases) and so actively participate in the management of the startup (meeting attendance is three times higher than that one of retails).

In *Chapter 8*, an example about the behavior, the evaluation criteria, and the meeting attendance of a pivotal institutional investor (Padda Srl) is provided. This is useful to understand in detail how this type of investor acts during and after the equity crowdfunding campaign.

Finally, in the last chapter, the conclusion of this dissertation work has been realized, explaining what it is possible to get from this paper and why, and underlining the limitations faced and the possible future research that can be implemented.

## 2. INTRODUCTION TO CROWDFUNDING

In the past, when someone wanted to finance an early-stage project or company, it was possible to borrow from a bank or raise money from family, friends, business angels, or venture capital firms. Crowdfunding has become an alternative funding channel to that represented by banks or other financial intermediaries. The effective financing of a project, in fact, does not depend on the assessment made by an individual intermediary based on its own financing strategies but on the ability of the proponents to convince a sufficient number of investors to risk their funds in direct support of the initiative. This became a valid option especially for innovative projects and startups to raise funds and continue their growth. Specifically, it consists in pooling money from a large number of people (the crowd) and using the amount raised to finance a project. These projects are in fact posted on dedicated platforms and people then decide on which ones to invest money in. In accordance with what is explained by the Italian authority for the supervision of financial markets in the section *"Cosa devi assolutamente sapere prima di investire in una "start-up innovativa" tramite portali on-line"* (Consob, 2022), it is possible to define crowdfunding as the process by which several people ("crowd") contribute sums of money ("funding"), even in small amounts, to finance a business project or initiatives of different kinds using Internet sites ("platforms" or "portals") and sometimes receiving a reward in return.

## 2.1. HISTORY OF CROWDFUNDING

Crowdfunding actual birth can be backdated to the beginning of the new millennium. In fact, the idea of creating a web portal through which to raise funding for creative projects dates back to 2002: in that year Perry Chen was looking for a few backers who would allow him to hire his favorite jazz duo for the annual festival in New Orleans. Finding no "ordinary" investors ready to bet on him, Perry began to think about a web service that could raise money "from below" for creative projects. Although many years passed before his idea could move into practice, it was nonetheless this platform that gave the real "kick-start" to crowdfunding, which in the following years started in the United States and also reached Europe and Asia. A year before Kickstarter was launched (2009), Indiegogo made its debut instead, a reality that since 2008 boasts of as many as 800,000 funded projects. Along with Kickstarter, the platform is considered to be the benchmark in Reward-based crowdfunding. These and many other portals that emerged allowed the phenomenon to develop online and spread pervasively, leading to the emergence of new types of financing and important new milestones.

In Italy, an important start was the inauguration in 2005 of "Produzioni dal Basso", an Italian portal focusing on a hybrid mode of funding (Reward/Donation-based) considered the pioneer of these network platforms. In Italy indeed, crowdfunding as we know it today began to spread very early compared to the rest of the world. However, as explained by the website "*Create your crowd*" (Cardarelli, 2020), due to domestic peculiarities, this country failed to take advantage of the typical first-mover benefits, so much so that the second Italian platform was born only in 2010. The characteristics of the entrepreneurial market, the long bureaucratic chain, together with the high rate of digital illiteracy, and the low diffusion of online payment systems (accompanied very often by a great distrust) greatly slowed down the development of the phenomenon in Italy.

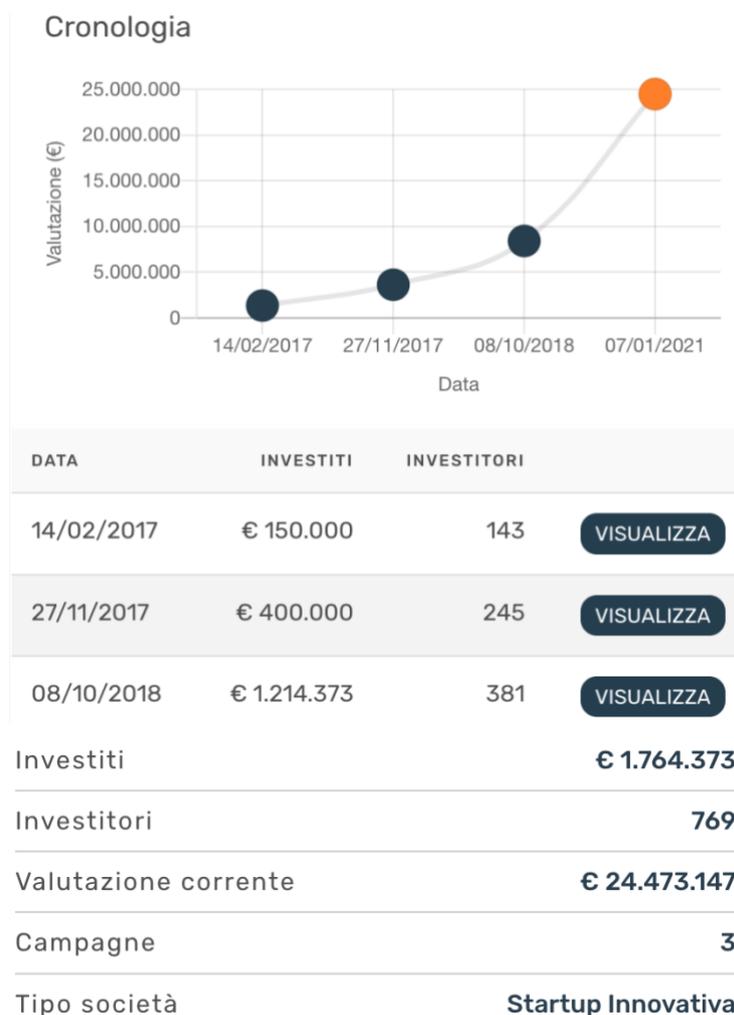
## 2.2. TYPOLOGIES OF CROWDFUNDING

According to the classification provided by the European Commission (European Commission, 2015), it is possible to recognize four categories when speaking about crowdfunding, two of which are donation-based (Donation and Reward) and two are investment-based (Equity and Lending):

- **Donation Crowdfunding:** the proposer of the project, typically a charitable initiative, expects that interested supporters will donate funds in return for the simple pleasure of having donated. In fact, benefactors, although they are called backers, play the role of true philanthropists, offering their money for nonprofit projects. This is a type of crowdfunding particularly suitable for social and civic projects.
- **Reward Crowdfunding:** the project may be the creation of a work of art (e.g., a film or a record) or even a business venture (e.g., the creation of a new product). In this case, those who donate money may receive rewards in return, depending on the size of the amount donated. In the case of a product, it could be the product itself when it is made.
- **Equity Crowdfunding:** a company can finance its development by raising funds in exchange for shares in the company. The benefit to the investor is the ability to dispose of the purchased shares in the future, at a much higher value than the purchase price, thus generating a profit (capital gain). Since this is a risky investment (the company could go bankrupt or never be purchased), the investor is protected by a special regulation issued by Consob (entity aimed at investor protection, efficiency, transparency, and development of the Italian securities market; it is an independent administrative authority with autonomous legal personality and full operational autonomy), and equity crowdfunding portals are supervised by the same Consob. Equity crowdfunding is seen as a tool that can foster the development of innovative start-ups through rules and financing methods that can harness the potential of the Internet.
- **Lending Crowdfunding (known as social lending or P2P lending):** in this case, the enterprise finances itself by borrowing from the public. The loan amount is then divided among several lenders, thus reducing the minimum subscription amount. The company will return to the investor the principal amount plus a share of interest.

This dissertation specifically concerns equity crowdfunding and an example of an equity crowdfunding campaign analyzed is the one of Winelivery, which is an e-commerce portal for purchasing wines, beers, spirits, and drinks, delivered to the customers quickly and at the right temperature. This company has carried out, through the CrowdFundMe portal, three different equity crowdfunding campaigns over time.

In the Figure below (*Figure 2.1*), it is shown the timeline of the three equity crowdfunding campaigns, with related data and a graph representing the increase in value over time.



*Figure 2.1 – Timeline of Winelivery equity crowdfunding campaigns and related data (CrowdFundMe, 2022)*

Winelivery, with revenues rising from 111.500€ in 2017 to more than 7.3m euro in 2020, ranks ninth in the Financial Times' new ranking (published on March 2022) of the fastest-growing companies in Europe, as it is possible to see in *Figure 2.2*. (CrowdFundMe)

FT 1000 — Europe's Fastest Growing Companies 2022												
Rank	Name	in 2021 ranking	in 2020 ranking	Country	Sector	Absolute Growth Rate %	Compound Annual Growth Rate (CAGR) %	Revenue 2020 (€)	Revenue 2017 (€)	Number of employees 2020	Number of employees 2017	Found Year
1	<a href="#">Swappie</a>	No	No	Finland	Technology	19,152.82	477.43	97,611,814	507,000	218	1	2016
2	<a href="#">Kilo Health</a>	No	No	Lithuania	Health	16,541.73	450.05	57,318,766	344,428	177	10	2013
3	<a href="#">OCI</a>	No	No	UK	Financial Services	13,133.13	409.59	568,322,073	4,325,512	32	4	2012
4	<a href="#">OnlyFans</a>	No	No	UK	Technology	11,928.05	393.63	316,732,986	2,652,185	800	4	2016
5	<a href="#">Enpal</a>	No	No	Germany	Energy	11,441.27	386.88	56,109,613	486,165	365	9	2017
6	<a href="#">MR Consulting</a>	No	No	Germany	Waste management & recycling	8,624.23	343.52	13,165,586	150,908	9	2	2017
7	<a href="#">Thrive</a>	No	No	UK	Health	7,396.77	321.66	18,732,563	251,668	57	12	2015
8	<a href="#">Exotec</a>	No	No	France	Industrial Goods	6,635.11	306.86	47,597,000	706,700	200	15	2015
9	<a href="#">Winelivery</a>	No	No	Italy	Ecommerce	6,480.53	303.73	7,337,290	111,500	10	1	2015

*Figure 2.2 – FT 1000 Europe's fastest growing companies 2022 (Financial Times, 2022)*

This company is a demonstration of how some innovative startups, can finance themselves through equity crowdfunding, to make investments and expand their business to become established companies with a very high valuation.

### 2.3. PROS AND CONS OF CROWDFUNDING

Crowdfunding is no longer a niche phenomenon or, more trivially, a trend of the moment, but a well-developed and well-established project funding proposition. It is an innovative approach to creativity and entrepreneurship because it makes it possible not only to finance ideas that, most likely, with only the use of traditional channels would be condemned to remain as such, without turning into a product or service, but it also offers multiple, other advantages. Crowdfunding, regardless of its type, has several advantages, as explained by the website Crowdfunding Cloud in its article *“Vantaggi e svantaggi – Pro e contro del crowdfunding”* (crowd-funding.cloud). First of all, crowdfunding possesses a number of main characteristics that differentiate it from other types of financing: flexibility, community involvement, variety of its forms, and democratization of finance. In addition, crowdfunding, in each of its models, can make it possible to test the validity of one's projects by exposing them to the judgment of the Internet crowd and, therefore, to a multitude of people that is difficult to reach in other ways - thus guaranteeing a return not so much (or not only) economic, but more understood in terms of feedback. Moreover, in case the idea is well received on the web, a crowdfunding campaign can turn into a powerful marketing tool that can effectively build a valid brand image - increasing, as well, the possibility of receiving other forms of funding. What is more, crowdfunding would seem to give developers more control over their projects, something that - instead - tends to be reduced by resorting to more traditional forms of financing. In addition, although the risk in crowdfunding is rather high for investors (in fact, these are usually early-stage projects that are therefore not yet established in the market), it should be emphasized that it is spread and, therefore, shared, among a large 'crowd' of supporters. At the corporate level, recent studies have observed that crowdfunding is becoming, increasingly, a springboard for start-ups and new business ideas and a viable alternative to other, more classic forms of financing. More than that, frequently crowdfunding is a viable alternative to other modes of fundraising that, often, are precluded to those (both companies and individuals) who do not have prior records of lending or entrepreneurial activities. In the specific case of the equity-based model, raising capital (if successful) could have several advantages, such as paving the way toward obtaining other resources, including on actual stock exchanges, thus within regulated markets. Instead, in the case of social

lending, in general, funding a campaign should have a higher rate of return than that offered by other investments.

On the other side, crowdfunding could lead to a number of disadvantages, thus to some contraindications that could turn into risks or limitations. First of all, it should be emphasized that the goal set in the campaign is not necessarily achieved and, therefore, the project does not always lead to success. From the investors' perspective, in equity crowdfunding, there are several disadvantages among which the main one is the potential loss of the entire amount invested, which is high considering that the projects are risky. In case of failure, on the startup side, the possibility of potential reputational damage cannot be excluded, and it should also be pointed out that by submitting a creative project to an online site, there is the possibility that someone will freely grab the intellectual property rights of the idea. In addition, since this type of funding is mostly digital, there is a risk that fear may emerge that the project is a scam and thus inhibit the ability to raise funds. Moreover, again on the startup side, there are costs involved in publishing the campaign on a portal, thus increasing the cost of capital. More in general, there is also no lack of issues related to information asymmetry, which is an imbalance between two negotiating parties in their knowledge of relevant factors and details. Typically, that asymmetry gives to the side with more information (the startup that is seeking funds) an advantage over the other party (the crowd). Information asymmetry leads to:

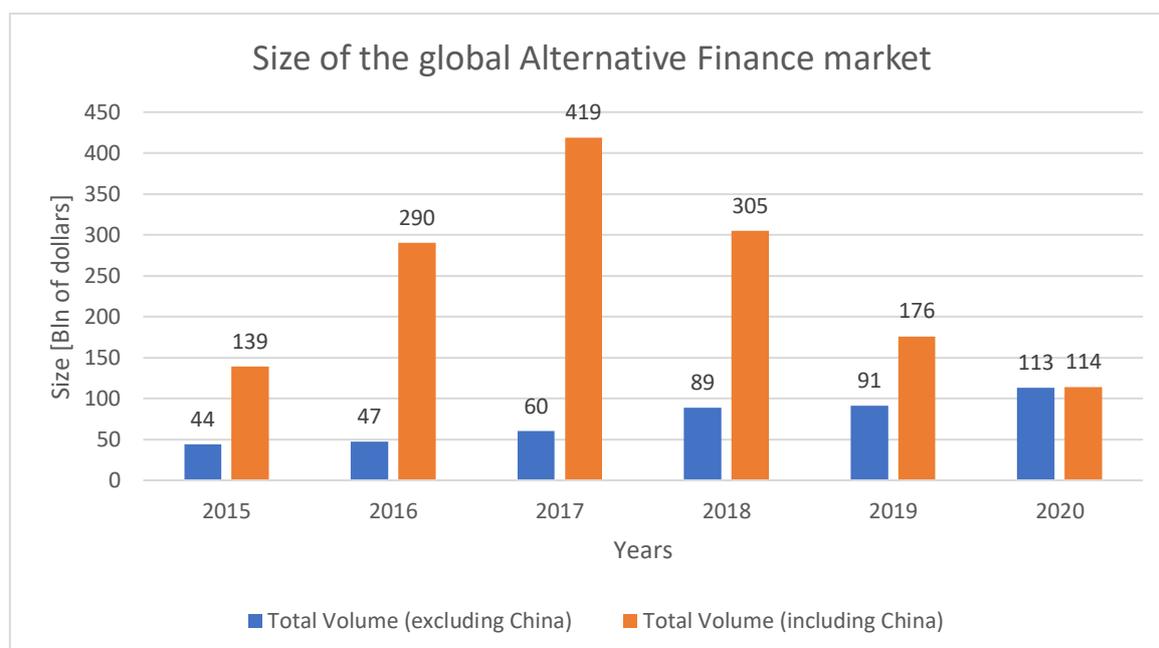
- Moral hazard: post-contractual opportunism, thus the tendency to pursue one's own interests at the expense of the other party, relying on the latter's inability to verify.
- Adverse selection: adverse selection arises when one party lacks information about relevant aspects of the transaction before the transaction occurs and it has been analyzed by Akerlof in his seminal paper. He studied the market of used cars in the US. In this market, according to him, there are two types of cars: one type of very bad cars, called lemons, and another of very qualitative cars, called peaches. Bad quality cars are cars for which the willingness to pay is very low while good quality cars instead are cars for which buyers are willing to pay higher prices. At this point, the market is willing to pay for an expected value of a car (assuming they know the % of lemons and peaches) and if this value is lower than the minimum price that sellers of high-quality cars would accept, they would go out from the market and only low-quality cars would be traded. Thus, it can also happen in crowdfunding by bringing funding to low-quality

projects (which will be overestimated) instead of higher-quality projects (that are underestimated and should sell shares at discounted prices).

## 2.4. ALTERNATIVE FINANCE WORLDWIDE

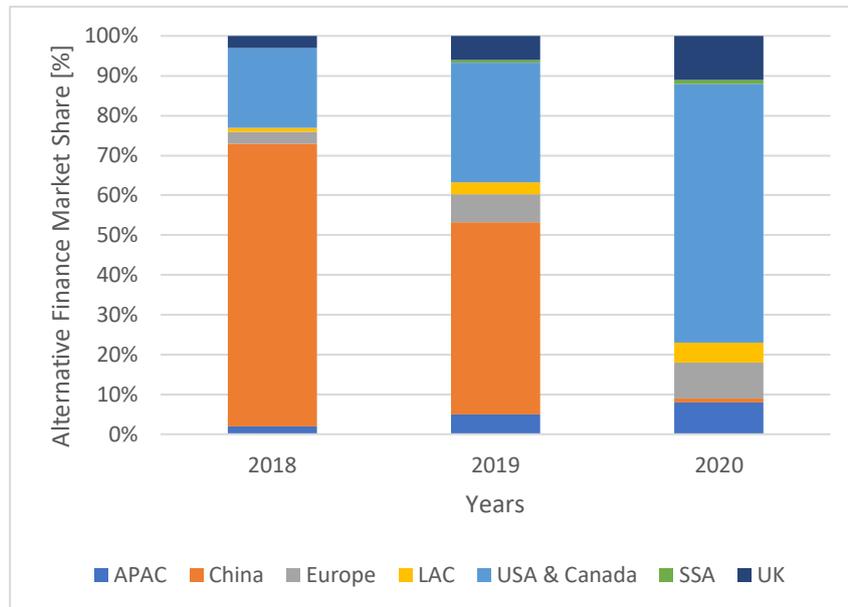
Crowdfunding is more generally the main part of the world of alternative finance; it is important to understand how this sector is evolving across the world and what the size of this market is. Within alternative finance, there are specifically the following services: P2P Consumer Lending, P2P Business Lending, Balance Sheet Business Lending, Balance Sheet Consumer Lending, P2P property Lending, Balance sheet Property Lending, Invoice Trading, Real Estate Crowdfunding, Donation-based Crowdfunding, Equity-based crowdfunding, Reward-based crowdfunding, Consumer Purchase Finance, Debt-based securities, Crowd-led Microfinance, Revenue/Profit sharing, Community shares, and Mini Bonds.

However, it is not possible to take into account the aggregate data of all countries, but it is necessary to distinguish the rest of the world from China; in fact, the latter distorts the data when considered together with the other countries since it has experienced a quick and dramatic cycle of boom and bust. Specifically, the Chinese market dropped from \$215,4 billion in 2018 to \$84,3 billion in 2019, and then down to \$1,2 billion in 2020. This was due to a sharp increase in regulations and bankruptcies of many platforms; in fact, the number of platforms dropped from its peak of 6.000 to only 29. In *Figure 2.3* it is possible to see the size of the global Alternative Finance market including and excluding China.



*Figure 2.3 – Size of global Alternative Finance market in Bln of dollars (University of Cambridge, 2021)*

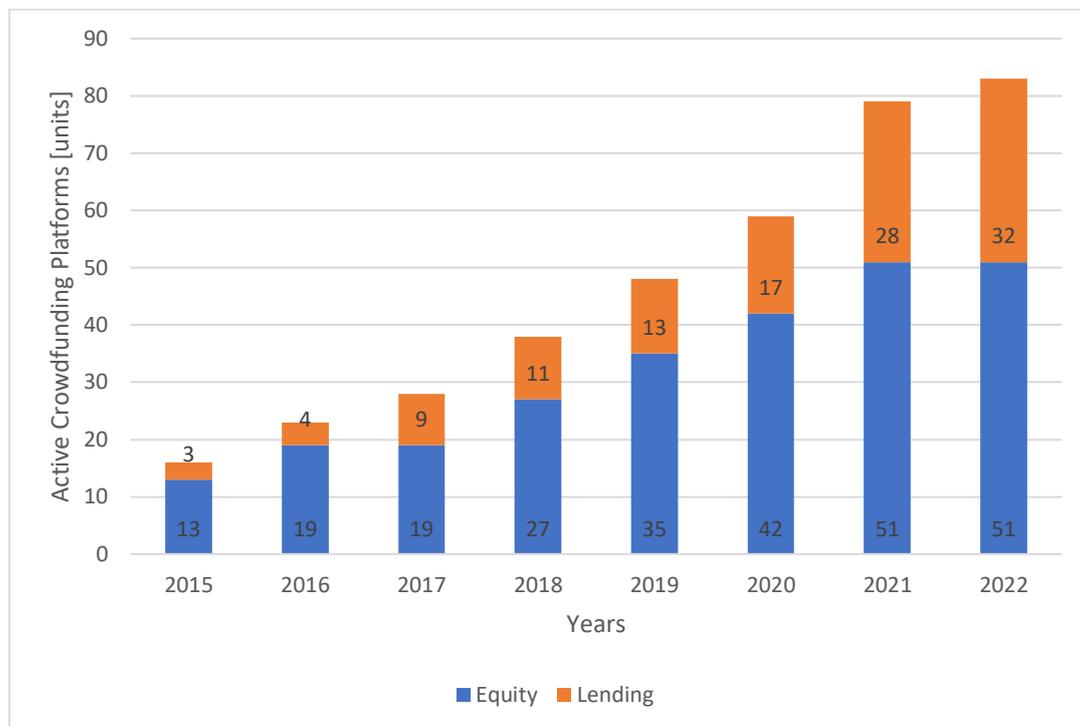
In *Figure 2.4* it is possible to see that, excluding China, there is very strong growth in this sector, even though in recent years the economy has been heavily affected by the pandemic. It is interesting to analyze in more detail the alternative finance market share among different countries where it is still possible to see a drastic decline in China. (University of Cambridge, 2021)



*Figure 2.4 – Alternative Finance market share (University of Cambridge, 2021)*

## 2.5. CROWDFUNDING IN ITALY

Until a few years ago in Italy crowdfunding struggled to establish itself. However, today the Italian trend follows that of the rest of the world: crowdfunding is spreading here as well, its market is expanding, and the numbers are growing rapidly.

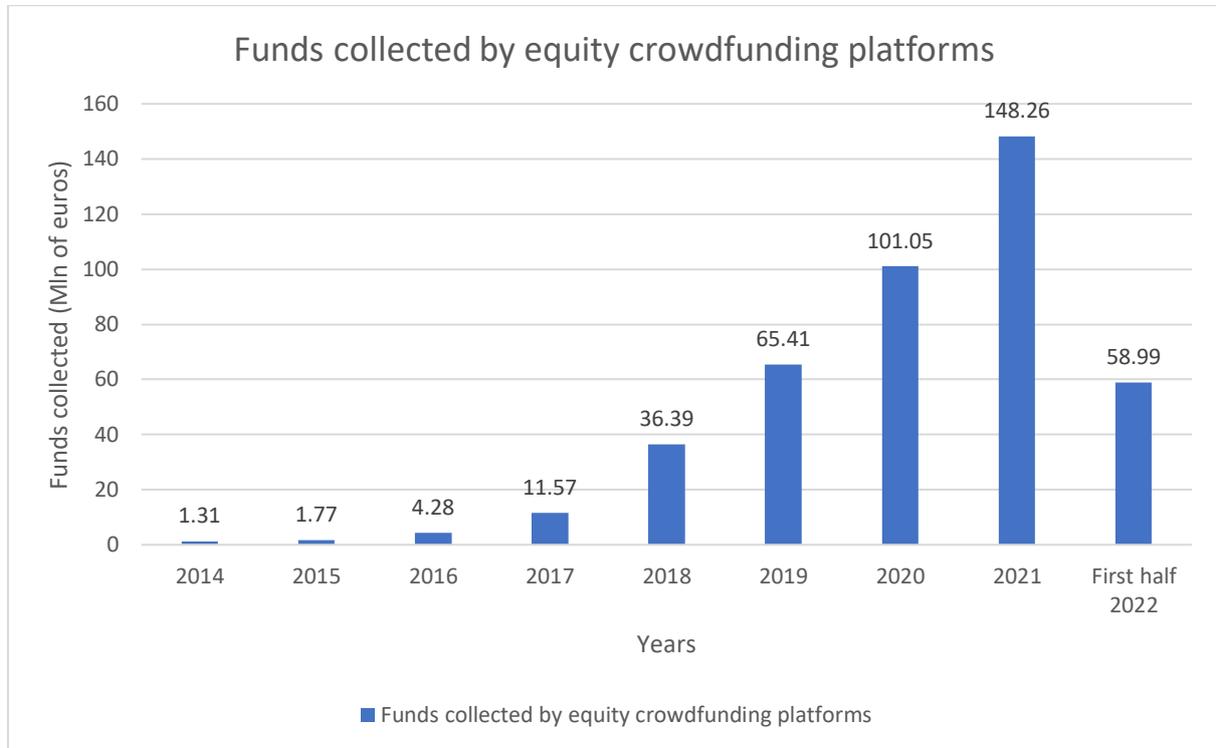


*Figure 2.5 – Active Crowdfunding Platforms in Italy (Osservatorio Crowdinvesting of Politecnico di Milano)*

In *Figure 2.5* it is possible to see how the number of equity crowdfunding and lending crowdfunding (both consumer lending and business lending) platforms has increased considerably. In terms of equity crowdfunding platforms, the percentage increase from 2015 to the present is 292%, and this shows how strongly this market is booming. The same can also be said about lending crowdfunding platforms. In this case, the percentage increase from 2015 to the present is 966%. It is important to note that lending crowdfunding platforms are usually divided into two categories:

- Consumer lending: specialized in loans to individuals.
- Business lending: specialized in loans to companies.

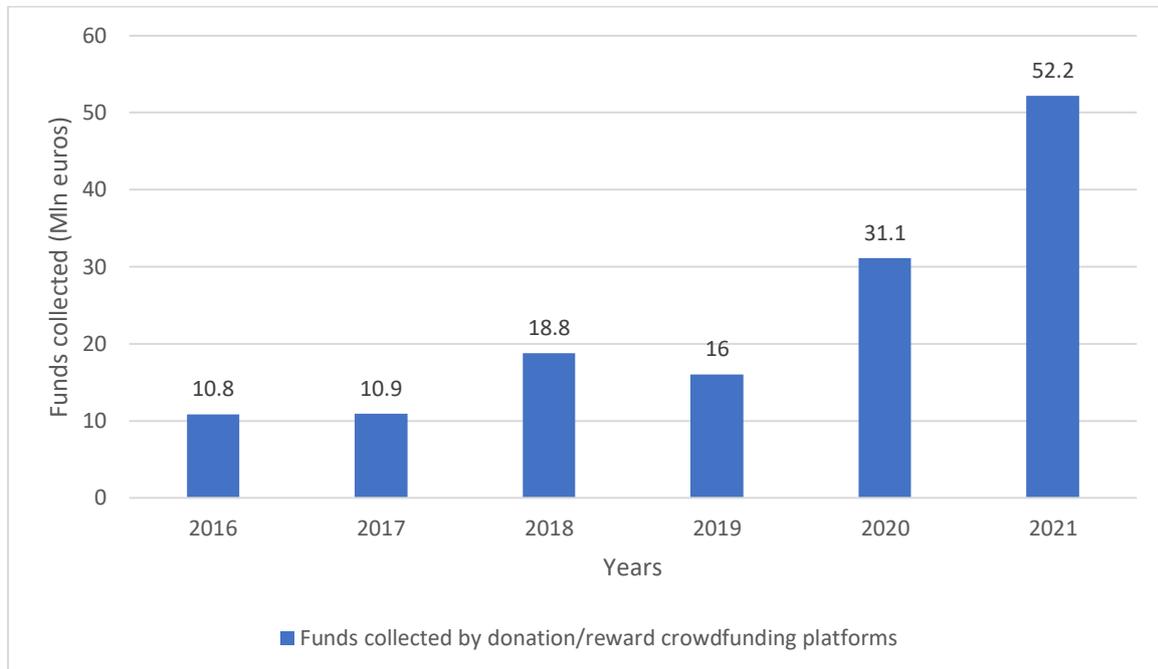
Since this paper focuses mainly on equity crowdfunding, it is essential to analyze the funds that have been raised by this type of platforms over the years. *Figure 2.6* shows the total funds collected by equity crowdfunding platforms from 2014 to the first half of 2022.



*Figure 2.6 - Total funds collected by equity crowdfunding platforms in Italy (Osservatorio Crowdfunding of Politecnico di Milano)*

One of the possible causes of the increase in the investment volume could be the increase of the number of institutional investors in Italy. Regarding this topic, the AIFI association, which is the Italian association of Private Equity, Venture Capital, and Private Debt, is very important. AIFI in fact is well known for its activity of institutional representation and promotion of investment activities in Italy. In particular, it allows connecting financial institutions that make investments in unlisted companies. The association also brings together an important network of institutions, institutional investors, who are interested in the development of the industry. Therefore, in addition to representing its members and being a point of reference for the main analysis and research on the subject of alternative investments, AIFI plays an important role in the cultural promotion of the financial markets (AIFI). AIFI also defines the regulation of investment activities as can be explored further in *Annex 10.1*.

Finally, it is also important to consider donation/reward crowdfunding platforms in this analysis. In fact, in *Figure 2.7*, the growth of funds raised over the years can be observed.



*Figure 2.7 - Total funds collected by donation/reward crowdfunding platforms in Italy  
(Osservatorio Crowdfunding of Politecnico di Milano)*

Again, therefore, an increase in volumes can be appreciated, thus showing that the entire crowdfunding industry is expanding, and its projects are becoming more and more attractive. (Osservatorio Crowdfunding, Politecnico di Milano, 2021)

## 2.6. CROWDFUNDING AND VENTURE CAPITAL

Companies with high potential scalability are suitable for both VC funding and crowdfunding options since these two types of financing can occur at about the same time stage. In fact, there are different stages of a company's lifecycle, as it is possible to see in *Figure 2.8*:

- Pre-seed: the first stage in the life of the startup in which a whole series of actions are carried out before precisely "planting the seed" and eventually entering the world of investment (Cogotti, 2021). The initial stages of capital provision are, for a startup, essential, because they guide the transformation of an innovative idea into a business, bringing in that capital necessary for the prototyping and market validation of a technological solution. These initial collections of money, which in Italy are definitely limited (usually ranging from 50-100 K€ up to a maximum of 500 K€ in special cases), are used to support the startup in product/service development (MVP), validation of the business model and the first market tests; but also to acquire the right entrepreneurial mindset and soft skills needed to succeed in the market. It is the phase during which the levels of risk for the investor are highest, and therefore investments are lowest, but it is also the type of investment that yields the highest payoff in terms of return for those who believe in the project. During this phase, funding generally comes from the so-called FFF (Family, Fools and Friends), Business Angels, and Crowdfunding.
- Seed: The seed stage is perhaps one of the most important phases of a startup's life cycle. It is the phase in which the project becomes a reality; it is the phase in which all iterations with the market to validate the "problem-solution fit" and "product-market fit" move to the next step and engage the market for MVP validation. The method usually used is "Lean Startup," a method developed in 2008 by Eric Ries. Ries' method involves the continuous application of the three build-measure-learn phases, building your product (or service) as quickly as possible, verifying and measuring the results, and finally using the resulting data to improve the product, then repeating the process cyclically (Cogotti, 2021). The idea so is to start with a so-called "minimum viable product" (MVP), i.e., "minimum marketable product," and then adapt the product to the customer's needs along the way precisely because of the feedback received from the customer. At this stage, in the Italian market, startups should try to raise between

500k€ and 1Mln€. Usually, the funds still come from Business Angels, Crowdfunding, and some Venture Capital firms that specialize in investing at this stage.

- Round A: Once a company has developed a track record (an established user base, consistent revenue figures, or some other key performance indicator), it can opt for a Series A financing round to further optimize its user base and product offering (Startupedia, 2022). Opportunities can be taken to scale the product in different markets. At this stage, the funds raised in Italy range between 1Mln€ and 5Mln€, and the sources are usually Venture Capital Firms, and in some cases still Business Angels and Crowdfunding.
- Round B: Series B rounds aim to take companies to the next level, beyond the development stage. Investors help startups get to this level by expanding market reach. Companies that have moved beyond the seed stage and Series A funding rounds have already developed a substantial user base and have demonstrated to investors that they are prepared for success on a larger scale (Startupedia, 2022). Series B funding is used to let the company grow and meet these levels of demand. Between 5Mln€ and 20Mln€ are usually raised in the Italian market in this round, and the funders are usually venture capital firms and private equity firms.
- Round C: Companies that make it to the Series C funding sessions have already achieved a fair amount of success. These companies seek additional financing to help them develop new products, expand into new markets, or even acquire other companies (Startupedia, 2022). In Series C rounds, investors inject capital into the flesh of successful companies in an effort to receive more than twice that amount. Series C financing focuses on scaling the company, growing as quickly and successfully as possible.
- Round D and Round E: some companies may also move to Series D and even Series E funding rounds; in fact, Startups that show growth potential even after their series C funding tend to go in for further rounds of funding (Startupedia, 2022). Here the concentration is purely on acquiring newer markets through multiple methods. The startup might also look at more aggressive acquisitions of similar startups that could pose a threat. The investments here also come in from hedge funds, investment banks, and private equity firms.

In each case, the goal of investors is to apply an exit strategy, which usually consist of a trade sale (sale of the startup to a company), a secondary buyout (sale of the startup to another fund), or an IPO (shares sold on the market).

In addition, it is necessary to specify that often “Seed” and “Pre Seed” stages are called “Early stage”, while “round A” and “round B” are instead called “Early growth”, and later rounds are finally called “Sustained Growth” or “Growth”. (Inc42, 2022)

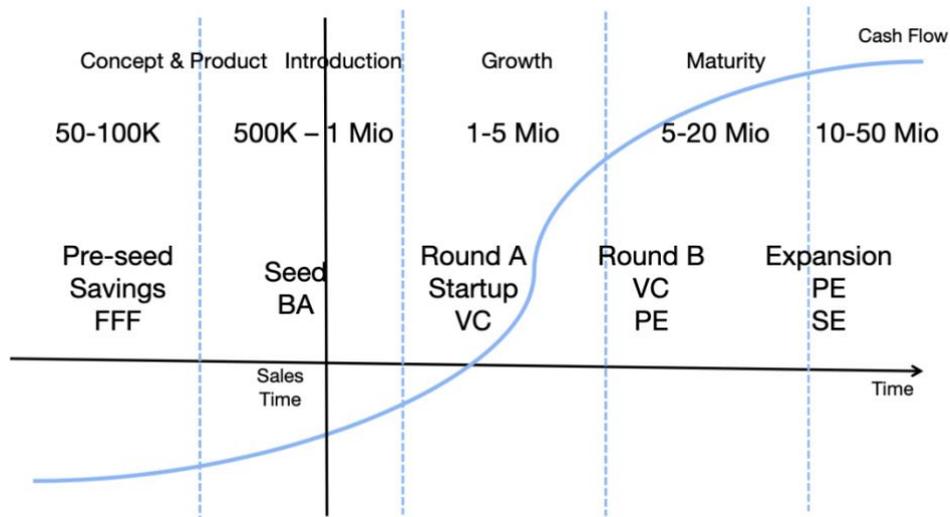


Figure 2.8 – Investment stages and size

Therefore, startups with high growth potential can apply for funds either from Venture Capital Firms or through Crowdfunding in the initial stages, as in both cases capital can be raised quickly to achieve rapid growth and avoid being beaten by competitors. However, VCs are generally unlikely to be interested in any investment that does not have the potential to provide an exit from the original valuation of 10-100 times. In addition, as explained in the article “10 differenze tra equity crowdfunding e venture capital” (Arnaud, 2020), there are several reasons why it would be preferable to take advantage of crowdfunding:

- Business model: Equity Crowdfunding relies on a huge marketing effort and momentum, so if a startup's business model is simple, understandable, and can convince people easily, the likelihood of the Crowdfunding campaign's success is higher.

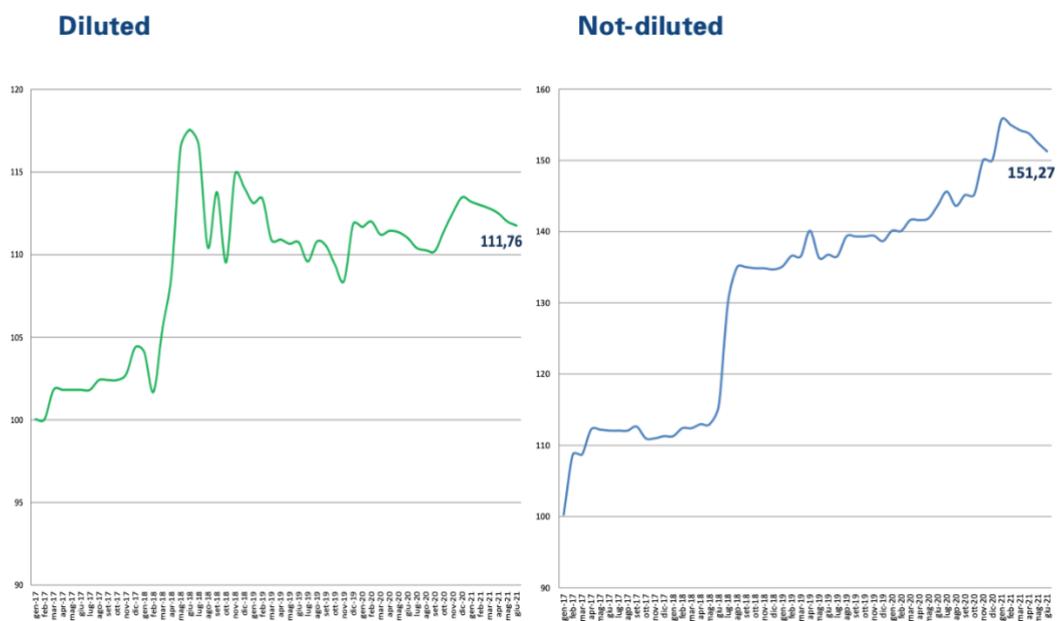
- Terms and Conditions of the investment: Equity crowdfunding is generally more favorable to entrepreneurs than traditional VC funding. Fundraising through equity crowdfunding is a way for the entrepreneur to raise funds in his or her own way. Raising through VC usually means raising funds on the investor's terms and evaluation, with rare exceptions.
- Mindset of investors: Equity Crowdfunding can be very useful for companies that aim to make a big social impact, rather than focusing solely on financial returns. Many crowdfunding investors want to use their money to accelerate a change they support or dream about, and so it's just a matter of finding the right company for one they wish.
- Selection Criteria: Venture capital funds often follow criteria for selecting investment targets that are more restrictive than crowdfunding criteria. In fact, Crowdfunding remains a more flexible investment vehicle than VCs.
- Company culture: When a startup prefers to maintain its culture rather than become another "corporate personality", it is usually best to choose equity crowdfunding since with many investors none of them tend to have much influence.
- Visibility: The network becomes wider with crowdfunding, and this spreads the word about the startup to a wider pool of people.

However, venture capital firms and crowdfunding platforms do not necessarily have to be considered competitors, such that the crowdfunding ecosystem could be seen as an alternative investment tool for VCs. In fact, the latter believe that their clients could at that point invest directly in crowdfunding rather than go through a Venture Capital firm, but while a retail investor alone probably does not have the capacity to invest in a well-diversified way through crowdfunding campaigns, a VC does. In addition, Venture Capital, and institutional investors more generally, believe that Crowdfunding is subject to several limitations, particularly low flexibility, low quality of proposed projects, and a too enlarged captable. In reality, these are only apparent problems due to disinformation; in fact, these have solutions that are already in place:

- Low flexibility: Italian institutional investors believe that the crowdfunding platforms offer low flexible contracts but drag and tag-along clauses and liquidation preferences (which are the main requirements) are usually already included. Moreover, the higher

the amount invested, the higher is propensity of Crowdfunding Platforms to customize the clauses.

- Low quality: the projects proposed on crowdfunding platforms are perceived as low-quality projects by the institutional investors but even in this case it is possible to demonstrate that it is not true. In fact, according to the Equity Crowdfunding Index, the returns over the years are extremely positive as is possible to see in *Figure 2.9*. (Osservatorio Crowdinvesting, Politecnico di Milano, 2021)
- Large captable: even in this case it is possible to solve the problem by putting together all the crowdfunding investors under a single legal entity, such as an SPV or a Holding.



*Figure 2.9 - Equity Crowdfunding Index, diluted and not diluted (Osservatorio Crowdinvesting, Politecnico di Milano, 2021)*

## 2.7. REGULATIONS BETWEEN CROWDFUNDING AND INSTITUTIONAL INVESTORS

Since this dissertation will also treat the relationship between crowdfunding and pivotal institutional investors (which are a subset of institutional investors as it will be explained in the following chapters), it is essential to define what regulations govern the relationship between them. In fact, thanks to Consob Regulation 18592/2013 (Consob, 2020), institutional investor thresholds were introduced for each equity crowdfunding campaign:

- For the purposes of finalizing an offer on the portal, the portal operator shall verify that a share of at least 5% of the financial instruments offered has been subscribed by institutional investors, or banking foundations, or innovative start-up incubators, having a portfolio value of financial instruments, including cash deposits, exceeding five hundred thousand euros, and possessing at least one of the following requirements:
  - Have made, in the last two years, at least three investments in share capital or shareholder financing in small and medium-sized enterprises, each of which in an amount at least equal to fifteen thousand euros.
  - Have held, for at least twelve months, the position of executive administrator in small and medium-sized enterprises other than the bidding company.

In addition, they are reduced to 3% for bids made by small and medium-sized enterprises in possession of the certification of the financial statements, for the last two fiscal years preceding the bid, prepared by an auditor or auditing firm registered in the register of auditors.

A deeper analysis about the Consob Regulation is reported in the Annex section (*Annex 10.2*).

## 2.8. ECSP REGULATION

On November 10, 2021, EU Regulation No. 2020/1503 has been realized, to bring important changes to all players in the industry, particularly service providers and collection platforms. The goal is to harmonize rules by establishing the basis for a European code of conduct that can increase both capital market borrowing and international investment capabilities. This new regulation will be effective starting from November 10, 2023 (Viola, 2022). The ECSP Regulation introduces a common framework that applies to both equity crowdfunding and social lending crowdfunding. the following are the main introductions:

- Portals wishing to provide crowdfunding services will have to submit an application for authorization to the competent authority in their member state, demonstrating that they meet the requirements of the ECSP Regulation, including in terms of minimum capital. This Authority will establish a register of authorized crowdfunding service providers within the EU.
- Crowdfunding providers who obtain authorization will be entitled to a European passport that will allow them to operate in all member states in which they apply to do business. Companies will be able to access the ability to raise funds no longer only in Italy but throughout the European Union.
- Raising capital will also be extended to other firms than SMEs, and crowdfunding platforms will be able to place minibonds with retail investors. The maximum fundraising limit for each company will be set at €5 million over one year, compared with the current limit of €8 million under the national framework. All crowdfunding service providers will be required to establish and implement appropriate policies for the analysis, evaluation, and selection of investment projects proposed on their respective platforms, in order to limit the level of risk exposure and ensure fair treatment of potential investors and clients.
- In the case of an investment in an amount greater than €1,000 or 5% of the investor's net worth, the crowdfunding service provider must warn the investor about the risks and obtain explicit consent and a demonstration of full understanding of the investment and its risks.

- Stricter conflict-of-interest rules are also introduced: the operators, for example, will not be able to join bids posted on their platforms, and prudential requirements in terms of minimum capital and business continuity will be introduced.

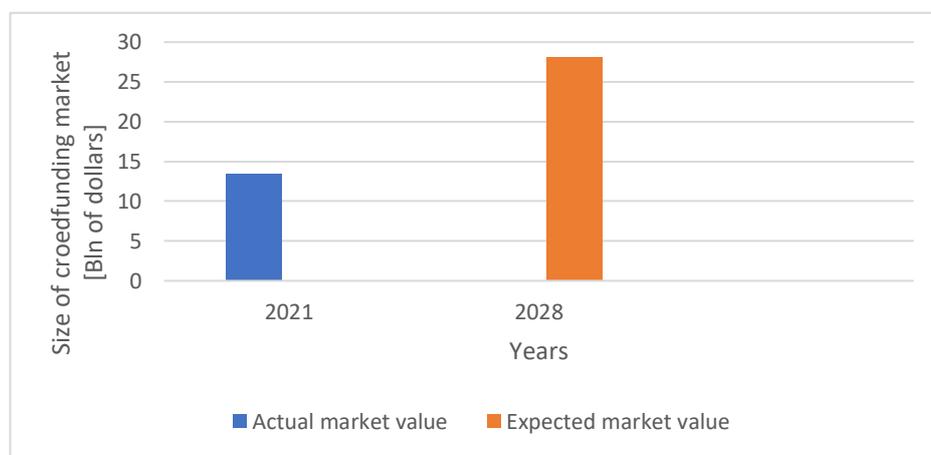
For a more in-depth analysis, it is possible to see *Annex 10.3*.

### 3. LITERATURE REVIEW

The role of crowdfunding has increased over the last few years through its unique way of raising funds to support social organizations and businesses, becoming one of the most used methods adopted by start-ups. As shown in *Figure 3.1*, in 2021, the value of the crowdfunding market was estimated at around 13,5 USD billion, and its expected growth is around 28.2 USD billion by 2028, with a CAGR (compound annual growth rate) of 11,8%. (Sanu, 2022)

This incremental trend can be explained through two main factors:

- 1) The increasing global number of small companies and start-ups in the market, which are looking for funding to face financial challenges or improve their limited budget.
- 2) The opportunities related to crowdfunding platforms, used by businesses not only to get financing but also as a marketing platform, giving the possibility for market testing, particularly in terms of pricing.



*Figure 3.1 – The expected growth of the crowdfunding market (Sanu, 2022)*

As a result, the academic literature referred to this topic increased in terms of both quantity and quality of content. The aim of this chapter consists in examining deeply the crowdfunding phenomenon, analyzing its points of strength and weakness. Specifically, it will focus on a deep analysis on equity-based crowdfunding, which is the main topic of this dissertation work.

### 3.1. EQUITY-BASED CROWDFUNDING

In the last decade, equity-based crowdfunding became an important alternative with respect to the traditional methods of funding raise. According to the definition provided by the European Commission, *“Equity crowdfunding consists of selling a stake in your business to a number of investors in return for investment. The existence of equity funding is well established, with private equity, venture capital and angel investing long playing a role in developing companies. The main difference between equity crowdfunding and these traditional models is that, rather than establishing a one-to-one relationship, it is offered to a wide range of potential investors, some of whom may also be current or future customers. Equity crowdfunding does this by matching companies with would-be angels via an internet-based platform.”* (European Commission, 2022)

As described in the thesis *“Equity Crowdfunding: caratteristiche, problematiche e diffusione”* (Machì, 2020), regarding its legislative history, the first to show interest and initiate this phenomenon was the United States, approved on April 5, 2012, the law called JOBS Act (Jumpstart Our Business Start-ups). Before its introduction, the current legislation governing the equity-based model was the Securities Act, which placed some constraints on the application and dissemination of equity-based crowdfunding. Through the JOBS Act, the raising of capital for small American companies was made easier, streamlining the legislation, and partially eliminating the constraints previously imposed. Subsequently, Europe also showed interest in this new method of collecting capital. Initially, no regulatory framework at the continental level would regulate the development of this phenomenon, allowing its uneven growth among the member countries of the European Union. This limited the expansion of this model, preventing some subjects from investing in projects they believed in since they belonged to one state rather than another. To date, however, there is a regulation at the European level of equity-based crowdfunding, through the approval of the ECSP (European Crowdfunding Service Providers for business) on 5 October 2020, which aims to standardize the rules of investor protection and platform management for all those who will obtain the Community license issued by the European Financial Markets Authority (ESMA).

Analyzing how the equity-based crowdfunding model is structured, it is composed of the presence of 5 main players:

- The proponent (one or more entrepreneur creators), the one who starts the project and publishes it on one of the online platforms. The goals can be different; the main one is to raise funds, but this campaign can also be launched to increase visibility, expand the relational network, and learn through experience.

- The equity crowdfunding platform, which plays the role of intermediary to facilitate the meeting between demand (proposer) and offer (potential investors). Through this portal, creators publish their entrepreneurial projects and investors can decide whether to participate through financial instruments.

- The investors, those who invest in a project through financial instruments.

The factors considered by the crowd in choosing the company in which to invest tend to be its expected growth, its values and vision, and the related risk.

- the project, which consists of the business idea published on the platform by the company. Its two main characteristics are the clear description of the idea and the clarity of the information provided.

- the regulation, whose importance was previously explained.

### 3.2. INVESTORS' INDUSTRY PREFERENCE

Equity crowdfunding is a fundraising methodology that can be applied by any type of start-up, regardless of the sector to which it belongs.

In accordance with the research thesis entitled *“Investors' industry preference in equity crowdfunding”* (Johan, et al., 2021), it is possible to analyze which factors are most considered by investors for each type of business started by a start-up during their evaluation phase. The study shows that investors focus on different business aspects when contributing capital to start-ups belonging to different industry sectors. Specifically, it is possible to note that one of the factors most considered is the length of the business qualitative introduction and the level of education of the managers, which are important for all industrial sectors. Research and development are also considered important for most sectors, except for Real Estate Rental and Leasing Industry. The relative importance levels of other attributes considered related to specific sectors are summarized in *Table 1* below:

<b>SECTORS \ ATTRIBUTE</b>	Information and cultural industry	Professional, Scientific, and Technical Services Industry	Real Estate Rental and Leasing Industry	Health Care and Social Assistance Industry	Manufacturing Industry
Managers' industry experience	X	-	-	-	-
Entrepreneurs' estimate on product market size	X	-	-	-	X
Firm revenue	-	-	X	X	-

*Table 1 – Relative importance of specific attributes for different sectors (Zhang and Johan, 2021)*

In conclusion, the research documents that investors in the Professional, Scientific, and Technical Services Industry and Retail Trade Industry are influenced by the average success rate of industry crowdfunding, indicating that they are more likely to group than investors who focus on other areas of the industry.

### 3.3. THE INVESTORS' EVALUATION CRITERIA

Various research has analyzed in more detail what has been explained in the previous paragraph, to define more clearly how crowd investors decide which initiatives to invest in. While institutional investors are usually more experienced and trained to evaluate complex and technical investment information, non-institutional are often less prepared, and therefore pushed to give more weight to factors that seem easy to assess and less weight to factors that are more difficult to evaluate.

According to the academic research on *"Investors' evaluation criteria in equity crowdfunding"* (Shafi, 2019), it is emphasized that the non-institutional crowd tends to ignore the financial information contained in the campaigns because they are considered difficult to evaluate. More attention is focused on the characteristics of the management team, one of the main drivers related to the funding success. However, experience and skills seem to be less important than motivational aspects such as the commitment of the founders to the project. Business characteristics are the strongest predictors of success, probably reflecting that these characteristics are more accessible and easier to evaluate for non-institutional investors. *Paragraphs 3.2 and 3.3* are based on research interesting to understand better the decisional behavior of investors before participating in a specific equity crowdfunding campaign. This information has been processed by different studies and the topic is quite defined and complete.

Instead, there are few analyses about the behavior of investors post crowdfunding campaign, useful to understand if and how they participate in the management of the business once they have invested. This is one of the main reasons explaining why this dissertation work is based on this topic.

### 3.4. INVESTORS' BEHAVIOUR POST EQUITY CROWDFUNDING CAMPAIGN

As previously said, few papers focused on the characteristics and comportment of the crowd after the end of the equity crowdfunding campaign. One of these is the academic research *“Active ownership strategies by investors in equity crowdfunding”* (Conti, 2022), which consists of an analysis of the active participation of the equity investors in the various shareholders' meetings. Based on a dataset of sixty-seven Italian companies (both start-ups and small-medium enterprises), from 2014 (the first equity crowdfunding campaign in Italy) to the end of 2017, the research aims to describe the investors' behavior, dividing them into two distinctive areas regarding both characteristics and participation level.

Several possible correlations between the participation of the investors and other variables have been evaluated, underlying different possible trends. Considering the participation percentage versus the total number of investors, it is highlighting a negative trend between the two variables considered, since the percentage of participation decreases as the total number of investors increases. This situation can be explained through the so-called “Block Out effect”, where the investor perceives his role in the meetings as marginal and not pivotal since the number of shareholders present is high. Regarding the relation between participation percentage and average investment, it is different from the one previously explained, due to the absence of a specific trend. This is explained by the fact that is not always true that the average amount invested is proportional to the number of shareholders, and so the trend found in the previous analysis cannot be applied in this one. The last correlation considered regards the participation percentage versus the total amount collected by the campaign, underlying the presence of the Black Out effect over a specific amount of money (with high money collected, the participation percentage is low). Instead, under this sum, it is not possible to evidence the presence of a clear trend.

Even if this paper does not consider a separation between the typologies of investors, it is the starting point of this dissertation. Here its dataset is included and amplified to comprehend other Italian equity crowdfunding campaigns until the end of 2019.

### 3.5. WHAT HAPPENS AFTER THE EQUITY CROWDFUNDING CAMPAIGN

Concerning what will be analyzed in this dissertation, it is also important to understand what has already been studied on the post-equity crowdfunding campaign events.

This topic has been covered by several sources in the literature, including the Osservatorio Crowdfunding of Politecnico di Milano, in its seventh report on crowdfunding.

In particular, it analyzed what happened after the first campaign to 930 companies that requested capital through ECF portals.

It is noted that, excluding 42 firms that were in the collection phase for the first time in the middle of the year, 202 companies failed the first campaign, while the remaining 686 were successful. Of the latter, 82 raised capital through other equity crowdfunding campaigns, 5 had a new campaign in progress on the same date, 23 were put into liquidation / went bankrupt, and the remainder registered an exit or a capital increase at subsequent payment, outside of crowdfunding.

The conclusion drawn from these data is not related to the fact that there is a positive correlation between failure in the collection and the probability of liquidation of the issuing company, but that a firm that is able to raise a great amount of capital, even if it is inefficient, can survive longer than others.

Subsequently, an analysis was conducted on the operating results achieved by the startups considered.

The data available for the year next to the ECF campaigns refer to 289 industrial companies that raised capital through Italian ECF platforms in the period 2014-2019.

Analyzing the trend of revenues after the launch of the equity crowdfunding campaign, two main events can be noted: some issuing companies keep their revenues more or less unchanged, while others record an increase.

The same analysis has been conducted considering the EBITDA values, where instead a more stable situation is observed; in fact, it is noted that companies with positive margins before the campaign keep the metrics, while those with negative margins tend to worsen. This is probably due to the investments made, which are necessary to grow and develop. Finally, the net profit was considered. Here there is a percentage just equal to 20% of companies that closed their financial statements with a profit in the year following the first equity crowdfunding campaign.

It is important to consider the fact that most of the companies considered are innovative startups, and therefore more time is needed to recover the money invested. In the final part of the document, a comparison is made between the actual revenues collected by the companies that have successfully completed the campaign and those envisaged in their business plan. The data shows how, in the first year, only 15 cases out of 289 recorded a value higher than expected, while all the other companies remained below expectations. This denotes that few startups can obtain the desired success, while most are unable to achieve it.

The work that will be carried out within this dissertation is very close to what has been analyzed in this document; it will focus on understanding whether the presence of a certain type of investors (pivotal institutional investors) has a positive impact on the growth of startups/SMEs post-equity crowdfunding campaign.

### 3.6. DOES THE EQUITY CROWDFUNDING CAMPAIGN GUARANTEE BENEFITS?

In the last decade, start-ups and small-medium companies are increasingly using the equity-based crowdfunding method to obtain financing for their business.

It is successful alternative respect to the traditional way to raise funds, and several studies have been implemented in the last few years about the benefits it can bring. However, starting an equity crowdfunding campaign has not always been positive. According to the academic research *“Equity crowdfunding: First resort or last resort?”* (Schwienbacher, et al., 2018), it has been shown that, at the beginning of the equity crowdfunding phenomena, the companies adopting this method in most cases were forced to do that, not having other alternatives. This mandatory choice was caused by the fact that companies were characterized by internal funds and debt capacity exhausted, deciding to list on this platform as a “last resort”. The research compared 277 firms adopting this method from 2012 to 2015 with two matched samples of companies not listed on these platforms, noticing a worsening operating performance (high failure rate of firms that unsuccessfully searched for equity crowdfunding), partially explained by the initial conditions of the firms.

Today, the benefits guaranteed by a successful equity crowdfunding campaign are clear, but they are not solely financial. Indeed, as explained in the paper *“It Is Not All About Money: Obtaining Additional Benefits Through Equity Crowdfunding”* (Efrat, et al., 2019), non-financial benefits coming from the adoption of this method can be classified into two typologies: inward benefits and outward benefits. The latter is intended to increase public visibility and further the success of the project by recruiting additional investors. On the other hand, inward benefits are implemented thanks to the personal experience and expertise of investors. When leveraged, these benefits target entrepreneurs and can be turned into resources for future success. There are additional non-financial benefits also for investors, which consist of being part of the investors’ club and improving personal learning and growth. Both benefits are emotions-based and can be viewed in part as contributing to investors’ well-being and, in turn, triggering future investments.

In the following table (Table 2), coming from the research “*It Is Not All About Money: Obtaining Additional Benefits Through Equity Crowdfunding*”, the major qualitative and quantitative benefits are summarized.

Source	Content	Main findings	Type
Ordanini et al. (2011)	Explores the reasoning for customers to become investors in a business venture in order to facilitate these ventures ability to attract investments	customers' resources - information, knowledge and labor. Project-screening capabilities trigger project value and determine participation.	qualitative/theoretical
Agrawal et al. (2014)	Framework on how equity-based crowdfunding may unfold	Human capital may give complementary assets, access to financing, access to information, input on products, marketing research, negative (liability), managing of investors	theoretical
Ahlers et al. (2015)	Human capital, social capital, and intellectual capital inducing fundraising success	Information (communication), and retaining equity positively impacts success. Human capital (percentage of board members with MBA degree) also positively impacts success	quantitative
Kohler (2015)	Investigating how crowdsourcing business model gain value from integrating the crowd	The community created is the most valuable resource of crowdsourcing companies. It mostly impacts costs and revenues of companies operating in such business models	qualitative
Lukkarinen et al. (2016)	What drives successful equity crowdfunding campaigns	Entrepreneurs access to investors' social media can enhance the number of investors and the amount raised	quantitative
Vismara (2016a)	Investigates the information cascade between investors in equity crowdfunding and its effects on the success of campaigns	Public profile investors increase the appeal of the offer which in turn increase the success	quantitative
Vismara (2016b)	Equity retention and social capital impacting success	The smaller the equity sold and the bigger the social network the higher the success rates	quantitative
Paschen (2017)	Framework for choosing the right crowdfunding type for each stage in start-up life cycle + benefits of crowdfunding related to the crowdfunding types	Feedback, likes/dislikes (product validation), market validation, marketing, market penetration/growth, ECF helps establish a loyal community if engaged customers	theoretical
Brown et al. (2018a)	Explores the role of networks and social capital in the equity crowdfunding process	Equity crowdfunding entrepreneurs benefit from network embeddedness. The relative importance of weak vs. strong ties varies over the different phases of a campaign	qualitative
Di Pietro et al. (2018)	Investigates different types of inputs provided by investors in crowdfunding activity	Investors' contribution is divided into two categories - knowledge exploitation, including product co-creation and strategy and market knowledge, and network exploitation - including access to networks and public awareness	qualitative
Hornuf and Schwenbacher (2018)	Explores how portal securities allocation and information influence investors' decisions	Investors rely on both the information provided by the entrepreneurs and the information supplied by other investors in their decision to invest	quantitative

Table 2 - ECF Research on Benefits, Values and Resources (Efrat, Wald and Holmesland, 2019)

### 3.7. FACTORS CONTRIBUTING TO THE EQUITY CROWDFUNDING CAMPAIGN SUCCESS

As explained previously in *Paragraph 3.5*, nowadays the equity crowdfunding method can guarantee benefits for the companies who decide to adopt it, both financial and non. For this reason, several studies started to focus on analyzing the main causes contributing to the ECF's success.

According to the academic research "*Growth Factors in Equity Crowdfunding: the Impact of Human Capital and Serial Investors*" (Bosio, et al., 2021), it has been shown that companies having a high level of human capital, are not just characterized by greater possibilities of receiving the required capital, but also by greater growth in performance after the end of the campaign.

In addition, the performances post-campaign are influenced by the typology of investors who decide to participate. Specifically, it is demonstrated that the presence of institutional investors in the crowd is decisive to guarantee higher performances after the funding. The research implemented is based on a dataset of 244 Italian campaigns completed between 2014 and 2018. Firstly, it focuses on a hypothesis verified through an econometric analysis, to see if there is a correlation between the variables considered or not.

This hypothesis consists of the existence of a relationship between the success of an equity crowdfunding campaign and the human capital present in the companies, both defined across several characteristics. Regarding the success of the campaign, the variables considered are the campaign success and revenue growth; for the human capital, the main characteristics of the team noted are the percentage of business graduates, the percentage of graduates in the business sector, the percentage of communication graduates, and the average of years of entrepreneurial experience. Considering several control variables (i.e., education abroad, work experience abroad, etc.), and applying the Probit model, it has been partially demonstrated that the percentage of business-graduate influences the success of the campaigns, but not the other degrees considered, and accepted that there is a positive correlation between the entrepreneurial experience of the team and the success of the campaigns. The second part of the analysis consists of verifying the presence of other possible factors influencing the performance of the company post-campaign, investigating mostly the role of the investors.

Using the OLS regression, and considering just the successful campaigns, the influence of serial investors on the post-raising company performance has been calculated, obtaining the following results present in *Table 3* (realized by the authors of the paper “*Growth Factors in Equity Crowdfunding: the Impact of Human Capital and Serial Investors*”).

<b>Hypothesis</b>	<b>Statement</b>	<b>Validation</b>
1A	<i>Entrepreneurial teams with a higher percentage of members with useful degrees are more likely to be successful in Equity Crowdfunding than entrepreneurial teams with fewer useful degrees.</i>	Partially confirmed
1B	<i>Entrepreneurial teams with more members with entrepreneurial experience are more likely to be successful in Equity Crowdfunding than entrepreneurial teams with less members with entrepreneurial experience.</i>	Confirmed
1C	<i>Company age has a moderating effect on the correlation between human capital variables and the success of an Equity Crowdfunding campaign.</i>	Not confirmed
2	<i>The quality of human capital of the company s has a direct positive effect on the growth of innovative start-ups after an Equity Crowdfunding campaign.</i>	Partially confirmed
3	<i>The number of professional investors is positively correlated with the post-campaign financial performances of the company.</i>	Confirmed

*Table 3 – Result of OLS research (Bosio; Carabelli, 2021)*

### 3.8. INSTITUTIONAL INVESTORS

In this dissertation, one of the aims will be to verify if there is an impact on the start-ups' performances post-equity crowdfunding campaign given by the presence of institutional investors.

The academic literature is not focusing much on the role of institutional investors in this typology of financing, leading us to explore more this topic. One interesting paper which studied the impact of the presence of institutional investors in the companies is "*Institutional investors and director pay: An empirical study of UK companies*" (Dong, et al., 2007). It consists of examining their role in determining director pay in publicly listed non-financial UK firms. Considering distinctive institutional shareholders regarding their investment horizons, and focusing on the dedicated ones, it has been investigated their impact on the level of director pay and influence on pay-performance relation. There was insufficient evidence to support the assumption that institutional investors as a whole limit the remuneration of directors and reinforce the remuneration-return relationship, supporting to some extent the argument that institutional investors in the U.K. are passive and inefficient in oversight. However, by dividing the institutions according to their trading characteristics, it has been possible to provide evidence regarding the positive role that dedicated institutional investors with long investment horizons can play. They restrain the director's pay level and improve the pay-performance relationship in firms where they have significant shares. This result suggests that dedicated institutional investors contribute more to corporate governance and play a more disciplined role than other institutions with short investment horizons.

## 4. OBJECTIVE AND METHODOLOGY

Analyzing the academic literature present on the equity-based crowdfunding phenomena, there are several papers dealing with this topic focusing on different aspects.

High importance has been given to the behavior of the investors before the starting of the fund-raising campaign, to understand the main factors and methods used in the selection of the most promising company to invest in. This dissertation work aims to analyze the behavior of the crowd post-campaign, considering their presence/absence and eventual interventions during the meetings (both ordinary and extraordinary), to assess their participation in governance management. According to this, the most similar academic research realized is *“Active ownership strategies by investors in equity crowdfunding”* (see Paragraph 3.4), which can be considered as the starting point of this analysis, taking into consideration its database, and expanding it to embrace ECF campaigns until the end of 2019. Specifically, this paper presents an analysis of the impact that a certain type of investors has on the startup's growth and performance, post-equity crowdfunding campaign. For this reason, the typology of investors initially considered was the institutional one, defined as a set of companies that, among their main activities, also invest in startups for purely financial purposes. Higher attention has been given to assessing the behavior of a specific category of investors in the company's performance, the pivotal institutional ones: in fact, not all the institutional investors will be taken into account, but the analysis is done on a subset of them, who will, from now on, be called pivotal institutional investors. It was decided to focus on this category since investment activity is one of their main businesses, compared to the others. Thus, it is reasonable to assume that this type of investors has more resources, more information, and devotes more time and efforts than the others. To define the pivotal institutional investors, the MiFID II system was partly considered (Prometeia, 2022), which defines them as intermediaries that provide the services of:

- (i) execution of orders on behalf of clients, and/or
- (ii) trading for own account, and/or
- (iii) receipt and transmission of orders.

In particular: a) investment firms and EU1 investment firms;

b) banks;

c) insurance firms;

- d) UCIs, e) managers;
- f) pension funds;
- g) registered financial intermediaries in the register provided for by Article 106 of the Consolidated Law on Banking;
- h) companies referred to in Article 18 of the Consolidated Law on Banking;
- i) Electronic Money Institutions;
- l) Banking Foundations;
- m) National Governments and their corresponding offices, including public bodies responsible for managing public debt;
- n) central banks and supranational organizations of a public nature.

It is important to define the difference between institutional investors (who must always be present among investors in a certain percentage, as described in *Paragraph 2.7*) and pivotal institutional investors, who are instead considered in this dissertation. As it will be explained more in detail in *Paragraph 4.2*, the pivotal institutional investors are those investors whose ATECO code begins with the numbers 64, 65 or 66.

The reason why pivotal institutional investors have been considered is that an initial hypothesis regarding their impact on post-campaign performances has been defined:

(H<sub>0</sub>) The presence of at least one pivotal institutional investor in the crowd participating in the equity crowdfunding campaign is positively correlated in terms of the company's follow-up growth and performance.

The expectation from this analysis consists of demonstrating that pivotal institutional investors have a positive impact on the operating performance of a company that adopted the ECF method to get funding. The aim will be to verify this statement, and eventually, understand whether the growth of the start-up is caused by the active participation of the pivotal institutional investors in the governance management or by correct scouting implemented before deciding in which company to invest. It is reasonable to think that the presence of this typology of investors within the crowd is synonymous with positivity since generally they are more prepared and experienced in finding the most promising start-up in which to invest than non-institutional investors and/or in better managing the governance of the start-up to achieve higher performances.

Alternatively, if the initial hypothesis will be rejected, the presence of institutions in the crowd

cannot be considered a sign of a higher probability of better performance of the start-up. This dissertation work does not stop to evaluate just the financial results of the companies depending on the presence of pivotal institutional investors or not, but it will also search for possible correlations with other parameters.

Starting from this, two additional hypotheses have been formulated:

(H<sub>A1</sub>) There is a positive correlation between the operating performance and the fundraising success rate. In fact, the higher the fundraising success, the higher the capital raised that can be used to conduct the project and expand the business. This increases not only the likelihood that the startup will survive but also that it will be able to expand more as the money collected is usually used to do some improvements.

(H<sub>A2</sub>) There is a positive correlation between the operating performance and the number of investors present in the crowd. Indeed, if the number of investors is high, it means that many people have analyzed the project and believe that it is valuable. Therefore, the higher the number of investors, the higher the probability that the project really has a high potential

To verify the data and results collected, statistical work will be implemented. Firstly, the t-test student and the Mann-Whitney test will be applied to check the presence of a significant difference in the operating performance between the companies having at least one pivotal institutional investor in their crowd and the ones without. Successively, a correlation analysis will be implemented, in order to control which is the relationship between the financial result and the two main factors considered to formulate the hypotheses H<sub>A1</sub> and H<sub>A2</sub>. Finally, a regression analysis will be done, to verify if effectively there is a significant positive relationship between the presence of pivotal institutional investors and the growth and performance of startups after the equity crowdfunding campaign. This analysis will be done using Stata, which is a statistical software able to analyze and elaborate a great quantity of data.

#### 4.1. SAMPLE SELECTIONS AND CONSTRAINTS

The first step is to select the reference sample on which all calculations and analyses will be carried out. As said in *Paragraph 3.4* and *Chapter 4*, this dissertation work starts from a previous academic paper (note 6 in Bibliography), enlarging its database to embrace equity crowdfunding campaigns until the end of 2019. Specifically, the analysis will focus just on Italian ECF campaigns launched by start-ups and SMEs, investigating data provided by “Osservatorio Crowdfunding del Politecnico di Milano”.

According to what is already described in *Paragraph 2.3*, there are four different typologies of crowdfunding. Two of them are donation-based (Donation and Reward), generally adopted for non-profit projects or with some rewards for the donators depending on the size of the amount donated. The third one is based on lending (social or P2P), where the enterprise finances itself by borrowing from the public. The last one is Equity Crowdfunding, the only one which allows investors to become shareholders of the firm, giving them the possibility to participate in the meetings (both ordinary and extraordinary).

The list of crowdfunding campaigns in Italy was filtered exclusively through these transactions, from 2014 and before 2020, which was successfully completed. In fact, it can happen that the company is not able to achieve the minimum target capital. It can happen also that the firm, to improve its credibility in the market, subdivides the total amount of capital increase confirmed into two or more tranches, with the first one that must be achieved (corresponding to the minimum target). If, after the collection period, this objective has not been reached, investors are reimbursed all of their subscribed amount which, in the meantime, had been frozen in their bank account.

The time window considered is large enough in which successive events that need to be considered might have happened.

The campaigns considered are the ones that offer, at least in part, the possibility of voting share. Specifically, each company can be characterized by a personal share typology (it could happen also that different ECF campaigns performed by the same firm are based on different voting shares).

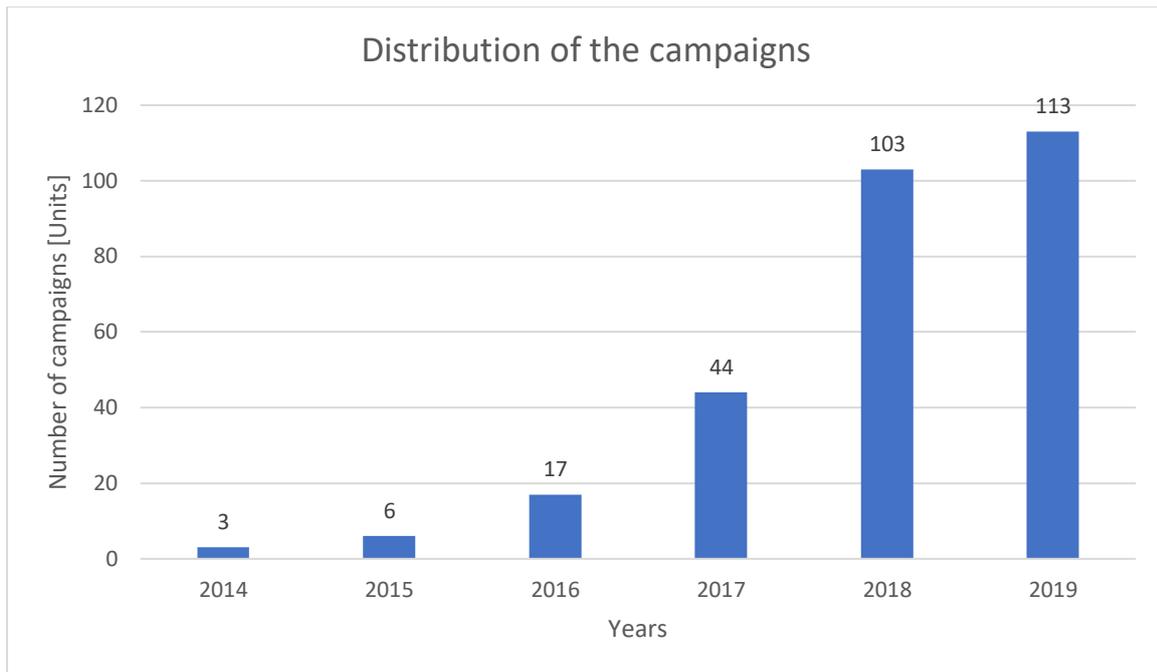
In particular, there are three cases:

- A company offering just ordinary shares.
- A company offering only preferred shares without the possibility of the voting right in the meetings of the shareholders.
- A company offering a mix of voting and non-voting shares, where generally the voting right is given concerning the amount of capital invested (there is a minimum amount to achieve in order to have the possibility to vote, and this amount is defined by the firm).

Considering the situation in which voting rights are offered, according to specific conditions, the investors belonging to the crowd who participated in the equity crowdfunding campaign can be part of the discussion during the meetings of the shareholders, implementing an active role in the discussion and exercising their right to vote. Naturally, this typology of shareholders represents the minority in the ownership structure but is still influential. It is not excluded from the possibility that other equity investors without the right of the vote can actively participate in the meetings, giving their contribution to the management and improvement of the firm. This dissertation work will not focus specifically on these aspects, mainly for the reason why that in many of the ordinary and extraordinary meetings documents analyzed, it is not present/reported eventually discussions raised by the participants.

The few cases in which these are presented are not enough to base on a deep study, but it could be an object for future papers having access to a higher number of documents.

Concluded the premises, in the list present in *Annex 10.4* it is possible to find all the campaigns considered and studied, summarized, and ordered according to the end date of their ECF campaign, to give a complete overview of the sample used. Moreover, in *Figure 4.1* it is possible to see the distribution of the campaigns analyzed over the years (considering the end date of the campaign).



*Figure 4.1 – Distribution of the equity crowdfunding campaigns analyzed*

## 4.2. DATA COLLECTION AND CREATION OF THE DATABASE

In this paragraph, the aim consists of explaining how the database used for the analysis has been realized. Firstly, the “Osservatorio Crowdfunding” provided a list of 286 Italian equity crowdfunding campaigns implemented from 01/08/2014 (Paulownia SP srl) to 31/12/2019 (Quarzio Srl). In this initial database (see *Annex 10.5*), several information about each campaign was presented; the ones used to create the final database are the fiscal code, the ATECO code, the portal in which the campaign was launched, the typology of voting shares offered, the end date of the campaign, the amount of capital raised, the number of investors, and the fundraising success rate. Specifically, a first dataset in which all the basic information regarding each shareholders’ meeting of each ECF campaign was created. It is composed of generic information reported from the starting database provided and completed with the dates, the type (ordinary or extraordinary), the typology (BIL: financial statement approval; AUC: capital increase; AMM: administration; LIQ: liquidation), eventually notes and the result (unanimity or majority) of each shareholders’ meeting. In *Table 4*, the structure of this part of the database is shown.

Impresa	Codice Fiscale	Portale	Data fine campo	Raccolto (se access	# Investitori	Data del verbale	ORD	SITR	TIPOLOGIA	NOTE assemblea	esito assemblea	
Paulonia SP srl	12672181807	Assitesa Crowd	07/08/2014	1	520.000	12	apr-15	1	BIL			unanimità
							apr-16	1	BIL			unanimità
							apr-17	1	BIL			maggioranza
							lug-18	1	BIL			unanimità
							giu-19	1	BIL			unanimità
							set-19	1	AUC			unanimità
							lug-20	1	BIL			unanimità
							lug-21	1	BIL			unanimità
							mar-15	1	AMM			unanimità
							giu-16	1	BIL			unanimità
Carifare Savona srl	03336949627	ShareUp	31/12/2014	1	360.000	41	apr-15	1	BIL			unanimità
							giu-16	1	BIL			unanimità
							giu-17	1	BIL			unanimità
							apr-18	1	BIL			unanimità
							lug-19	1	BIL			unanimità
							lug-20	1	BIL			unanimità
							lug-21	1	BIL			unanimità
							mar-15	1	AMM			unanimità
							giu-16	1	BIL			unanimità
							giu-17	1	BIL			unanimità
Nova Somori Srl	04154660405	ShareUp	31/12/2014	1	250.000	2	set-19	1	BIL			unanimità
							ott-20	1	BIL			unanimità
							set-21	1	AUC			unanimità
							mag-16	1	BIL			unanimità
							mag-17	1	BIL			unanimità
							mag-18	1	BIL			unanimità
							mag-19	1	BIL			unanimità
							giu-20	1	BIL			unanimità
							ott-21	1	BIL			unanimità
							giu-21	1	BIL			unanimità
Energ srl	03520660424	Next Equity	28/04/2015	1	452.576	54	set-19	1	BIL			unanimità
							ott-20	1	BIL			unanimità
							set-21	1	BIL			unanimità
							mag-16	1	BIL			unanimità
							mag-17	1	BIL			unanimità
							mag-18	1	BIL			unanimità
							mag-19	1	BIL			unanimità
							giu-20	1	BIL			unanimità
							ott-21	1	BIL			unanimità
							giu-21	1	BIL			unanimità

Table 4 – Ordinary and extraordinary meetings dataset

All this information reported were obtained through a careful analysis of the minutes of each meeting, previously collected through the website of the Italian Chamber of Commerce, called Telemaco. In particular, *“it is an online telematic service in which it is possible to carry out complex searches and buy online ALL the official documents of the Business Register and other chamber registers (Protest Register, European Registers, ...), send electronic communication practices, filing financial statements, and carry out further formalities”* (Registro imprese.it). On this website, thanks to the name or the fiscal code, it is possible to search for each start-up/SME the documents related to the meetings from the end of the equity crowdfunding campaign until today and download them. As previously said, the minutes are divided into ordinary and extraordinary, and they have been positioned in different folders on OneDrive, according to the portal of belonging. In *Annex 10.6* it is possible to find the typical structure of a meeting report, with a short description for each element.

Concluded this first part of the database, a second one related to the financial data referred to the start-ups/SMEs that launched an equity crowdfunding campaign has been obtained. In particular, each company has been sought through AIDA, which is the database, created and distributed by Bureau van Dijk S.p.A., containing the financial statements, personal data, and product data of all active and bankrupt Italian companies (Università di Pisa). Just by putting the name or the fiscal code of a firm, it is possible to find and download all the financial information needed. Here are not considered the equity crowdfunding campaign as previously, but only the start-ups who started them: this means that if a company launched more than one ECF campaign, it is reported just one time, and not more than one. The financial data collected regards the revenues, EBIT, profit/loss, and EBITDA for each year, and they are referred to the period following the end of the equity crowdfunding campaign up to 2020 (included). The selection of these financial data is because they are the most coherent and truthful to describe the trend of a start-up/SME, which cannot perform and be considered as an established company. In the following *Table 5*, this financial part of the database is represented.

Regione sociale	Provincia	Chiusura bilancio Ultimo anno di	Dipendenti Ultimo anno disp.	Codice fiscale	Numero CIAA	Ricavi vendite e prestazioni		Ricavi vendite e prestazioni		Ricavi vendite e prestazioni		Ricavi vendite e prestazioni		Ricavi vendite e prestazioni		Ricavi vendite e prestazioni		Ricavi vendite e prestazioni							
						2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019		
MILITHE SAVUNA S.R.L.	Sardegna	31/12/2020	1	333949827	CA0353985	0	0	9	78%	2	402%	10	-90%	1	39100%	392	-3000%	0	-48	-304%	-84	183%	37	-11%	-5
NOVA SOMOR S.R.L.	Reggio Emilia	31/12/2020	n.d.	416466045	FI01450025	0	0	6	133%	14	-57%	6	-67%	2	-100%	0	0	0	-28	-336%	-122	39%	-75	-16%	-88
PROJECT S.R.L.	Roma	31/12/2020	n.d.	12872191007	RM146616	0	0	0	0	0	0	0	0	0	0	0	0	0	-85	9%	-77	-37%	-101	17%	-81
ALFA S.R.L.	Arezzo	31/12/2020	0	2520960424	AN0194190	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALFA S.R.L.	Arezzo	31/12/2020	6	6340660488	FI020291	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALFA S.R.L.	Lombardia	31/12/2020	2	165650702	CB0125467	0	0	431	114%	922	61%	1486	57%	2.331	-93%	157	-7516%	39	0	0	0	0	0	0	0
KUNYS S.R.L.	Sassari	31/12/2019	0	2537890903	SS0183982	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LIQUIDAZIONE S.P.A.	Novara	31/12/2020	9	2284540032	NO1025949	0	0	54	220%	173	68%	293	81%	529	-26%	391	0%	391	0	-3500%	-102	7%	-55	-95	
LIQUIDAZIONE S.P.A.	Taranto	31/12/2018	0	3063730731	TA0190098	0	0	4	-100%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
CLEAMB S.P.A.	Milano	31/12/2020	16	936370685	MI2085782	0	0	11	231%	373	218%	1.190	117%	2.591	-3611%	1.649	0	0	0	0	0	0	0	0	0
CLUB ITALIA INVESTIMENTI 2 S.P.A.	Milano	30/09/2021	0	8099860567	MI2002458	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

RISULTATO OPERATIVO	2017		2018		2019		2020		2021		2022		2023		2024		2025		2026		2027		2028		2029		2030				
	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	mgli	VO	
-5	-160%	-88	18%	36%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	-55	0%	
-49	-27%	-62	-60%	-57%	-1082	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%	-464	-20%
-1415	24%	-1082	57%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%	-464	20%
550	674%	4.259	-104%	-153	106%	4.259	63%	768%	394	935%	4.077	132	-91%	12	433%	161	311%	661	558%	4.352	-103%	-142	142%	53	142%	53	142%	53	142%	53	142%
42	-17%	-33	46%	-17	0	46%	63%	-43	14%	-43	-105%	-86	0	-167	70%	-50	84%	42	-17%	-33	46%	-17	0	46%	63%	-43	14%	-43	14%	-43	14%
-35	22%	-74	-253%	-261	-24%	-261	-1	-6300%	-64	8%	-59	12%	-52	-273%	-187	-63%	-332	-45	-108%	45	-108%	45	-108%	45	-108%	45	-108%	45	-108%	45	-108%
-29	72%	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0	-8	0
-185	-224%	-438	-251%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%	-1539	-17%
-67	-107%	-139	62%	-53	-15%	-53	-15%	-304	-18%	-657	-43%	-373	-116%	-605	-14%	333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 5 – Dataset containing financial data

As already said in the previous chapters, the aim of this dissertation work consists of focusing on the behavior and impact of the pivotal institutional investors on the operating performances of the ECF companies, comparing it with the ones of the firms without pivotal institutional investors.

To do that, it was necessary to identify those that were pivotal institutional and non-pivotal institutional among the various investors. According to the definition written in *Chapter 4*, the identification has been done considering the ATECO code provided by “Osservatorio Crowdfunding”, and selecting the investors with the code referred as to “attività finanziarie e assicurative”, which starts with the numbers 64, 65 or 66 (CODICEATECO.IT, 2022; Consob, 2022). After obtaining the lists of pivotal institutional investors, the double ones have been eliminated. Completed this filtering work, the final number of pivotal institutional investors identified and considered in the analysis is 85, as it is possible to see in *Table 6*.

<b>A-BP</b>	<b>BR-FE</b>	<b>FI-L</b>	<b>M-PEC</b>	<b>PET-Z</b>
3LB SEED CAPITAL S.R.L.	BRAMANI SIMONA & LOMBARDI IGOR S.N.C.	FIDINGEST FIDUCIARIA INTERNAZIONALE DI GESTIONE S.P.A.	META VENTURES S.R.L.	PETRA S.P.A.
AGIERRE S.R.L.	BRUNO SFORNI S.P.A.	FINARGO S.R.L.	METRICA VENTURES S.R.L.	PRIMOMIGLIO SOCIETA' DI GESTIONE DEL RISPARMIO S.P.A. O IN
ALISEI FORINVESTMENTS S.R.L.	CAFLO HOLDING S.R.L.	FINDSTART S.R.L.	MGS S.R.L.	PRIVATE BROKING S.R.L.
AMGP S.R.L.	CHIEZZO SRL	FINGESMA S.P.A.	MICRODATA GROUP S.R.L.	PUME S.R.L.
ANGELI & ANGELI S.R.L.	CLICKAUTO S.R.L.	FIVE.EIGHT VENTURES SRL	MICROFIN S.R.L.	RANCILIO CUBE SRL
ARDOR S.R.L.	CLUB ACCELERATORI S.P.A	FONDO COLLETTIVO DI GARANZIA FIDI TRA LE MICRO, PICCOLE E MEDIE IMPRESE DEL CENTRO ITALIA - APIFIDI CENTRO ITALIA	MLTS S.R.L.	RAYNVEST S.R.L.

		IN FORMA ABBREVIATA "CONSORZIO APIFIDI CENTRO ITALIA"		
ASSINAONIS DI FALVO FELICE & INGARGIOLA S.N.C.	CLUB ITALIA INVESTIMENTI 2 S.P.A.	FUTURA S.A.S. DI FRACASSI LORENZO ORESTE E C.	MNS CAPITAL S.R.L.	RECA BENE SRL
ASSITECA SPA INTERNAZIONALE DI BROKERAGGIO ASSICURATIVO	COBER SRL	FUTURO INVESTIMENTI S.R.L.	MOLINI BESOZZI MARZOLI S.R.L.	ROBERTO SARTORI E LUIGI RINALDINI SNC
B-ENGINE S.R.L.	DARDANO CAPITAL SOCIETA' A RESPONSABILITA' LIMITATA	G.P.F. FUTURE S.R.L.	NEXT S.P.A	SIMON FIDUCIARIA S.P.A. SIGLABILE SIMONFID S.P.A.
Banca di credito cooperativo di san marzano	DIATEC HOLDING S.P.A.	GML VENTURES S.R.L.	NTS S.R.L.	SO.GE.S.A. S.R.L. (SOCIETA' GENERALE DI SERVIZI ASSICURATIVI )
BANCA POPOLARE DELLA PROVINCIA DI MACERATA SPA	DIGITAL NATIVE HOLDING S.R.L.	GREEN AFFAIR HOLDING SRL	OLTRE II SICAF EUVECA S.P.A.	SOMAPA S.R.L.
BANCA POPOLARE ETICA SOCIETA' COOPERATIVA PER AZIONI O IN	DIRECTA SIM S. P. A.	HALEN S.R.L.	ON GROUP S.R.L.	SUPERVALE S.R.L.
BANNI SRL	DISHCOVERY & PARTNERS SRL	INSQUARED HOLDING SRI	OPEN SEED S.R.L.	TAGORA COMPANY S.R.L.
BITETRA S.R.L.	ENERGHEIA S.A.S DI GRIGOLO ENRICO & C.	KARMA S.R.L.	OPUS ONE SRL	TREOTTO INVESTMENTS S.R.L.
BOOST HEROES S.P.A.	FAMACAPITAL S.R.L.	LGC HOLDING SRL	OVAS S.R.L.	VINVEST S.R.L.
BOREALIS - TECH VENTURES S.R.L.	FD HOLDING SRL	LIERI 33 S.R.L.	PADDA S.R.L.	WOLSEY VENTURES S.R.L.
BPC INVESTMENT S.R.L.	FED S.R.L.	LUNELLI S.P.A.	PECOS S.R.L.	ZETAPLAN S.R.L.

*Table 6 – Pivotal institutional Investors considered*

Knowing this, the equity crowdfunding campaigns having at least one pivotal institutional investor have been identified, obtaining a total amount of 138 campaigns, listed in *Table 7*.

In this list, the campaigns considered are the ones launched by different start-ups/SMEs (so, two campaigns launched by the same company are counted once), and the ones in which financial data are available on AIDA (in some cases, it was not possible to find financial information about some firms).

A-DR	DV-HO	HU-MAX	MAZ-PO	PR-SU	SY-Z
OBrand Srl	DV Communication Srl	Huddle Room Technology Srl	Mazer Srl	Pradella Sistemi Srl (1)	Synbiotec Srl
1control Srl	Eattiamo Srl	I3B Srl (1) //cambio nome in sealence	Medics Srl	Qaplà Srl	TAEBioenergy srl
Aerotec Innovation Srl	Ecillax Srl	Imanager Srl (2)	Memento Srl	Quarzio Srl	Taskhunters srl
Aicube Srl	Edgar Srl	Innovitas Vitae Srl	Midori Srl	Rockgroup Srl	Teethan SpA
Airlite Club Srl	Enolò Srl	Inpolitix Srl	Music Innovation Hub SpA Impresa sociale	Safepay Srl	The Digital Box SpA
Ambiens VR srl	Epicura Srl	Insight Srl	MyLab Nutrition Srl	Safeway Helmets srl	Think! SpA
Anonima Cibi Srl	Ermes Cyber Security Srl	Interweb Srl	Nakuru Srl	Scloby Srl	Tickete Srl
Axieme Srl	Everyware Srl	InvrSION Srl	Nano srl	Seed money Srl	Traction Management Srl
B2G srl	Exept Srl	Japal Srl	Nettetwork srl	Sixth continent Europe Srl	Tree Solutions Srl
Bes Up Srl	Family Nation Srl	Keesy Srl	NexApp srl	Smartmicrooptics Srl	TT Games Srl
Biovecblok Srl	Felfil srl	Kippy Srl (1)	Nice Filler Srl	Social academy Srl	Userbot Srl
BrainSeeding srl (Vet24)	Findmylost srl	Lektro Innovation Srl	Noixa SpA	Società Agricola Monte Monaco Srl	Utego Srl
Ciaoaldo Srl	Fol the beat Srl	Life Based Value LBV Srl	Nuova Industria Torinese Sel	Soluzioni Tirinnanzi Srl	Verde21 srl (1)
CleanBNB Srl (2)	Friends Srl SB	Lisari Srl	OFFLunch Srl	Sportclubby Srl	Verum Srl

Cloud Pathology Group Srl	Garden Sharing Srl	Locare Srl (1)	Orange Fiber Srl	Sportit Srl	Viktor Srl (1)
Club Italia Investimenti 2 SpA	Garinvest Srl	Luche srl	Orwell srl	Stantup Srl	Vinvest Srl
Colan Srl	Genesy Srl	Maid Service Srl	Panta rei Srl //cambio nome in TRENDEVIC E SPA	Start2impact srl	WindEnergy Efficiency Srl
Criptominin g Srl	GK srl	Mamaclean Srl	Papem srl	Startupitalia! Srl	Winelivery Srl
Cynny Spa	Gopib Srl	Management Innovation srl	Pariter Partners Srl	Stem Sel Srl	Wiralex Srl
Dishcovery Srl	Green Energy Storage srl	Marshmallows Games Srl	Parterre srl	Sthimaty Srl	Yakkyo srl
Dive Srl	Grey Srl	Martha's Cottage Srl	PCUP Srl	Stirapp Srl	Yocabè Srl (1)
DNaphone Srl	Hinelson Srl	Matchplat Srl	Ponics Srl	Suqqo Srl	You are my guide Srl
Dreama Srl (3)	Horizon Group Srl	Maxtrino srl	Pordenone Calcio Srl	Sustainable Mobility Umbria srl	Yougardener Srl
					ZeroDue Milano Srl

*Table 7 – Equity crowdfunding campaigns having at least one pivotal institutional investor, with available financial information on AIDA (two campaigns launched by the same company are counted once)*

In conclusion, after all these steps, the final database has been realized. In the next chapters will be explained the overall analysis implemented and the relative conclusions and considerations.

## 5. MONOVARIATE STUDY

### 5.1. FINANCIAL DATA ANALYSIS

Once the first two parts of the database were finished, for the first time it has been possible to analyze macroscopically the data to determine the presence of eventual trends. Specifically, a monovariate analysis has been made regarding the operating performance of each startup. A preliminary analysis of these data is indeed essential since the entire dissertation is subsequently based on the application of mathematical and static models on them. So, it is necessary to understand before implement this work what are the trends that can be noticed and that must be kept in mind. In fact, this will help to better understand the data that will be received as output from the models and then reach conclusions.

The first step consisted in searching data through AIDA regarding the operating performance of all startups that had carried out at least one crowdfunding campaign. Specifically, data on Revenues, EBITDA, EBIT, and Net Profits were downloaded from the year in which there was the first crowdfunding campaign.

First of all, it was possible to see that most of the campaigns have a strongly negative profit. This phenomenon was expected since most startups are in their early years of life and have incurred various costs without having brought the product/service to market yet. Specifically, the overall average profit, considering all available years, is equal to -113.000€ while the median is equal to -52.000€. Considering the periods separately, the average profit value in the first year is -108.000€, in the second -125.000€, in the third -118.000€ and finally in the fourth -86.000€.

The annual percentage growth in earnings was then calculated, and averages and medians of these values were computed for startups with pivotal institutional investors and for startups without pivotal institutional investors.

In the following table, the results obtained are shown.

**With pivotal institutional Investors:**

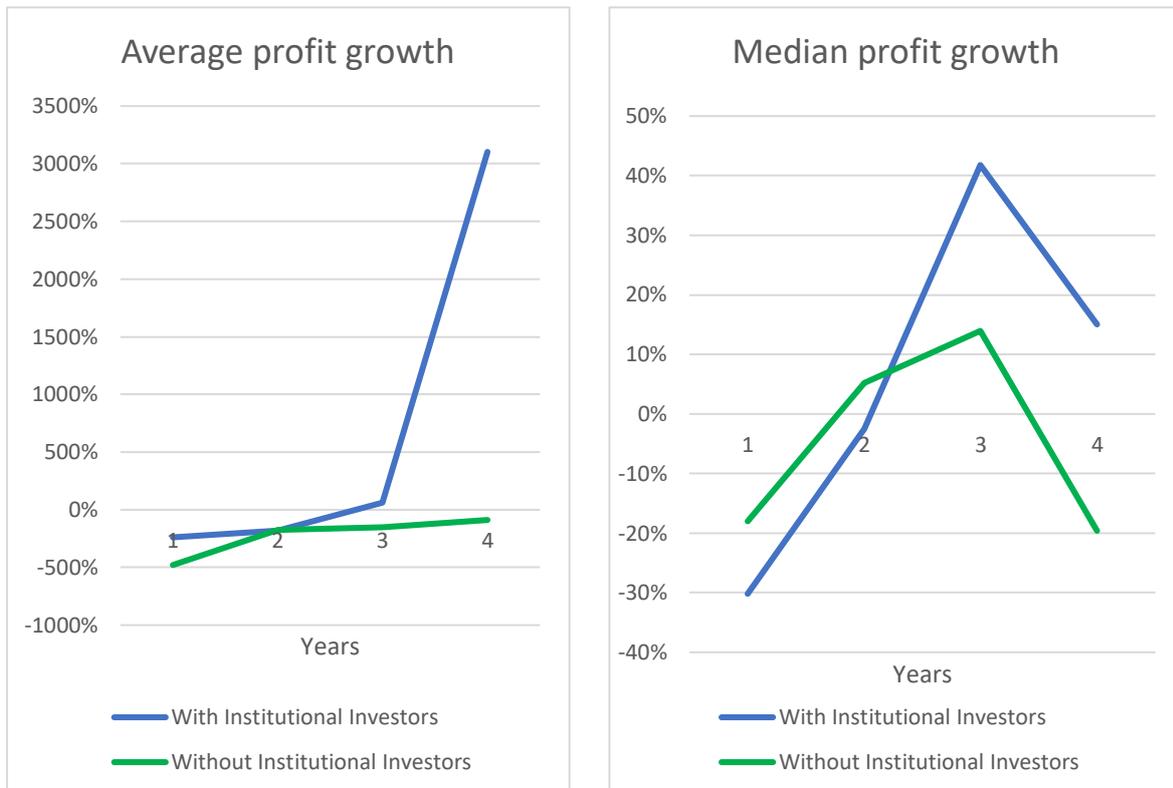
	Year	
Mean	1	-239%
Median	1	-30%
Mean	2	-178%
Median	2	-3%
Mean	3	59%
Median	3	42%
Mean	4	3103%
Median	4	15%

**Without pivotal institutional investors:**

	Year	
Mean	1	-479%
Median	1	-18%
Mean	2	-173%
Median	2	5%
Mean	3	-153%
Median	3	14%
Mean	4	-88%
Median	4	-20%

*Table 8 – Means and medians of annual percentage growth in earnings, with and without pivotal institutional investors*

It is then useful to look at the following graphs, one concerning the mean of the percentage growth in profit and one concerning the median of the percentage growth in earnings (Figure 5.1):



*Figure 5.1 - Means and Medians percentage growth in earnings, with and without pivotal institutional investors*

Looking at the graph in *Figure 5.1* on the left, it is possible to see that the average percentage growth in earnings is almost always greater in the case where there is at least one pivotal institutional investor. Particularly in the third but especially in the fourth year after the crowdfunding campaign, in the case where there is at least one pivotal institutional investor, the performance is significantly better. Looking instead at the graph on the right, regarding the medians, it is possible to see that in the first- and second-year startups without pivotal institutional investors perform slightly better, while the result in the third and fourth years is unchanged compared to before. In terms of the average of growth in different years (the average of the averages of profit growth), with pivotal institutional investors is 686% while without pivotal institutional is -223%.

This difference is absolutely strong and may indicate a difference in returns between the two categories, although these values are certainly biased due to the presence of a few very high values in year 4 in the first category. In this case, it is, therefore, more useful to look at the average of the medians over the different years, but again it is higher in the case where there are pivotal institutional investors (+6%) than in the case where there are only retail investors (-5%). In conclusion, then, it would seem that profit growth is greater where there is at least one pivotal institutional investor, especially two years after the crowdfunding campaign.

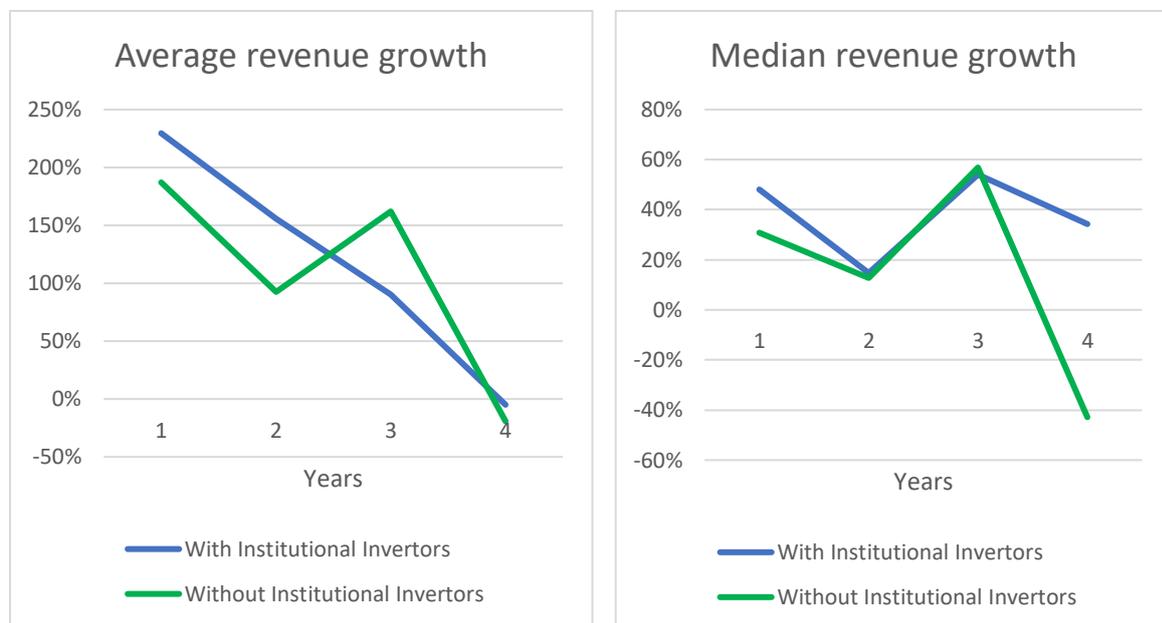
Subsequently, the analysis moved on to startup revenues. In fact, revenues are considered the most important parameter for analyzing how much a startup is growing and how it is performing in general. Indeed, all other items on the income statement are most likely negative since in the early years costs for these companies are high and thus distort reality. What was first expected was that revenues at an early stage would be close to zero, and then rise sharply in later periods in case of success. Specifically, out of 253 total companies analyzed, 38 had revenues equal to 0, and 108 with revenues lower than €50.000. Then, the percentage growth in revenue from year to year has been calculated (for example, delta year 1 means the growth in revenue from year 0, in which there was the equity crowdfunding campaign, to the following year 1). Averages and medians of yearly percentage growth were then calculated, for each consecutive year. The median is considered particularly important here because it allows ignoring some outliers that might distort reality. These calculations were made by separating startups in which there is at least one pivotal institutional investor

from those in which there are no pivotal institutional investors. The results obtained can be found in the following tables:

With pivotal institutional investors			Without pivotal institutional investors		
	Year			Year	
Mean	1	230%	Mean	1	187%
Median	1	48%	Median	1	31%
Mean	2	156%	Mean	2	92%
Median	2	15%	Median	2	13%
Mean	3	90%	Mean	3	162%
Median	3	54%	Median	3	57%
Mean	4	-5%	Mean	4	-19%
Median	4	34%	Median	4	-43%

*Table 9 – Means and medians of annual percentage growth in revenues, with and without pivotal institutional investors*

To better compare the data, the next two graphs show the average revenue growth over the years and the median revenue growth over the years (Figure 5.2), in the cases with and without pivotal institutional investors:



*Figure 5.2 - Means and medians of annual percentage growth in revenues, with and without pivotal institutional investors*

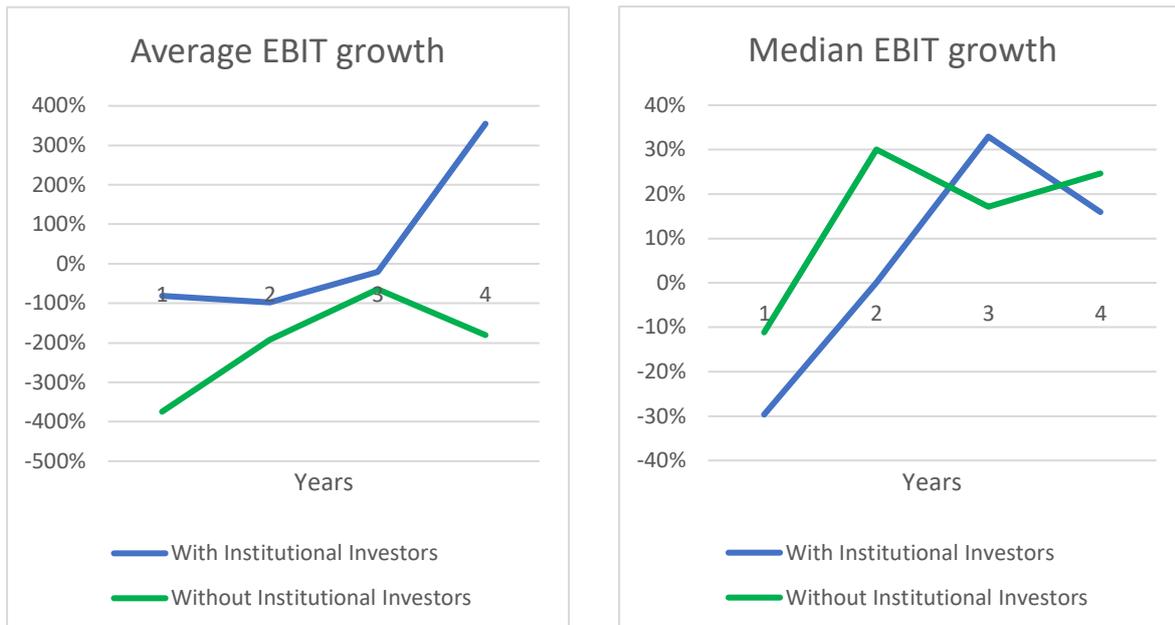
In both graphs the slope is negative as they are percentage growth values of revenues over time, clearly, there is very strong growth in the early periods and then there is a decrease.

In fact, especially in the first period under consideration, there are several cases where startups go from revenues close to 0, in the year when there was the equity crowdfunding campaign, to more substantial revenues in the following year. This is caused since the product is starting to have more demand, and therefore the percentage growth reports high variation. In the first graph, it can be seen that, usually, the average percentage growth in revenue is higher in startups where there is at least one pivotal institutional investor among the investors (except year 3). The second graph confirms what was said earlier; in particular, in this case, the median is sharply higher when pivotal institutional investors are present, in the first and fourth years. Moreover, the average of average revenue growth over the years considered is 118% with pivotal institutional investors while without is equal to 106%. On the other hand, considering the average of medians, with pivotal institutional investors is 38% while without is equal to 14%. In conclusion, it would seem that when a pivotal institutional investor is present, revenue growth is generally higher over the years.

Following the analysis of net profit and revenue, EBIT and EBITDA were also analyzed. These measures are useful for checking the efficiency of a company, although for a startup it is less important since, as mentioned earlier, revenues in the early days may be low (if not zero) and costs high due to initial investments. The averages and medians related to the percentage growth of EBIT are shown below:

With pivotal institutional Investors			Without pivotal institutional Investors		
	Year			Year	
Mean	1	-81%	Mean	1	-375%
Median	1	-30%	Median	1	-11%
Mean	2	-98%	Mean	2	-192%
Median	2	0%	Median	2	30%
Mean	3	-21%	Mean	3	-64%
Median	3	33%	Median	3	17%
Mean	4	355%	Mean	4	-180%
Median	4	16%	Median	4	25%

*Table 10 - Means and medians of annual percentage growth in EBIT, with and without pivotal institutional investors*



*Figure 5.3 - Means and medians of annual percentage growth in EBIT, with and without pivotal institutional investors*

Looking at *Figure 5.3*, on the left, which represents the average EBIT growth over time, it is possible to see that it is higher with pivotal institutional investors. In the case of medians, the values in the first and second year are higher with the absence of pivotal institutional investors, while in the third and fourth years they are similar.

Instead, data regarding EBITDA growth are shown below now:

		Year				Year	
Mean	1	-11%		Mean	1	18%	
Median	1	-23%		Median	1	-26%	
Mean	2	-14%		Mean	2	-193%	
Median	2	18%		Median	2	35%	
Mean	3	-87%		Mean	3	-109%	
Median	3	61%		Median	3	-15%	
Mean	4	220%		Mean	4	114%	
Median	4	23%		Median	4	39%	

*Table 11 - Means and medians of annual percentage growth in EBITDA, with and without pivotal institutional investors*

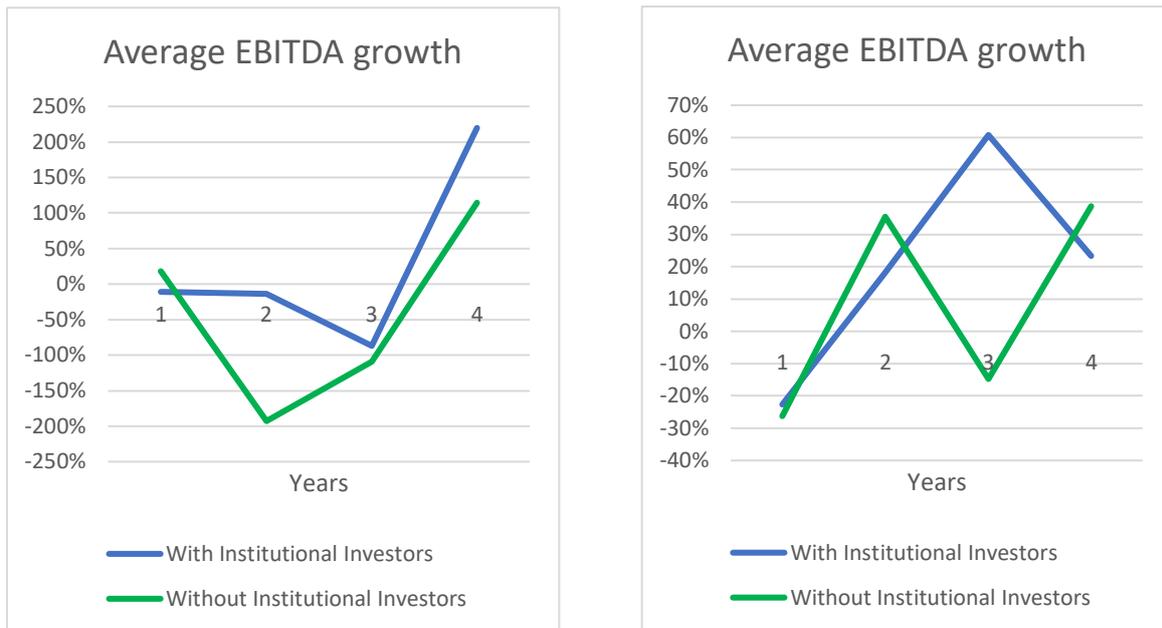


Figure 5.4 - Means and medians of annual percentage growth in EBITDA, with and without pivotal institutional investor

As can be seen from Figure 5.4, both for means and medians, the values seem to be slightly higher in the case when the pivotal institutional investors are present (especially considering the means).

After a preliminary study of the collected financial data, a further analysis has been done to check their significance. To do this kind of analysis, in the following paragraphs the *t-test* and the *Mann-Whitney U test* have been implemented. However, only Revenues have been considered since it is the best indicator to check how much a startup is growing and performing over time. Therefore, it is important to highlight that from now in the next analyses just Revenues will be considered.

## 5.2. T-TEST

The t-test in statistics comprises a set of parametric techniques for comparing the averages of two groups to see whether the observed difference is real or random. In particular, with independent samples, it allows you to figure out how accurately the difference between the two samples means estimates the difference between the means of the two populations. In order to calculate the p-value and interpret the statistical significance of the observed difference between the two groups, it is first necessary to be clear about what the hypothesis system is:

- The null hypothesis ( $H_0$ ) is that the averages of the two groups in the population are equal to each other, meaning that the difference between the averages is zero.
- The alternative hypothesis ( $H_a$ ) is that the averages of the two groups in the population are different from each other, meaning that the difference between the averages is different from zero.

The output of this test is the p-value, or probability value, which is a number describing how likely it is that your data would have occurred by random chance (i.e., that the null hypothesis is true). The level of statistical significance is often expressed as a p-value between 0 and 1. The smaller the p-value, the stronger the evidence that you should reject the null hypothesis. Next, we need to compare this value with a threshold (i.e., the alpha value, which in this case is set at 0,1):

- a p-value lower than 0,1 is therefore statistically significant. It indicates strong evidence against the null hypothesis since there is less than a 10% probability that the null hypothesis is correct (and that the results are random). Therefore, we reject the null hypothesis and accept the alternative hypothesis.
- a p-value greater than 0.1 is not statistically significant and indicates strong evidence for the null hypothesis.

Note that it is not possible to accept the null hypothesis, but only to reject the null hypothesis or not reject it.

Therefore, the t-test on percentage growth in revenues was done to compare the sample with at least one pivotal institutional investor among the investors and the sample without pivotal

institutional investors. Thus, the null hypothesis is that the averages of the two samples do not differ, while the alternative hypothesis is that the averages of the two samples are different from each other.

This analysis was initially done by considering all percentage growths in revenues, thus making no distinction between years. The t-test result obtained is as follows:

Dataset	1	2
N Sample	202	192
Mean	1,8584	3,4107
Standard Dev.	7,2680	28,5159
<b>t</b>	<b>0,7486</b>	
<b>df</b>	<b>392</b>	
<b>P</b>	<b>0,4546</b>	

*Table 12 – t-test on percentage growths in Revenues*

The total number of percentage revenue growth over the years in the case of startups with at least one pivotal institutional investor is 202 while in the other case it is 192. The p-value obtained is equal to 0,4546, which is higher than 0,1, and so the null hypothesis cannot be rejected. Therefore, the difference between the means of the two samples is not significant.

The same type of test was carried out taking into consideration the percentage growth of EBIT over the years:

Dataset	1	2
N Sample	222	227
Mean	-1,0113	-2,5709
Standard Dev.	5,5743	10,5683
<b>t</b>	<b>1,9495</b>	
<b>df</b>	<b>447</b>	
<b>P</b>	<b>0,0519</b>	

*Table 13 – t-test on percentage growths is EBIT*

In this case, the p-value is 0,0519 which is less than 0,1, and therefore it can be concluded that the difference between the averages of the two samples is significant. So, it could be claimed that startups that have at least one pivotal institutional investor among their funders have, on average, higher EBIT growth over the years.

The test was then carried out on the percentage growth of net profits, and the result obtained is as follows:

Dataset	1	2
N Sample	227	224
Mean	-0,8388	-3,0509
Standard Dev.	32,5857	13,1789
<b>t</b>	<b>0,9428</b>	
<b>df</b>	<b>449</b>	
<b>P</b>	<b>0,3463</b>	

*Table 14 – t-test on percentage growths in Net Profits*

The p-value is above 0,1 so it can be said that the difference in the averages of the two samples is not significant. However, the value is relatively low.

Finally, EBITDA was also tested but, in this case, the p-value obtained is 0,6 and the difference between the two averages is therefore not significant

Dataset	1	2
N sample	228	222
Mean	-0,1255	-0,6842
Standard Dev.	8,1664	13,9205
<b>t</b>	<b>0,5209</b>	
<b>Df</b>	<b>448</b>	
<b>P</b>	<b>0,6027</b>	

*Table 15 – t-test on percentage growths in EBITDA*

After performing these analyses considering all the percentage growths across the years, it was decided to perform the same test considering the percentage growths after 1, 2, 3, and 4 years after the crowdfunding campaign.

The following are the results obtained for revenues, in the 4 different years:

Revenue growth, year 1			Revenue growth, year 2		
Dataset	1	2	Dataset	1	2
N Sample	116	97	N Sample	62	59
Mean	2,2698	1,7913	Mean	1,5619	0,9240
Standard Dev.	8,5584	5,0132	Standard Dev.	5,8342	6,8309
<b>t</b>	<b>0,4852</b>		<b>t</b>	<b>0,5533</b>	
<b>df</b>	<b>211</b>		<b>df</b>	<b>119</b>	
<b>P</b>	<b>0,6280</b>		<b>P</b>	<b>0,5811</b>	

Revenue growth, year 3			Revenue growth, year 4		
Dataset	1	2	Dataset	1	2
N Sample	18	27	N Sample	6	9
Mean	0,9033	1,6218	Mean	-0,1015	-0,1918
Standard Dev.	1,7228	5,4487	Standard Dev.	0,5729	0,7302
<b>t</b>	<b>0,5400</b>		<b>t</b>	<b>0,2540</b>	
<b>df</b>	<b>43</b>		<b>df</b>	<b>13</b>	
<b>P</b>	<b>0,5920</b>		<b>P</b>	<b>0,8035</b>	

*Table 16 - t-test on percentage growths in Revenues across the years*

Again, even when dividing into 4 different years, the difference between the averages is never significant. However, during years 3 and 4 there are too little data available; to have more reliable results, therefore, it would be necessary to have larger samples. In general, in all cases, the p-value is very high and thus it is far from being significant.

Moving instead to the same type of analysis but on EBIT:

EBIT growth, year 1			EBIT growth, year 2		
Dataset	1	2	Dataset	1	2
N Sample	127	107	N Sample	70	68
Mean	-0,8057	-3,7466	Mean	-0,9620	-1,9574
Standard Dev.	9,9934	12,4263	Standard Dev.	5,3265	10,6428
<b>t</b>	<b>2,0062</b>		<b>t</b>	<b>0,6978</b>	
<b>df</b>	<b>232</b>		<b>df</b>	<b>136</b>	
<b>P</b>	<b>0,0460</b>		<b>P</b>	<b>0,4865</b>	

EBIT growth, year 3			EBIT growth, year 4		
Dataset	1	2	Dataset	1	2
N Sample	25	31	N Sample	7	12
Mean	-0,1963	-0,6443	Mean	3,5472	-1,8000
Standard Dev.	4,4812	4,4373	Standard Dev.	9,3202	5,0149
<b>t</b>	<b>0,3740</b>		<b>t</b>	<b>1,6412</b>	
<b>df</b>	<b>54</b>		<b>df</b>	<b>17</b>	
<b>P</b>	<b>0,7099</b>		<b>P</b>	<b>0,1191</b>	

*Table 17 - t-test on percentage growths in EBIT across the years*

In this case, it is possible to notice that the difference between the averages is significant in year 1 after the crowdfunding campaign. In fact, in this case, the p-value is 0,046 which is less than 0,1. Moreover, even in year 4, the p-value is close to the threshold value and the difference is close to being significant.

The analysis was then carried out for Net Profit growth:

Net Profit Growth, year 1			Net Profit Growth, year 2		
Dataset	1	2	Dataset	1	2
N Sample	125	104	N Sample	70	68
Mean	-2,3866	-4,7875	Mean	-1,7761	-1,7280
Standard Dev.	38,3671	16,8741	Standard Dev.	11,6691	10,1708
<b>t</b>	<b>0,5921</b>		<b>t</b>	<b>0,0258</b>	
<b>df</b>	<b>227</b>		<b>df</b>	<b>136</b>	
<b>P</b>	<b>0,5544</b>		<b>P</b>	<b>0,9795</b>	

Net Profit Growth, year 3

Dataset	1	2
N Sample	24	31
Mean	0,5932	-1,5294
Standard Dev.	2,7201	7,6683
<b>t</b>	<b>1,2923</b>	
<b>df</b>	<b>53</b>	
<b>P</b>	<b>0,2019</b>	

Net Profit Growth, year 4

Dataset	1	2
N Sample	7	12
Mean	31,0284	-0,8837
Standard Dev.	82,0092	1,9344
<b>t</b>	<b>1,3765</b>	
<b>df</b>	<b>17</b>	
<b>P</b>	<b>0,1865</b>	

Table 18 – *t*-test on percentage growths in Net Profit across the years

In this case, the difference in the mean between the two samples is never significant, although in year 3 and year 4 the p-value is close to 0,1.

Finally, analysis was also done on the different years for percentage growth in EBITDA, but none was significant as is possible to see in Table 19.

EBITDA growth, year 1

Dataset	1	2
N Sample	125	104
Mean	-0,1088	0,1873
Standard Dev.	9,5944	17,7539
<b>t</b>	<b>0,1605</b>	
<b>df</b>	<b>227</b>	
<b>P</b>	<b>0,8727</b>	

EBITDA growth, year 2

Dataset	1	2
N Sample	70	67
Mean	-0,1273	-1,9281
Standard Dev.	6,4432	9,3015
<b>t</b>	<b>1,3221</b>	
<b>df</b>	<b>135</b>	
<b>P</b>	<b>0,1884</b>	

EBITDA growth, year 3

Dataset	1	2
N Sample	25	30
Mean	-0,8697	-1,0900
Standard Dev.	5,0641	11,3609
<b>t</b>	<b>0,0897</b>	
<b>df</b>	<b>53</b>	
<b>P</b>	<b>0,9288</b>	

EBITDA growth, year 4

Dataset	1	2
N Sample	7	12
Mean	2,1970	1,1442
Standard Dev.	5,6615	4,2878
<b>t</b>	<b>0,4595</b>	
<b>df</b>	<b>17</b>	
<b>P</b>	<b>0,6517</b>	

Table 19 – *t*-test on percentage growths in EBITDA across the years

### 5.3. MANN-WHITNEY U TEST

According to the definition, the Mann-Whitney U test *is a nonparametric test of the null hypothesis that, for randomly selected values X and Y from two populations, the probability of X being greater than Y is equal to the probability of Y being greater than X* (Wikipedia, 2022).

When adopting this method, it is important to underline the presence of four assumptions, which in the specific are:

1. The observations of both groups considered are independent of each other.
2. It is possible to say at least which of the two observations is greater than the other (ordinality).
3. Considering the null hypothesis ( $H_0$ ), the distributions of both populations are equal.
4. The alternative hypothesis ( $H_a$ ) consists of the fact that the distributions are not identical.

Compared to the T-test (which is parametric), the application of the Mann-Whitney test is useful when outliers that greatly affect the final result are present. In fact, non-parametric tests, such as Mann-Whitney's, are not affected by these outliers. This test is based on the use of ranks: this transformation of the observed values into ranks in fact guarantees to obtain more robust indices with respect to anomalous and asymmetric values.

However, if all the hypotheses of the parametric t-test are verified, the use of this test guarantees the identification of even small differences which are statistically significant (considering the same sample). Furthermore, the parametric test also allows the calculation of the confidence intervals of the means, while the non-parametric test returns only the p-value as output.

The Mann-Whitney test is done by implementing the following steps:

1. Calculate the ranks of the two observations
2. Calculate the U value for both observations, and considering the minimum one
3. Calculate the z-value, and finally the p-value

According to the collected financial data explained in *paragraph 4.2*, the Mann-Whitney test has been applied first to the observations between the pivotal institutional investors and non in a general point of view, obtaining the results shown in the following table.

<b>TOTAL</b>	U value	z-score	p-value	Conclusion
Revenues	75155	0,0782	0,93624	Not significant
EBIT	99062	-0.27298	0,78716	Not significant
Profit/Loss	98762	0.6368	0,52218	Not significant
EBITDA	100032.5	0.13456	0,89656	Not significant

*Table 20 - Mann-Whitney test applied to the financial data of the observations between the pivotal institutional investors and non*

As can be seen in *Table 20*, all values are non-significant as the p-value is above the critical threshold set at 0,1.

Secondly, the Mann-Whitney test has been applied year by year to the financial data of pivotal institutional investors and non, obtaining the following results (see *Table 21*).

<b>YEAR 1</b>	U value	z-score	p-value	Conclusion
Revenues	21637.5	-0.01789	0,98404	Not significant
EBIT	26881.5	0.20308	0,84148	Not significant
Profit/Loss	25460.5	0.38218	0,70394	Not significant
EBITDA	25786	-0.15138	0,88076	Not significant

<b>YEAR 2</b>	U value	z-score	p-value	Conclusion
Revenues	7102	-0.49041	0,62414	Not significant
EBIT	9352.5	0.04499	0,9681	Not significant
Profit/Loss	9095.5	0.43689	0,65994	Not significant
EBITDA	8862.5	0.58672	0,5552	Not significant

<b>YEAR 3</b>	U value	z-score	p-value	Conclusion
Revenues	819	- 1,12435	0,26272	Not significant
EBIT	1546	-0,02049	0,98404	Not significant
Profit/Loss	1456.5	-0.18684	0,8493	Not significant
EBITDA	1463	0.21911	0,82588	Not significant

<b>YEAR 4</b>	U value	z-score	p-value	Conclusion
Revenues	84	0.99483	0,32218	Not significant
EBIT	154,5	-0.3934	0,69654	Not significant
Profit/Loss	144	-0,71114	0,4777	Not significant
EBITDA	162	0,16644	0,86502	Not significant

*Table 21 - Mann-Whitney test applied year by year to the financial data of pivotal institutional investors and non*

According to the results of the Mann-Whitney test, there is not a significant difference between the operating performances of the start-ups with and without pivotal institutional investors. This means that is not possible to affirm that a firm implementing an equity crowdfunding campaign and having in its crowd at least one pivotal institutional investor performs significantly better than another one without. At the same time, the hypothesis  $H_0$  made in Chapter 4 (*"The presence of at least one pivotal institutional investor in the crowd participating in the equity crowdfunding campaign is a positive sign in terms of the company's growth and performance"*) must not be discarded: as already said, the Mann-Whitney test reports that there is not a significant difference, but it doesn't mean that a general difference is absent.

## 6. MULTIVARIATE ANALYSIS

After a preliminary study of the collected financial data, a deeper analysis has been implemented. First of all, it has been done the analysis of the correlation matrix relating to the two hypotheses previously described (see *Chapter 4*). The aim consists of verifying the eventual correlation between the revenues collected by the start-ups/SMEs, and the two factors considered (number of investors, and fundraising success rate). Revenues were taken into account since, as mentioned at the end of *Chapter 5*, this is the best indicator to check how much a startup is growing and performing over time. Finally, the regression analysis has been realized to verify the main hypothesis done in this dissertation work ( $H_0$ ). These analyses have been implemented using Stata, which is a general-purpose statistical software package developed by StataCorp for data manipulation, visualization, statistics, and automated reporting.

### 6.1. CORRELATION MATRIX

The output of this analysis is precisely the matrix representing the variance of each variable with respect to the others (including itself). The variables considered are the average revenue growth, the fundraising success, and the number of investors of the first campaign (in fact, it should be reminded that in the case of a startup with multiple campaigns, the values of the first equity crowdfunding campaign were considered for the number of investors and the fundraising success).

The values obtained on the diagonal represent the variance (and is always a nonnegative value), while the other values represent the covariance (and can be either positive or negative):

- The variance is a statistical measure that provides a measure of the variability of the values of the variable itself.
- The covariance of two statistical variables is a numerical value that provides a measure of how much the two vary together, in other words, their dependence. In case this value is positive, it means that as one character grows, the other character also grows. In case this value is negative, the opposite happens. If the characters are statistically

independent, this value is equal to 0. Therefore, the closer this value to 0 and the lower is the dependency.

The result obtained is the one shown in *Table 22* below:

	Average revenue	Fundraising success rate	Number of investors
Average revenue	<b>80.6175</b>		
Fundraising success rate	<b>-1.19937</b>	<b>1.61691</b>	
Number of investors	<b>-125.198</b>	<b>117.697</b>	<b>64628</b>

*Table 22 – Correlation matrix*

From the result obtained, it is possible to notice that the variance of the average revenue growth is relatively high; in fact, different startups achieve different results in terms of revenue growth over the years.

The variance of the number of investors is also very high since there are campaigns with a few investors and others with hundreds of investors.

Finally, regarding the variance of the fundraising success rate, it is almost null as all the campaigns considered in this dissertation are successful campaigns, which means able to achieve at least the target capital requested. Since the maximum capital collectible is generally not too distant from the minimum target, the percentages of fundraising success among the different campaigns are similar.

For what concern the analysis of covariances, there is a low/moderate dependence between the fundraising success rate and the number of investors: this result was predictable since the higher the number of investors, the higher the probability of successful fundraising should be. Regarding the covariance between the number of investors and the average revenue growth, it reports a slight and negative dependence across the two variables.

This result goes against what has been hypothesized in *Chapter 4*. Indeed, it was expected that the higher the number of investors, the greater the potential of a project since it has been validated by multiple entities.

The explanation of this data could be given by the fact that what was assumed previously doesn't consider the possible presence of huge investments done by a few investors.

This means that even if a project was considered potentially profitable by several entities, it wasn't possible to invest in it since the maximum capital collectible was already achieved. Moreover, having a high number of investors means that, in general, most of them are retails since tend to invest medium/low amounts of money, giving the possibility to others to be part of the crowd. As explained in this dissertation, the absence of pivotal institutional investors could be a sign of low attractiveness of the campaign since they are characterized by more experience and competencies in the selection of the projects in which invest.

Finally, regarding the covariance between fundraising success and average revenue, there is a lack of dependence since the growth is close to zero.

Even this result is partially in contrast with what was hypothesized in *Chapter 4*, where the expectation was a positive relationship (specifically, the greater the amount of money collected, the greater the possibility to invest and get higher revenues).

Probably the independence of the two variables is due to the presence of a collectible maximum for each equity crowdfunding campaign: in fact, even if several startups have obtained a greater amount of money than the minimum target required, it cannot exceed a certain threshold, going therefore to set a limit for this type of analysis.

Since the maximum achievable is generally not too far from the minimum target, fundraising success rates are ultimately more or less similar (as can also be seen from the variance of this variable).

This means that startups are characterized by a similar value (fundraising success rate), but considering that they belong to different sectors, with different projects, they are naturally characterized also by different revenues (expressed by the variance value of the average revenue growth).

## 6.2. REGRESSION ANALYSIS

The aim of this section consists in verifying hypothesis  $H_0$  expressed in *Chapter 4 (The presence of at least one pivotal institutional investor in the crowd participating in the equity crowdfunding campaign is positively correlated in terms of the company's follow-up growth and performance)*.

To do that, it is necessary to implement a regression analysis. It means identifying a relationship between a dependent variable and one or more independent variables. A model representing this relation is initially assumed, and subsequently, the coefficients of the independent parameters are estimated, to see how much impactful are with respect to the dependent variable.

Naturally, it is necessary to also calculate the p-value of these coefficients, to verify their significance. If a parameter is not significant, it means that it can be eliminated from the model since its presence is not impactful on the variations of the dependent variable. As already said in the previous paragraphs, the yearly revenue growth has been selected as the dependent variable across the others considered since it is the most truthful to represent the company's follow-up growth and performance. The independent parameters considered are the number of investors and the fundraising success rate of each equity crowdfunding campaign, according to the hypotheses  $H_{A1}$  and  $H_{A2}$  done always in *Chapter 4*. These two parameters are both considered since their correlation is low, as shown in the correlation matrix of the previous paragraph, and therefore they can be deemed independent. It would logically be said that the greater the number of investors the greater the success achieved by the campaign, but this is not necessarily true since there could be the case with few investors and a high amount of money raised, or many investors and money close to the minimum target. Additionally, it is important to consider both internal and external factors, with respect to the company, that have an impact on the dependent variable, and therefore must be included in the analysis. These parameters can often be qualitative variables, which, however, to be inserted into the linear regression model, first need to be transformed. To do this, dummy variables were used, which consist of binary variables that can only assume values 0 and 1. These two numbers indicate the exclusive belonging of each statistical unit to a category rather than another. According to the model created in this dissertation work, the two factors considered in the regression analysis are the year of belongingness of each revenue growth data, and the presence of patents in the startup launching the ECF campaign.

For each year in which the financial data has been collected (from 2016 to 2020), a dummy variable has been created, which value is 1 if the revenue growth data is referred to that year, and 0 for the others. This allows considering that each year can be different from the others for several reasons, affecting the financial result of a company (i.e., performing a business in 2019 is different with respect to the years next, characterized by the Covid-19 pandemic). Regarding the patents, the dummy variable assumes 1 if the financial data is referred to a startup having at least one patent, and 0 for the others without patents. This aims to consider not only an external factor affecting the financial result of a firm but also an internal one. The presence of patents means that the products and services offered have already been tested and cannot be duplicated by third parties, guaranteeing an advantage to the company that is reflected in its financial return.

In addition, for each type of dummy variable, has been assigned a value to express numerically its impact on the dependent variable. In particular, for each year, it has been calculated the variation of the PIL in Italy with respect to the year 0 (2015). According to this, the following values have been assigned: 2,178% for 2016, 6,59% for 2017, 13,89% for 2018, 9,205% for 2019.

Regarding the patents, it has been calculated the revenue growth of startups with at least one patent and of startups with no one, to compare the results and understand how much having patents impacts revenues. The result shows the revenue growth of startups with at least one patent doubles that of those without. Therefore, the values assigned are 1 for the dummy variable expressing the absence of a patent, and 2 for the dummy variable referring to the presence of at least one.

Finally, a third dummy variable referred to the presence or not of pivotal institutional investors has been introduced. This variable is fundamental to understand if the presence of pivotal institutional investors is significantly impactful on the revenue growth post-equity crowdfunding campaigns of the startups. The value 1 is assigned for the dummy variable referred to campaigns in which there is at least one pivotal institutional investor, and 0 in case there is not. Implementing in Stata the regression model with all these variables, the result is the following:

```
. reg Revenuesgrowth Ninvestors success dummy_year2 dummy_year3 dummy_year4 dummy_year5 dummy_pate
> nt dummy_Pinstitutional
```

Source	SS	df	MS	Number of obs	=	148
Model	5151.06658	8	643.883322	F(8, 139)	=	0.61
Residual	147576.387	139	1061.70063	Prob > F	=	0.7713
				R-squared	=	0.0337
				Adj R-squared	=	-0.0219
Total	152727.454	147	1038.96227	Root MSE	=	32.584

Revenuesgrowth	Coefficient	Std. err.	t	P> t	[95% conf. interval]	
Ninvestors	.005753	.0155144	0.37	0.711	-.0249216	.0364276
success	-1.015064	2.427061	-0.42	0.676	-5.813796	3.783667
dummy_year2	7.684776	25.20524	0.30	0.761	-42.15047	57.52002
dummy_year3	5.779424	24.11446	0.24	0.811	-41.89914	53.45799
dummy_year4	16.92991	24.02599	0.70	0.482	-30.57374	64.43355
dummy_year5	6.912478	23.83688	0.29	0.772	-40.21726	54.04222
dummy_patent	-6.27882	5.717549	-1.10	0.274	-17.58343	5.025791
dummy_Pinstitutional	6.039365	5.657219	1.07	0.288	-5.145962	17.22469
_cons	-4.870213	23.89894	-0.20	0.839	-52.12266	42.38224

Table 23 – Regression analysis result

Looking at the result of the regression analysis shown in *Table 23*, it is possible to notice that the coefficients of each independent variable are characterized by a p-value higher than the critical one. This means that no one of these parameters is significant, and so it is not possible to conclude that some of the explanatory variables affect the dependent one.

In particular, regarding the presence of pivotal institutional investors (represented by the dummy variable called *dummy\_Pinstitutional*), the p-value is equal to 0,288, higher than the critical value, and so hypothesis  $H_0$  cannot be confirmed. However, the value obtained is not extremely high; in fact, it indicates that there is a 28,8% of possibility that the revenue growth and the presence of pivotal institutional investors are independent. On the opposite, the possibility to confirm hypothesis  $H_0$  is equal to 71,2%, and it must be considered. Even if there is not a significant relationship, according to the analyses done previously (from a microscopical point of view) and in this paragraph, it is possible to believe that the presence of this type of investor still has a positive impact, more or less large, on the revenues growth of the startups that have raised funds through an equity crowdfunding campaign.

The reasons why the presence of pivotal institutional investors has a positive impact on a company's post-ECF campaign performance will be explained in the following chapter.

## 7. CHERRY-PICKING OR ACTIVISM?

At this point, it is important to understand whether the supposed better performance of startups in case there is at least one pivotal institutional investor inside the crowd is due to the pivotal institutional investor's activism during the meetings or due to cherry picking (i.e., the ability to do scouting and choose the best projects in the market). Certainly, pivotal institutional investors have more resources and capabilities than the retail ones to do scouting activities; however, this option was not further analyzed in this dissertation and it will be one of the limitations as will be explained in *Chapter 9*. On the other hand, as regards the activism of pivotal institutional investors, it was possible to conduct a deeper analysis by going to study their percentage of attendance at ordinary and extraordinary shareholders' meetings. In order to do that, a further database was implemented: the "attendance database", that regards the investors' participation at each shareholders' meeting.

In detail, for each equity crowdfunding campaign, it has been reported the list of investors provided by the "Osservatorio Crowdfunding" in a secondary database (see *Annex 10.7*). Through a detailed analysis of each minute, the presence or absence of each investor has been signed, considering their possibility to participate in the meetings.

In fact, eventual absences were signed for the investors with the voting right or already a member of the company before the equity crowdfunding campaign. Not belonging to these two categories means not having the reason or even the right to be part of the meeting; so, it doesn't make sense to sign the absence. For each participant, his physical presence has been checked, since there are cases in which a shareholder decides to be represented by another person (the delegate) in the ECF meetings. In addition, notes regarding eventual interventions during the discussions have been reported, even if, as previously said, in most of the cases they are not present or mentioned. Finally, for each participant, two indicators have been calculated.

The first one is the percentage of participation, obtained through the following formula:

$$\% \text{ Participation } i,j = \frac{\text{Number of participations to ordinary and extraordinary meetings}}{\text{Total number of meetings from the end of } j}$$

Where:

- *i*: investor
- *j*: equity crowdfunding campaign

This formula has been applied only to the investors having the right to vote or who were already a member of the company before the equity crowdfunding campaign.

The second indicator formulated is the percentage of delegation over the total amount of meetings:

$$\% \text{ of delegations } i,j = \frac{\text{Number of participation delegated}}{\text{Total number of meetings from the end of } j}$$

As in the previous case, also here this formula has been applied only to the investors having the right to vote or who were already a member of the company before the ECF campaign. Thanks to this kind of data, it has been possible to make a comparison between the behavior of the pivotal institutional shareholders with respect to the non-pivotal ones.

In *Table 24* below, it is shown a framework of the excel page concerning the overall information about the participation previously described.

Impresa (da campagne da controllare nel Codice Fiscale Paulownia SP-SI)	Portale Action Crowd	Data fine campagna 01/09/2014	# Investitori 12	Tipologia quote offerte (vedi "database") Ordinarie	SOCIO ESISTENTE? da coattare	infronti investimento cc	quote non votanti	#partecipazioni ORD
					MILLENUMIPARTICIPAZIONI S.R.L.	no	1	2
					UMBERTO IMMOBILIARE SRL	no	1	
					TEALDO SERVIZI S.R.L.	no	1	1
					BONAFIDE ALESSANDRO	no	1	
					CASENTINI NATALE LUCIANO	no	1	
					DEDE MARIA ELISABETTA	no	1	1
					MOSCA MARCO	no	1	2
					MUSACCHIA SAVERIO	no	1	
					ROMANO ASSUNTA MARIA	no	1	
					ROMANO VALERIO	no	1	3
					URAS ANNA	no	1	
					VITAGLIANO VINCENZO	no	1	2

#partecipazioni STR	di cui, con delega	assenze	CHECK (tot. assemblee con foglio presenze)	NOTE relative agli interventi:	% partecipazione	delega su tot partecipazioni
	2	6	8	richiede relazione tecnica per valutare finanziamento fruitifero da soci	25,00%	100,00%
		8	8		0,00%	
	1	7	8		12,50%	100,00%
		8	8		0,00%	
		8	8		0,00%	
1	2	6	8	dichiaro di poter partecipare all'aucap	25,00%	100,00%
1	2	5	8		37,50%	66,67%
		8	8		0,00%	
		8	8		0,00%	
1	2	5	8	richiede relazione tecnica per valutare finanziamento fruitifero da soci	37,50%	66,67%
		8	8		0,00%	
	2	5	8	dichiaro di poter partecipare all'aucap	37,50%	66,67%

Table 24 – Dataset containing attendance information

Before analyzing the attendance data, it is necessary to define how the convocation to investor meetings takes place. The directors shall call the meeting with a notification listing the topics to be discussed (agenda) and stating the time, date, and place of the meeting. The Official Gazette of the Republic publishes the notice at least 15 days before the meeting. Listed companies shall also publish the meeting notice on their website. In the past, the notification was sent by paper while nowadays it is usually done by e-mail. Subsequently, shareholders have a time window in which they can confirm or not confirm attendance (and, in this case, it is also possible to justify absence). Usually, ordinary and extraordinary meetings are valid if they are composed of members or delegates with at least half of the share capital (limited voting shares are not counted). When the required amount of capital (quorum) is not reached, meeting decisions are invalid and a second or third call is required. The meeting in the second call deliberates on the matters that should have been dealt within the first call, whatever portion of the capital is represented by the attending members. A vote of more than one-third of the share capital is required for the meeting in the second call to be valid. Finally, on the third call, the vote of members representing more than one-fifth of the share capital is sufficient. (azionisti.info)

The following are the reasons why an ordinary meeting is necessary:

- Approval of the annual financial statements and the distribution of profits.
- Appointment of board members, determination of their compensation, and election of the president.
- Responsibilities of board members.
- Appointment of the statutory audit engagement and determination of the fee for the purpose.
- Approval of remuneration policies for members of the Board of Directors and of staff and plans based on financial instruments, in accordance with the provisions of the law.
- Approval of the rules, if any, for the proceedings of the meeting.
- Authorization of transactions of major significance with related parties, in the cases and in the manner prescribed by current regulations.

On the other hand, regarding the extraordinary meeting, it is called for amendments to the Statute, then on the appointment, removal, replacement, and powers of liquidators, and on

any other matters attributed by law.

It should be noted that from 2019, due to the pandemic, many meetings were held via video conference, or at least some members were connected online. This may have influenced some investors' propensity to participate. Before, in the case of a small stake, an investor would not show up in person; today, thanks to the possibility of connecting online, he might join the meeting.

## 7.1. ATTENDANCE ANALYSIS

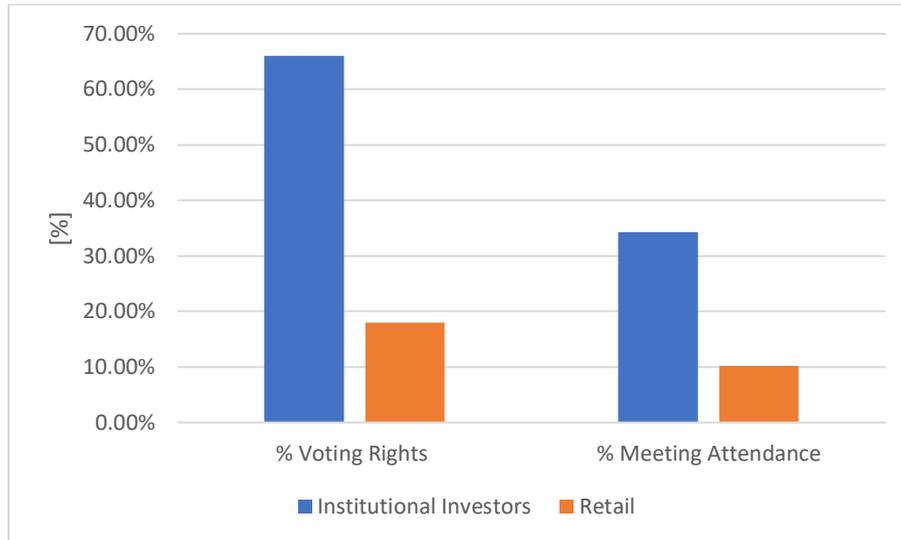
According to the data collected about the number of investments realized by each pivotal institutional investor and its attendance at the shareholders' meetings (see *Annex 10.8*), several considerations can be done.

Firstly, in most of the cases, only those who had voting rights attended the meetings. In fact, only on rare occasions, there were members without the right to vote, being there just to hear what was being defined at the meeting without the possibility to intervene. The 85 pivotal institutional investors analyzed made a total of 213 different investments, out of which 139 were investments that included voting rights and the remaining 74 without them. Thus, in percentage terms, almost 70% have voting rights, and this indicates a strong willingness of pivotal institutional investors to participate in meetings and take part in decision-making and control of the company.

On the other hand, regarding retail investors, from a total number of different investments amounting to 18.778, only 3.405 are with voting rights while the remaining 15.373, are without. Thus, in the case of retail investors, voting investments are about 18% versus 70% in the case of pivotal institutional investors. This is surely also due to the fact that the average investment tickets for pivotal institutional investors are higher and therefore it is easier to get the right to vote when there is the necessity to exceed a minimum bid threshold to get it. However, at the same time, this also indicates that retail investors, unlike pivotal institutional investors, prefer not to have to take part in meetings and prefer not to intervene in the decision-making process. Furthermore, as proof of this, it was possible to calculate for the pivotal institutional investors the average attendance at meetings (ordinary and extraordinary), which is equal to 31,94%, while in the case of retail investors the average attendance is 10,25%. This indicates greater activism of pivotal institutional investors who could thus positively influence the choices made by the startup giving advice and monitoring activities. In *Figure 7.1*, it is possible to observe the data regarding the percentage of voting rights and the percentage of meeting attendance, comparing the pivotal institutional investors and the non-ones.

In conclusion, it is possible to claim that pivotal institutional investors make investments in specific companies of which they want to become a member, participate in the decisions, and try to help them; on the other hand, retail investors invest with only the hope of getting a

return in the future and considering their contribution to be finished at the time they put their money in the campaign.



*Figure 7.1 - Comparison % of voting rights and % attendance*

## 8. EXAMPLE OF PIVOTAL INSTITUTIONAL INVESTOR: PADDA SRL

In this chapter, the goal is to show the example of a pivotal institutional investor in order to concretely understand what has been explain inside this dissertation work, passing from its investment criteria and behaviors, and concluding with its attendance at meetings. Among the various pivotal institutional investors, the company considered is Padda Srl (also called Padda Health, based in Milan) since it invested in several campaigns analyzed, with a good and active participation at the shareholders' meetings.

Padda Health defines itself as a value creator, specifically a Venture Capital firm that invests in innovative startups and SMEs in the healthcare sector by supporting and providing them with the expertise they need to create value and establish themselves in the market. It is a family office where the goal is to select and invest "smartly" in tech-driven startups with innovative ideas and a desire to emerge globally (Padda Health, 2022). Thus, Padda Health's mission is to invest in and foster innovative ideas that can improve the lives of many people.

Their investment process takes place in three stages (see *Figure 8.1*):

- Pre-approval stage: Padda Health receives documentation and begins making initial assessments.
- Approval stage: if the startup passes the first stage, there is an in-depth documentation analysis and ad hoc meetings to define an investment roadmap and to develop the project by defining a growth strategy.
- Investment stage: in this last stage, rapid funding by Padda Health takes place.



*Figure 8.1 - Investment process (Padda Health, 2022)*

Among the crowdfunding campaigns analyzed in this dissertation, Padda Health invested in the following four projects:

- Medics Srl: Medics redefines the standard of pretreatment planning with a custom-made approach. It has developed HA3D: ultra-high-fidelity, high-precision 3D reconstructions of individual patient anatomy that allow surgery to be planned as accurately, safely, and conservatively as possible.

<b>Crowdfunding Platform</b>	<b>Campaign's end</b>	<b>Number of investors</b>	<b>Investment</b>	<b>Right of vote</b>
MamaCrowd	28/12/2018	126	210.059,85 €	yes

*Table 25 – Padda Srl investment in Medics Srl*

- Smartmicrooptics Srl: It produces mini lens set for smartphones that allow observing the microworld in detail. Compact and portable kit, easy to use. It is possible to observe red blood cells or even bacteria in seconds. This innovative technology is applicable to any model of smartphone or tablet.

<b>Crowdfunding Platform</b>	<b>Campaign's end</b>	<b>Number of investors</b>	<b>Investment</b>	<b>Right of vote</b>
MamaCrowd	01/04/2019	127	50.000 €	yes

*Table 26 – Padda Srl investment in Smartmicrooptics Srl*

- Cloud Pathology Group Srl: It develops technology that improves the quality of diagnoses using Digital Pathology practice for operational uses in public and private health facilities. Digital images are managed in a database, which allows the sharing of the knowledge base that CPG has built up (images, diagnostic practices, etc.) for the benefit of Pathologists in client Hospitals.

<b>Crowdfunding Platform</b>	<b>Campaign's end</b>	<b>Number of investors</b>	<b>Investment</b>	<b>Right of vote</b>
BacktoWork24	30/04/2019	33	175.188 €	yes

*Table 27 – Padda Srl investment in Cloud Pathology Group Srl*

- Stem Sel Srl: Spin-off of the University of Bologna active in the development, production, and commercialization of Celector - the chromatograph for cells. The product is based on a patented technology for separation characterization and quality control of viable "unlabeled" cells.

<b>Crowdfunding Platform</b>	<b>Campaign's end</b>	<b>Number of investors</b>	<b>Investment</b>	<b>Right of vote</b>
BacktoWork24	15/06/2019	74	200.000 €	yes

*Table 28 – Padda Srl investment in Stem Sel Srl*

Padda Srl aims to invest solely in the healthcare sector, and this is confirmed judging by the investments made in the four campaigns. So, as often happens, pivotal institutional investors are specialized in one or a few sectors, and this allows them to be very experienced in evaluating projects in that field. This allows projects with high potential to be judged by people experienced in the field who know exactly the value of their product or service. Instead, on the other hand, retail investors may not fully understand the value of a product in a specific and complex field such as healthcare. For this reason, a highly specialized pivotal institutional investor as in this case could be a guide for multiple retail investors to make it

clear which projects are best.

In addition, it can be observed that this type of investor tends to make large investments (over 50.000 €) and always gets the right to vote so that they can actively participate in the various ordinary and extraordinary meetings.

The attitude of pivotal institutional investors, as in this case, is often to be present at meetings (ordinary and extraordinary) as can be seen in *Table 29*:

Medics Srl	Smartmicrooptics Srl	Cloud Pathology Group Srl	Stem Sel Srl
66.67%	50%	100%	50%

*Table 29 – Padda Srl meeting attendance*

In particular, it is also very interesting to analyze the report of the 2020 ordinary shareholders' meeting of Smartmicrooptics Srl: Padda Srl in this event asks about a possible collaboration with Cloud Pathology Group Srl. Therefore, Padda Srl, which is a shareholder of both companies, notes how collaboration could lead to benefits and synergies and asks for information. This type of intervention is indeed very important as collaboration could lead to the growth of both startups, bringing benefit to all shareholders of both Smartmicrooptics Srl and Cloud Pathology Group Srl. To this request, the meeting president responds that collaboration will be considered in the future. Such a request likely could never be made by a retail investor; in fact, usually, a retail investor has a much smaller network than a pivot institutional investor and is therefore not aware of companies or people with whom a collaboration would be possible. Moreover, it is probable that a retail investor has invested without even knowing specifically what that product or service is about. Indeed, he might invest randomly without getting informed, or even if he did, he might not have enough knowledge to fully understand completely the project.

## 9. CONCLUSIONS

### 9.1. COMMENTS AND FURTHER CONSIDERATIONS ON THE RESULTS

The objective of this chapter is to give a final recap of the results obtained during the dissertation. Once collected the data regarding the 286 equity crowdfunding campaigns that were successful and that offered voting rights (considering the time window 2014-2019), it was possible to do a first general analysis of the sample considered. First of all, it was possible to do a geographical analysis; in fact, the only provinces with more than 10 startups out of the available sample are Milan (76), Rome (22), Turin (18), Bologna (12), and Trento (10). This might indicate that in northern Italy (particularly Milan), there is a much higher concentration of innovative startups, and that crowdfunding is also widely more popular in this area, where also most institutional investors are concentrated. Subsequently, two essential datasets were created: the first was the ordinary and extraordinary meeting dataset (*Table 5*), and the second was the dataset containing financial data (*Table 6*). Moreover, after the definition of the perimeter chosen to identify the pivotal institutional investors, in a total of 85, it was possible to compare the data collected between the startups with at least one pivotal institutional investor across the crowd and those who have not. The first comparison was done using a monivariate analysis: Revenues, EBIT, EBITDA, and Net Profits data between 2014 and 2020 were collected for all the startups, with a focus on the percentage growth year by year. For what concerns the net profits, the average growth was always higher in the case with pivotal institutional investors. In terms of the average growth in different years (the average of the averages of profit growth), when considering pivotal institutional investors was 686% while without pivotal institutional was -223%. Similar results were obtained considering the medians instead of the averages. Subsequently, the analysis passed to the revenues, where the average of the average revenue growth over the years considered was 118% with pivotal institutional, while without pivotal institutional was 106%. Considering the medians instead, the average of the medians with pivotal institutional investors was equal to 38% while without pivotal institutional investors was 14%. This analysis was also conducted for the EBIT, and, even in this case, the average EBIT growth was always higher across the years when considering the pivotal institutional investors. Finally, the last analysis was made on the EBITDA and again the results were higher when pivotal institutional investors are present.

These studies guaranteed to point out that the presence of this typology of investors seems to be important for startups' future performance and growth.

For this reason, it was decided to continue with a deeper analysis based on the application of two tests. The first one was the t-test, which allows to reject or not the null hypothesis  $H_0$ . In this case,  $H_0$  means that the averages of the two groups (campaigns with pivotal institutional investors and campaigns without) in the population are equal, and so the difference between the averages is zero. On the opposite, the alternative hypothesis  $H_a$  means that the averages of the two samples are different from each other. This analysis has been made like before, initially considering all together and then year by year, the growths in Revenues, EBIT, EBITDA, and Net Profits. The only significant result was the one related to the EBIT, meaning that startups with at least one pivotal institutional investor among their funders have, on average, higher EBIT growth over the years. Subsequently, a Mann-Whitney U test was performed (compared to the t-test, this method is useful when outliers that greatly affect the final result are present) but in this case, none resulted significant.

Following the t-test and Mann-Whitney U test, a multivariate analysis has been implemented, characterized by a study of the correlation matrix and the regression model. This analysis has been done considering as a financial driver just the revenue growth, since this variable is considered the most appropriate to check how much a startup is growing and performing over time. Apart from the revenues, the other two variables considered were the fundraising success rate and the number of investors, since these are the parameters considered in the hypothesis made in *Chapter 4*. As regards the variance-covariance study, the result obtained is the one in *Table 22*.

Firstly, it is possible to notice that there is a low dependence between the fundraising success rate and the number of investors, partially in opposition to the expectation since the higher the number of investors, the higher the probability of successful fundraising should be. Regarding the covariance between the number of investors and the average revenue growth, it reports a slight and negative dependence across the two variables. This result was not expected and in contrast with one of the hypotheses elaborated initially. However, this could be due to the fact that pivotal institutional investors can make huge investments, allowing the campaign to reach the maximum amount of money that can be raised with few investors, and so excluding others who would like to enter in the project. Finally, regarding the

covariance between fundraising success and average revenue, there is a lack of dependence since the growth is close to zero.

Next to the correlation analysis, it was performed a regression analysis composed of a dependent variable, the revenue growth, and two main independent variables, the fundraising success rate and the number of investors. Moreover, it was also considered a temporal dummy on the different years to take into consideration external factors and a dummy based on whether the startup has licenses or not to take into account an internal variable. Finally, a third dummy variable referred to the presence or not of pivotal institutional investors has been introduced. However, in the output of the regression analysis, as is possible to see in *Table 23*, the coefficients found were not significant. Since the dummy on the licenses' introduction caused a reduction in the sample (information about the licenses was available just for some of the startups), a second regression analysis has been done excluding it, but the same result as before has been achieved.

In the end, through the regression study, it is not possible to affirm that the presence of pivotal institutional investors is significantly impactful on the growth and performance of the startups' post-ECF campaign. Nevertheless, this hypothesis cannot be discarded since, according to the result, there is a 71,2% of possibility that it can be confirmed. According to this, in addition to the previous analyses done, it is possible to conclude that the presence of pivotal institutional investors in the crowd has a positive influence on the growth and performance of a startup, even if it is not significant. To understand whether this phenomenon is due to their activism or their ability to do cherry picking, a deeper analysis has been implemented. In this dissertation work, only the first option was taken into consideration, observing that pivotal institutional investors have a much higher percentage of attendance (31,94%) in comparison to the retail investors (10,25%), and that they usually make more interventions during the shareholders' meetings.

Considering all this information, it is possible to claim that pivotal institutional investors, with respect to the others, after investing in specific projects, actively participate in the managing of the startups with the purpose of supporting them in their growth and development.

## 9.2. FINAL CONSIDERATIONS ON THE MAIN ACTORS OF EQUITY CROWDFUNDING

In this chapter, the goal is to make the final considerations regarding the three parties present in a crowdfunding campaign: the investors (which are divided into pivotal institutional and retail), the crowdfunding platforms, and the startups seeking funding.

- **Pivotal institutional investors**

In this dissertation have been considered pivotal institutional investors, which are a subset of institutional investors and whose perimeter was defined in *Paragraph 4.1*. Through the analysis conducted, it was possible to see the major differences between this type of investor and a retail investor. The first thing that was noticed concerning pivotal institutional investors is their average investment size. In fact, the investment is almost always greater than 5.000€ and is on average higher than 50.000€. This investment size is very large compared to that of a retail investor, so the presence of pivotal institutional investors significantly increases the volume of funding. This is one reason why crowdfunding platforms are trying to attract pivotal institutional investors to their network. Another characteristic of pivotal institutional investors is that they generally have more resources and capabilities to evaluate a startup's project. In addition to this, as seen in the example in *Chapter 7*, pivotal institutional investors often are specialized in certain industries, which makes them very experienced and even more capable of understanding which projects have the higher potential. So, their presence, in addition to boosting the growth of the best projects investing in them, acts as a guide for retail investors since if they notice their investment in a certain startup, are encouraged in investing in it as well. In fact, the presence of a pivotal institutional investor is perceived almost as a guarantee in the eyes of retail investors. Another peculiarity of pivotal institutional investors is their preference to have voting rights. In reality, in order to have voting rights is usually only needed to invest an amount higher than a certain threshold, which is often exceeded by pivotal institutional investors since their average investment size is high. Voting rights, however, seem to be strongly desired by pivotal institutional investors since then they tend to participate intensively in ordinary and extraordinary shareholders' meetings. In fact, the percentage of attendance at shareholders' meetings by pivotal institutional shareholders is very high, about 31,94%. Another piece of evidence is that

interventions during meetings are often made by pivotal institutional investors rather than retail investors.

- **Retail investors**

Retail investors in comparison with pivotal institutional investors are very different. First of all, the size of their investment is very small and often coincides with that of the minimum cheap (usually equal to a few hundred euros; for example, in the case study of *Chapter 7* the minimum cheap of the four campaigns analyzed were respectively equal to 499,79€, 499,5€, 500€, 500€). Therefore, many retail investors are needed to be able to raise substantial sums of money as opposed to a pivotal institutional one that alone could exceed the minimum threshold for the success of a campaign (as happened in the 200.000€ investment in Stem Sel Srl by Padda Health). In addition, retail investors are not specialized in certain sectors and have less ability and inclination to analyze the projects proposed by crowdfunding platforms. For this reason, retail investors tend to make diversified investments trying to decrease risk, but without paying too much attention to the characteristics of the different projects. This makes it harder for high-potential projects to emerge, as they are analyzed by this category much more superficially than by pivotal institutional investors. In addition, compared to pivotal institutional investors, retail investors have much less time to spend on research analysis, which is another reason why they invest more randomly (perhaps investing in the first project they like but without also analyzing the others). Another difference noted is that retail investors are often not interested in having the right to vote. However, this could be due to the fact that, as mentioned above, having the right to vote requires an investment above a certain threshold, and a retail alone cannot reach it, or he could but then he would have less money to invest in other projects to allow him to differentiate the portfolio (thus leading to increased risk by having invested so much money on only one project). In any case, the attendance of retail investors is much lower than pivotal institutional investors and is about 10,25%. This thus indicates a lower propensity on their side to participate in ordinary and extraordinary shareholder meetings.

- **Startups**

Based on the data collected within this dissertation, it was possible to analyze the impact of the presence of at least one pivotal institutional investor in the crowd of a startup that has launched an equity crowdfunding campaign.

As previously described in Chapter 4, a definition of the pivotal institutional investor was first developed, so that it could be applied to the investor part of the database reported in Paragraph 4.2, to identify which of the institutional ones present were pivotal institutional. Firstly, it was noted that the number of pivotal institutional investors present was decidedly low (only 85) compared to the total number of investors (which is equal to 20.042).

This figure for startups / SMEs that need funds for their project is not positive looking at the probability of reaching the minimum required target capital.

Considering the amount of money invested by an institutional investor as opposed to a non-institutional investor (which can, in any case, belong to the institutional category or be a retailer), an important difference can be seen.

In fact, according to the data on which this dissertation is based, the average amount of money invested in an equity crowdfunding campaign considering all investors is equal to 5.418,016€, while the average amount of money invested by a pivotal institutional investor amounts to 78.589,53€.

This means that the presence of a pivotal institutional investor in the crowd guarantees a greater possibility for the startup / SME to reach the minimum target capital required, and therefore to have greater monetary liquidity.

Regarding the average fundraising carried out by a startup, the presence of a pivotal institutional investor is not differential, recording a value, equal to 314.424,84€, very similar to both that considering all the campaigns (321.829,22€), and to the one considering only the campaigns without pivotal institutional investors (330.044,82€).

Finally, it can be noted the ability of pivotal institutional investors to act as an anchor to attract other investors.

A startup / SME with at least one pivotal institutional investor has an average number of investors equal to 104,67, higher than the one considering all campaigns, equal to 92,84, and the one considering just the campaigns without pivotal institutional investors, equal to 78,75.

This means that the presence of a pivotal institutional investor in the crowd of a company can partially influence the choice of the equity crowdfunding campaign in which decide to invest the other investors, making the startup more attractive and therefore bringing to it an advantage.

In conclusion, concerning the financial data reported in *Paragraph 5.2*, it is possible to notice an average growth in profit, EBIT, and EBITDA greater in campaigns with at least one pivotal institutional investor than in those without, testifying how positive it is for a startup / SME the presence of at least one pivotal institutional investor in its crowd.

- **Platforms**

The presence of pivotal institutional investors also has an impact on the performance of equity crowdfunding platforms.

From a financial point of view, an ECF platform starts making a profit when the campaigns launched within its portal reach the minimum target required.

The profit, in fact, consists of a percentage applied to part of the total harvest higher than the target capital for each campaign; if the startup / SME does not reach the minimum amount established, the money collected is returned to the investors and the campaign canceled, guaranteeing no profit even for the platform.

Therefore, the presence of institutions within the crowd of investors becomes an important factor, since, as explained in the previous section, their average investment is definitely higher than the average of other investors, increasing the probability of reaching the minimum target capital for startups, and therefore the probability of profit for the platforms. Another positive aspect for the platforms given by the presence of pivotal institutional investors is the greater circulation of money invested within the portal.

This clearly becomes an important factor to consider, as it is capable of attracting startups / SMEs looking for funds, and therefore increasing the number of users within the platform. In *Table 30*, it is shown for each portal the percentage of campaigns with at least one pivotal institutional investor and the monetary quantity present.

<b>Platform</b>	<b>N° campaigns</b>	<b>N° campaigns with at least one pivotal institutional investor</b>	<b>% Of campaigns with at least one pivotal institutional investor</b>	<b>Quantity of money inside the platform</b>
<i>Action Crowd</i>	2	0	0%	928.000
<i>StarsUp</i>	18	7	39%	4.479.504
<i>Next Equity</i>	5	4	80%	3.022.336
<i>200 Crowd</i>	28	10	36%	10.781.511
<i>Investi-Re</i>	1	0	0%	116.829
<i>WeAreStarting</i>	17	8	47%	2.308.130
<i>Muum Lab</i>	3	3	100%	130.500
<i>BacktoWork24</i>	34	9	26%	9.173.210
<i>OPStart</i>	40	30	75%	7.771.839
<i>CrowdFundMe</i>	61	26	43%	20.393.727
<i>MamaCrowd</i>	68	33	49%	28.849.796,06
<i>Cofyp</i>	1	0	0%	213.750
<i>The Best Equity</i>	1	1	100%	2.284.022
<i>Lita.co</i>	1	1	100%	300.007,07
<i>Fundera</i>	1	0	0%	226.816
<i>Doorway</i>	3	2	67%	487.500
<i>House4Crowd</i>	1	0	0%	550.000
<i>Extrafunding</i>	1	0	0%	25.700

*Table 30 – Analysis of the crowdfunding platforms*

According to these data, the average quantity of money in portals without pivotal institutional investors is equal to 343.515,83€, much lower than the average quantity of money in platforms with pivotal institutional investors, equal to 7.498.505,18€. Also considering a percentage of campaigns with pivotal institutional investors to calculate these values, it reports the same result. In fact, the average quantity of money in portals with at least 40% of campaigns with pivotal institutional investors is equal to 7.283.093,01€, higher

than the one in platforms with less than 40% of campaigns with pivotal institutional investors, equal to 3.308.702,5€.

Analyzing the available data, however, it can be noted that the presence of pivotal institutional investors is reduced within the crowd, and therefore within the portals. In fact, as reported in the previous section, the number of pivotal institutional investors identified in the various campaigns is equal to 85, much lower than the total, equal to 20.042 investors.

The reasons why the number of pivotal institutional investors is so reduced and the ways that platforms can adopt to attract them more have not been addressed in this dissertation, but they can be a starting point for future work.

### 9.3. LIMITATIONS AND POSSIBLE FURTHER RESEARCH

There are some limitations that arose during the development of this dissertation. First of all, some reports of ordinary and extraordinary shareholders' meetings, searched on Telemaco, were missing. In addition, sometimes some shareholders' meeting reports did not include the attendance list and so it was not possible to figure out who was present and who was not. Similarly, searching for financial data of start-ups on AIDA, some companies were not found, or many data were not available. This, therefore, caused a decrease in the actual available data that could be analyzed, thus a reduction in the sample for both financial and attendance analysis.

Another limitation concerns the second alternative hypothesis that was generated (see Chapter 4). In fact, it was said that a positive relationship between the number of investors and the operating performance of start-ups was expected. However, it may happen that when an equity crowdfunding campaign starts, a few investors immediately invest a large amount of money bringing the campaign immediately to the maximum threshold of money collectible. In this way, the campaign ends with the highest success rate but a low number of investors; in fact, since the maximum threshold is reached immediately, all other investors who considered the project valuable can no longer be part of it.

Finally, a last important limitation regards the regression analysis. The information referred to the patents owned by each startup is characterized by a great lack of data, which strongly reduced the sample considered for implementing this analysis.

Regarding further research, there are some that could be developed from this dissertation. First, more analysis would be necessary regarding the topic of cherry picking: as mentioned in *Chapter 7*, better performance by startups containing pivotal institutional investors could be due to cherry picking or activism of pivotal institutional investors, but only the latter option has been analyzed in more detail. Another research that could be done is regarding why some crowdfunding platforms tend to have more institutional investors among their clients than other platforms, in fact through a more in-depth study of how different platforms operate it might be possible to understand how to attract these investors.

Finally, it would be very interesting to carry out the same research in other foreign countries, so that the results can be compared, and differences can be analyzed.



## 10. ANNEXES

### 10.1. AIFI REGULATIONS AMONG INVESTORS

Disclaimer: This annex concerns the code of conduct defined for AIFI members

Source: AIFI report - REGOLAMENTO ATTUATIVO DEL CODICE DI COMPORTAMENTO

AIFI associates financial institutions that make investments in unlisted companies and, in addition to representing its members, it conducts analysis and research regarding alternative investments in Italy. The main activities performed by AIFA are the followings:

- Institutional and advocacy activities: AIFI plays an active role in the legislative and institutional process through intensive discussions with relevant authorities, nationally and internationally.
- Research and publication activities: The association produces periodic analyses of the private capital market, collecting, with the support of qualified research partners, statistics on raising activity, investments, and divestments, as well as industry performance.
- Member information activities and industry standards: AIFI explores legal and tax issues of interest to the industry and develops industry standards and guidelines.
- Communication activities: the communication carried out by AIFI is intended to support all association activities that are put in place towards different stakeholders, whether internal or external to AIFI.
- Training activities.
- Networking activities: the association organizes moments of meeting and discussion among its members and more generally with the financial and business community, at the Italian and international level.

Finally, AIFI regulates the behavior of the members, as can be found in the “Regolamento attuativo del codice di comportamento”. This document can be divided into 12 sections:

1. Duties of members: general principles are defined for members, such as conducting their business by refraining from conduct that does not comply with the law and

behaving transparently and fairly toward investors and being vigilant for possible conflicts of interest.

2. Association decisions: members should be inspired by respect, cooperation, and active participation in association life. In addition, members have a duty to cooperate with the association.
3. Transparency: the member's activities must always be verifiable and assessable with the necessary transparency.
4. Competition: members have an obligation to refrain from promoting, participating in, or carrying out, directly or indirectly, activities in competition with those of the association.
5. External parties: members must be fair to the market and competitors.
6. Means of communication and information: members should use language and behavior characterized by caution and moderation in order to avoid any unjustified or inappropriate alarm or wrong interpretation by the public of facts and opinions concerning the investment activities. In addition, members must not disclose to the public any data or news obtained in confidential meetings of the Association.
7. Supervisory authorities: in the relations with the supervisory authorities in charge of monitoring the financial markets, the Member must be inspired by collaboration.
8. Gifts, giveaways, and other benefits: members agree not to promise, give or receive financial favors/benefits aimed at obtaining improper advantages.
9. Obligation of confidentiality: the member agrees to respect the principle of confidentiality with respect to any news, data, or information of a confidential nature, except where such disclosure is necessary to fulfill its legal duties.
10. Members Relationship: members must respect, in all areas of discussion, the opinions expressed by other Members.
11. Disputes between Members: any disputes between Members relating to non-compliance with the principles of this document shall be resolved through the intervention of the Guarantee Committee.
12. Relationships with co-workers: members should strive as far as possible so that associates comply with these principles.

## 10.2. REGULATION ON RAISING CAPITAL THROUGH ONLINE PORTALS

Disclaimer: This annex is based on the report formulated by CONSOB, regarding the existing regulations needed to manage the online raising capital in Italy.

Source: CONSOB report - Regolamento sulla raccolta di capitali tramite portali on-line, 2020

Italy was one of the first countries to adopt specific and organic legislation to regulate equity crowdfunding, which is absent in several other countries.

It is well known that Italy is mainly characterized by medium / small businesses, which, especially after the 2008 crisis, struggle to find and obtain financing; this fatigue encountered is even higher for startups. According to this, a decree was issued (Decreto Legge No. 179/2012 - Decreto crescita bis) to guarantee greater economic growth within Italy, helping also innovative startups to develop. Within these regulations, equity crowdfunding is considered a tool that can foster the development of innovative start-ups through rules and methods of financing capable of exploiting the potential of the internet. The Decree delegated to Consob the task of regulating some aspects of this phenomenon to create a reliable environment in which investors can trust.

Consob adopted the new regulation on June 26, 2013, modified last time by resolution in February 2020.

Specifically, this regulation is made up of 3 main parts:

- Part 1 – *General dispositions*

This section contains the regulatory sources adopted, the definitions of companies and concepts to which the regulation refers, and the methods for communication and transmission to Consob.

- Part 2 - *Register and discipline of the portal managers*

This section is divided into several titles, and each of them consists of several articles. In particular, the first title refers to the establishment of the register, in which the formation, content, and publicity of the register are defined.

The second title, on the other hand, is relegated to registration in the register, defining the authorization procedures, the requirements and any effects of their loss, the forfeiture of the authorization, and the cancellation of the register.

The third title defines the rules of conduct, referring to the obligations of the manager, the investors, and the retention of documentation. In addition, it is composed of articles relating to information on the portal, financial investments, and individual offers.

It concludes with an article referring to the procedures for reporting violations and another one regarding communications to Consob.

Finally, the fourth and last title refers to the sanctioning and precautionary measures.

- *Part 3 - Regulation of offers through portals*

This section contains the conditions relating to offers on the portal, the establishment of the provision and right of revocation, and the electronic bulletin board.

### 10.3. EUROPEAN CROWDFUNDING REGULATION (ECSP)

Disclaimer: This annex aims to explain how is structured the regulation of the European Parliament and of the Council on European crowdfunding service providers for businesses (ECSP).

Source: ECSP Regulation – March 2018; ECSP Regulation – November 2020

In March 2018, the first version of the Regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business was published by the European Commission. It consists of a single and homogeneous regulatory framework within the European Union that allows the diffusion and regulation of crowdfunding in Europe.

It also aims to strengthen the protection of investors and savers through the application of the principle of transparency, to favor the growth and development of platforms within the EU single market. The objective, therefore, consists in standardizing the rules in order to favor the raising of capital, guarantee more and better investment opportunities and encourage the spread of crowdfunding beyond the borders of a single nation. This proposal creates a sort of European passport for all those crowdfunding platforms that decide to operate in one or more European countries. The ECSP Regulation refers purely to two financial models of crowdfunding, in particular equity crowdfunding and social lending (excluding, however, peer-to-peer loans to individuals).

The structure of the regulation relating to March 2018 is characterized by a first part consisting of 46 considerations made; they are the starting point of the articles deliberated subsequently.

These considerations concern the importance of crowdfunding for small and medium-sized enterprises, its diffusion, the actors involved, the problems related to a lack of univocal regulation, and the benefits that the latter would guarantee. Subsequently, there is a list of all the articles (39 articles) approved, divided into several sections (Parlamento Europeo e Consiglio, 2018).

In August 2018, important updates have been implemented, deriving from several feedback received.

The main amendments, considering the additions of August 2018, can be summarized as follows:

1. *Threshold*: the threshold proposed for crowdfunding offers, referring to a period of 12 months, has been raised to eight million euros instead of the one million initially proposed.
2. *Marketing*: the possibility for crowdfunding platforms to communicate their campaigns.
3. *Supervision*: the involvement of national supervisory authorities is increased, consequently reducing the liability initially entrusted to ESMA (European Securities and Markets Authority).
4. *Portals*: two different types of crowdfunding platforms:
  - Portals UE: different regulations of equity crowdfunding platforms compared to lending platforms.
  - Portals non-UE: authorization of platforms from non-EU countries that want to offer their services in the EU, when they are authorized in their countries and comply with the rules imposed on European platforms.
5. *ICO (Initial Coin Offerings)*: crowdfunding platform managers who want to launch ICOs on their portals can do so if the ICO collection will be less than 8 million Euros and if the ECSP Regulation is respected.

In October 2020, a new updated regulation of crowdfunding platforms was published, which provides for more initial considerations (79) and articles (51).

Among the major changes, there is a new maximum collection limit for each company (which rises to 5 million in one year instead of 8 million), the introduction of electronic bulletin boards (to encourage the creation of a secondary market), greater investor protection, and the individual loan portfolio management service (in the context of lending crowdfunding). (Gazzetta Ufficiale dell'Unione Europea, 2020)

## 10.4. LIST OF EQUITY CROWDFUNDING CAMPAIGNS

Disclaimer: In this annex, it is possible to find the list of equity crowdfunding campaigns considered, summarized, and ordered according to the end date of the campaign.

Source: Osservatorio Crowdfunding of Politecnico di Milano

Equity crowdfunding campaigns analyzed:

- **2014:** Paulownia SP srl, Cantiere Savona srl, Nova Somor Srl
- **2015:** Bioerg srl, Shin Software srl, Cynny Spa, Nextop Italia srl, Kyunsys srl, Cynny spa(2)
- **2016:** Media Vox Pop Srl, Enki Stove srl, BrainSeeding srl (Vet24), Maxtrino srl, Xnext srl, P2R srl, Synbiotec Srl, CleanBNB Srl, NexApp srl, Club Italia Investimenti 2 SpA, Ricetta italiana srl (1), Glassup srl, Miropass srl, Primary System Research Ppa, Safeway Helmets srl, Upsens Srl, Papem srl
- **2017:** InfinityHub SPA, Nano srl, Hortikultural Knowledge srl, Skymeeeting SpA, Luche srl, Parterre srl, Felfil srl, Sharewood Srl, Scuter srl, Oreegano srl, Cynny SPA (3), Keisdata srl, Winelivery Srl (1), Ambiens VR srl, Yakkyo srl, Findmylost srl, HYMY GROUP Srl, Graphene XT srl, Bloovery srl (1), TAEBioenergy srl (1), Take Off srl (1), Alea srl, Crowdfundme srl, Glasstopower Srl, Paladin True srl, Little Sea srl, Taskhunters srl, Nano srl (2), Smiling srl, Orwell srl, Ermes Cyber Security Srl, Green Energy Storage srl (1), Yocabè Srl (1), Cubepit Srl, Provita Srl, Stantup Srl, The Digital Box SpA, Babaiola Srl, Qaplà Srl, Family Nation Srl, Verso technologies srl, GK srl, Coco srl, Dreama Srl
- **2018:** Management Innovation srl, B2G srl, Nettowork srl, Bermat srl, Winelivery Srl (2), Samba Dream srl, Verde21 srl (1), NK Group srl, Sustainable Mobility Umbria srl, Start2impact srl, Nextagorà Srl, Biorfarm srl, Smart Domotics Srl, Socopet srl, Scloby Srl, Dreama Srl (2), Garden Sharing Srl, Club Italia Investimenti 2 SpA (2), Your personal Srl, Life Based Value LBV Srl, Pralina srl (1), Sync srl, Inpolitix Srl, Wiralex Srl,

Criptomining Srl, Maid Service Srl, Everyware Srl, Lisari Srl, Dive Srl, P2R srl (2), Getcoo Srl, Prestofood.it Srl, Alfonsino srl, CESYNT ADVANCED SOLUTIONS Srl, Cynny SPA (4), Ecillax Srl, Elaisian Srl, Dreama Srl (3), Fluidia Srl, Take Off Srl (2), Eggup Srl , Glassup srl (2), Insilicotrials Technologies Srl, CleanBNB Srl (2), Ilivemusic Srl, Medicaltech Srl, DNApphone Srl, Friends Srl SB, Sthimaty Srl, Userbot Srl, Rockgroup Srl, Glasstopower Srl (2), Ricetta italiana srl (2), Celldynamics Srl, Italianpick Srl, Bio Investments Srl, Bloovery Srl (2), Marshmallows Games Srl, Pariter Partners Srl, Predixit Srl, Yougardener Srl, Horizon Group Srl, Aerotec Innovation Srl, EYS BA Srl, Insight Srl, M4EC Italia Srl, Edgar Srl, AGE srl, Safepay Srl, Stirapp Srl, Aeffe Srl, Eligo Srl, Mazer Srl, Midori Srl, Shapeme Srl, Tickete Srl, Enolò Srl, Cicalia Srl, Vodivì Srl, Imanager Srl, Verum Srl, Bikee Bike Srl, MyLab Nutrition Srl, Just Knock Srl, Future Fashion Srl, Provita Srl (2), Rabezzana Srl, Soisy SpA, Reoli Srl, Seed money Srl, 1control Srl, Criptomining Srl (2), Pralina srl (2), Viktor Srl (1), Revotree Srl, Biovecblok Srl (1), Wiralex Srl (2), Ciaoaldo Srl, Martha's Cottage Srl, Medics Srl, Fol the beat Srl, You are my guide Srl, Innovitas Vitae Srl

- **2019:** Edilmag Srl, Traction Management Srl, Tree Solutions Srl, Invrision Srl, Winelivery Srl (3), Eattiamo Srl, Ponics Srl, Sportit Srl, Tiassisto24 Srl, Inkdome Srl, Renting Services Group Srl, WindEnergyEfficiency Srl, Dishcovery Srl, Yoagents Srl, Forever Bambù 8 s.a. (3), Autentico Srl, Locare Srl (1), Lombardia Financing Srl, Nterilizer Srl (1), Skymeeeting SpA (2), Grey Srl, Green Energy Storage srl (2), Huddle Room Technology Srl, Triscovery Srl, Linky Innovation Srl, Colan Srl, Japal Srl, TAEBioenergy srl (2), Anonima Cibi Srl, Smartmicrooptics Srl, Startupitalia! Srl, Cloud Pathology Group Srl, Exept Srl, TT Games Srl, Comehome Srl, Soluzioni Tirinnanzi Srl, Vega Electronics Srl, Growishpay Srl, Pralina srl (3), Think! SpA, Homeero Building Srl, Epicura Srl, PCUP Srl, Stem Sel Srl, Biovecblok Srl (2), Pordenone Calcio Srl, Memento Srl, Teethan SpA, Recrowd Srl, Music Innovation Hub SpA Impresa sociale, DV Communication Srl, Aicube Srl, Creationdose Srl, Ges Site Zero Srl, Società Agricola Monte Monaco Srl, Utego Srl, Suqqo Srl, Credit Service Srl, Keesy Srl, Autoo Srl, Docety Srl, Entire Digital Publishing Srl, Imanager Srl (2), Lektro Innovation Srl, Orange Fiber Srl, ZeroDue Milano Srl, Garinvest Srl, Myinvest Srl, Vinvest Srl, Beva Srl, Proptech Srl, Panta rei Srl, Social academy Srl, Alibert 1967 SpA, innovative-RFK SpA, OFFLunch Srl, Ilovecomm Srl,

Improovo Srl, OBrand Srl, Sixth continent Europe Srl, Amavido Crowd Srl, Axieme Srl, Bionit Labs Srl, Genesy Srl, Hinson Srl, Nuova Industria Torinese Sel, Orteat Srl, SF System Srl, Userbot Srl (2), Gopib Srl, I3B Srl (1), U-Earth Biotech Ltd, Sportclubby Srl, Kippy Srl (1), Airlite Club Srl, Nakuru Srl, Bes Up Srl, Cynomys Srl, Gogobus Srl, CESYNT ADVANCED SOLUTIONS Srl (2), Crossfluence Srl, Mamaclean Srl, Nice Filler Srl, Pradella Sistemi Srl (1), Radoff Srl, Microcredito di impresa SpA (1), Pakpobox Europe Srl, B-Zero Srl, International Stuttering Centre Srl, Interweb Srl, Matchplat Srl, Noixa SpA, Quarzio Srl

## 10.5. DATABASE OF EQUITY CROWDFUNDING CAMPAIGNS

Disclaimer: The aim of this annex consists of describing in more detail the database structure containing 286 Italian equity crowdfunding campaigns, which has been used as a starting point for the construction of the first part of the database described in *Paragraph 4.2*.

Source: Osservatorio Crowdfunding of Politecnico di Milano

The file provided by Osservatorio Crowdfunding consists of a database containing a large amount of information relating to 286 equity crowdfunding campaigns in Italy, from 2014 (the year in which the first Italian campaign, Paulownia SP Srl was launched) until 2019 (the database ends with the campaign launched by Quarzio Srl). Most of the information reported is available on the web page of the platform where the ECF campaign was launched. In fact, once the project of a startup / SME that needs funding has been published online, the issuers of the platform provide a brief description of it, the amount of funding up to that moment, and the target capital to be achieved. To this information, there is also other financial and non-company related information, such as financial statements and patents.

Crowdfunding platforms, therefore, aim to manage the data relating to the various companies and make the relevant data visible to potential investors, continuously updating them from the launch period to the end of the campaign.

Analyzing in detail the database, it has been provided in Excel form, where each row represents a specific equity crowdfunding campaign, ordered from the oldest one (2014) to the most recent one (2019). The columns present a great quantity of information, and they can be divided into two different groups.

The first one is referred to qualitative information, as is possible to see in *Table 31*, collected from the company's business profile, available online on the Chamber of Commerce. It is composed of the name of the campaign launched, the fiscal code of the issuing startup/SME, and the area and region of the registered office, representing the main data about the identity of the company. In addition, it is present the ATECO code (referred to the product classification), which consists of a code characterized by letters and numbers: the letters represent the industry in which the startup operates; instead, the numbers describe univocally the firm activity. Finally, it is included in this initial first group the company

typology, which can be subdivided into an innovative startup, an innovative SME, a simple SME, or an SPV (Special Purpose Vehicle).

Impresa	Codice fiscale	Provincia	ATECO	Round >1?	Tipo
Paulownia SP srl	12872191007	RM - Lazio	A 02.10.00		SU Inn
Cantiere Savona srl	03338490927	CA - Sardegna	C 30.12.00		SU Inn
Nova Somor Srl	04154560405	RN - Emilia Romagna	C 25.30.00		SU Inn
Bioerg srl	02520960424	AN - Marche	G 47.91.10		SU Inn
Shin Software srl	02284540032	NO - Piemonte	J 63.12.00		SU Inn
Cynny Spa	06340560488	FI - Toscana	J 62.09.09	x	SU Inn
Nextop Italia srl	02537890903	SS - Sardegna	J 63.12.00	Su crowdcube	SU Inn

*Table 31 – First part of the ECF campaigns' database provided by Osservatorio Crowdfunding*

The second group of information regards the ones provided directly by the equity crowdfunding portals, as previously said, and it is shown in *Table 32*. Knowing the portal in which a campaign has been launched, here is present a brief description of the project, the target capital pointed out by the startup/SME, the ownership percentage (in terms of total share capital), the minimum quantity to collect (generally equal to the target capital), and the take-it-all part.

Impresa	Portale	Progetto	Target capital	Quota offerti	Soglia minima successo	Soglia massim
Paulownia SP srl	Action Crowd	Piantagione piante per legno	520000	86,67%		520000
Cantiere Savona srl	StarsUp	Progettazione e produzione barche termico-solari (green)	380000	20,02%		350000
Nova Somor Srl	StarsUp	Pompa ad energia solare per irrigazione	250000	16,67%		225000
Bioerg srl	Next Equity	Produzione a basso costo di destrano	452576	44%		224000
Shin Software srl	Action Crowd	Realizzazione grafica interattiva 3d Showin3d	636000	45,35%		400000
Cynny Spa	StarsUp	App per condivisione filmati	300000	0,95%		192
Nextop Italia srl	200 Crowd	Wayonara Travel social commerce: pianificazione e condivisione esperienze di viaggio	135000	10,00%		135000

*Table 32 – Second part of the ECF campaigns' database provided by Osservatorio Crowdfunding*

In addition, it is reported the type of shares (which could be ordinary shares, preferred shares, and saving shares), and if they guarantee the right to vote or not.

Looking at *Table 33*, it is shown also the columns regarding the starting and ending date of each campaign, the minimum amount to be paid (minimum chip), and if the campaign ended with success or not, or if it is not still ended (columns "SI", "NO", and "INCORSO").

Tipo quote offerte	Ord	Non vo	Vot + n	Altre	Data inizio	Data fine	Versamento minimo	SI	NO	INCORS
Ordinarie	1				01/06/2014	01/08/2014	15000		1	
Ordinarie	1				01/01/2014	31/12/2014	400		1	
Ordinarie	1				30/11/2014	31/12/2014	450		1	
Ordinarie	1				25/02/2015	28/04/2015	1600 o multipli		1	
Ordinarie	1				19/11/2014	30/04/2015	2000		1	
Ordinarie	1				15/05/2015	30/06/2015	96		1	
Non votanti se rappresentano <= 1,5%			1		20/04/2015	29/07/2015	405		1	

*Table 33 – Third part of the ECF campaigns' database provided by Osservatorio  
Crowdinvesting*

Going to the fourth part of the Database, shown in *Table 34*, it is present the total amount of funds raised by each campaign, the number of investors who subscribed shares in the ECF campaign, the fundraising success rate (calculated concerning the target capital declared), the year in which the crowdfunding campaign ended, and the value of the company pre and post equity crowdfunding campaign, to evaluate the change in value from a monetary point of view.

Raccolto (se successo)	Numero investitori	N (se successo)	Successo %	Anno attribuito	V post-money	V pre-money
520000	12	12	100,00%	2014	€ 600.000	€ 80.000
380000	41	41	100,00%	2014	€ 1.898.102	€ 1.518.102
250000	2	2	100,00%	2014	€ 1.500.060	€ 1.250.060
452576	54	54	100,00%	2015	€ 1.028.582	€ 576.006
408000	21	21	64,15%	2015	€ 1.174.426	€ 766.426
54288	52	52	18,10%	2015	€ 31.248.528	€ 31.194.240
135000	33	33	100,00%	2015	€ 1.350.000	€ 1.215.000

*Table 34 – Fourth part of the ECF campaigns' database provided by Osservatorio  
Crowdinvesting*

Finally, the last part of the database shown in *Table 35* reports the information regarding the multiplier, which is a coefficient needed to consider the revaluation after a subsequent event, the updated value, and the next events, which describe eventual recent follow-up events.

Moltiplicatore	Valore aggiornato	Fatti successivi
1,00	520.000,00	
1,00	380.000,00	
0,02	5.000,00	aumento di capitale finanziato da crediti, fin soci, versamenti conto aucap (sett 2017)
1,00	452.576,00	
1,00	408.000,00	
0,0629	3.414,72	Ultima pre-money (feb 2021) 1,981 M€
-	-	Liquidazione dic 2019

*Table 35 – Fifth part of the ECF campaigns database provided by Osservatorio  
Crowdinvesting*

## 10.6. STRUCTURE OF A MEETING REPORT

Disclaimer: In this annex it is possible to find the typical structure of a shareholder's meeting report with a short description of each section. A lot of information regarding the meetings have been collected thanks to the analysis of these minutes

Source: Website of the Italian Chamber of Commerce, called Telemaco

Shareholders' meeting reports (see *Figure 10.1*) are usually divided into different section and each of them contains different kind of information. Below, the four main sections identified are described in detail:

- Section 1: in this first introductory part, the date, time, and place of the meeting is given. Of course, the name of the company is also provided.
- Section 2: the second part presents the list of topics to be covered during the session. Here it is possible also to find the name of the president of the meeting.
- Section 3: This section shows the number of shareholders present (sometimes also in terms of % of capital) and often includes a list indicating which shareholders are present and which are not. When a shareholder is present, it is sometimes indicated whether in person or by delegation.
- Section 4: in the fourth section there is a discussion of topics that need to be covered. In this part, it is possible to find interventions made by the shareholders.
- Section 5: In the last part there is the deliberation, where the voting result is usually present (sometimes the votes of each shareholder are defined) regarding a certain decision that has to be taken.

**VERBALE DELL'ASSEMBLEA ORDINARIA DEI SOCI**  
**DEL \_\_\_/\_\_\_/\_\_\_**

Sections:

In questo giorno \_\_\_ del mese di \_\_\_\_\_ dell'anno \_\_\_\_\_, alle ore \_\_\_\_\_ presso \_\_\_\_\_ in \_\_\_\_\_, si sono riuniti i soci dell'Associazione Sportiva Dilettantistica “ \_\_\_\_\_ ” per discutere e deliberare sul seguente

1

**Ordine del Giorno**

1. esame ed approvazione del bilancio dell'esercizio chiuso al \_\_\_\_\_
2. varie ed eventuali

2

Assume la presidenza dell'assemblea il Presidente dell'Associazione, Sig. \_\_\_\_\_, il quale

**preso atto**

- della regolarità della convocazione;
- che sono presenti numero \_\_\_\_\_ Soci, in proprio o per delega;
- che sono presenti numero \_\_\_\_\_ componenti il Consiglio Direttivo

3

**dichiara**

validamente costituita l'Assemblea ed invita la stessa alla nomina del Segretario.

Udito quanto sopra, l'Assemblea, all'unanimità, chiama il Sig. \_\_\_\_\_, che accetta, a fungere da Segretario.

4

Il Presidente prende la parola ed inizia la discussione del primo punto all'ordine del giorno dando lettura del bilancio al \_\_\_\_\_, ed invitando l'Assemblea a formulare le osservazioni che ritenga più opportune.

L'Assemblea, dopo approfondita discussione, delibera di approvare all'unanimità il bilancio al \_\_\_\_\_, concordando con la proposta dell'organo amministrativo circa la destinazione del risultato di periodo.

5

Alle varie ed eventuali nessuno chiedendo la parola e non essendovi altro su cui deliberare, l'Assemblea viene tolta alle ore \_\_\_\_\_, previa stesura, lettura ed approvazione del presente verbale.

Il Presidente

Il Segretario

\_\_\_\_\_

\_\_\_\_\_

*Figure 10.1 – Ordinary shareholders meeting report*

## 10.7. DATABASE OF INVESTORS

Disclaimer: This annex aims to describe in more detail the database structure containing the list of the investors who participate in the equity crowdfunding campaigns studied, which has been used for the construction of the second part of the database described in *Paragraph 4.2*.

Source: Osservatorio Crowdfunding di Politecnico di Milano

This database consists of an Excel file containing the list of all investors who subscribed for shares in the equity crowdfunding campaigns. It has been used to build the database described in *Paragraph 4.2*, together with the one explained previously in *Paragraph 8.2*. The list of investors present can be found directly on the platform of equity crowdfunding, or by comparing the business profile of a company before and after the ECF campaign.

The Excel file provided by Osservatorio Crowdfunding is composed of several rows, where each of them represents a specific investor. In the column, instead, all the information is reported.

Specifically, as shown in *Table 36*, it is indicated the typology of investor, which could be a natural person (PF) or a legal person (PG), if the investor is serial or not, the number of investments done in ECF campaigns, the total amount of money collected (both by serial and not serial investors), and naturally the name and surname of each investor.

Tipologia Investitore	Seriale	N.investimenti	importo seriali	importo non seriali	N. inv seriali	Nome/Cognome
PG	0	2	Non Seriali	43333.33333	0	MILLENUM PARTECIPAZIONI S.R.L.
PG	0	2	Non Seriali	43333.33333	0	UMBERTO IMMOBILIARE SRL
PG	0	2	Non Seriali	43333.33333	0	TEALDO SERVIZI S.R.L.
PF	0	1	Non Seriali	43333.33333	0	BONAFEDE ALESSANDRO
PF	0	1	Non Seriali	43333.33333	0	CASENTINI NATALE LUCIANO
PF	0	1	Non Seriali	43333.33333	0	DEDE' MARIA ELISABETTA
PF	0	1	Non Seriali	43333.33333	0	MOSCA MARCO
PF	0	2	Non Seriali	43333.33333	0	MUSACCHIA SAVERIO
PF	0	1	Non Seriali	43333.33333	0	ROMANO ASSUNTA MARIA
PF	0	2	Non Seriali	43333.33333	0	ROMANO VALERIO

*Table 36 – Part of the investor's database provided by Osservatorio Crowdfunding*

In addition to the information above, in this document, it is also reported private information about each investor, such as the fiscal code, the age, and the region, and financial

information, such as the total amount of capital invested, the number of subscriptions, and if the investor was already a partner or not of the startup/SME invested (look at Table (N°)). Finally, regarding the legal investors (PG), it is reported the ATECO code and the ATECO sector, already explained in *Paragraph 8.1*.

In the following table (*Table 37*), it is shown a second part of the overall database described.

Numero Sottoscrizi	Cluster Sottoscrizione	Importo sottoscrizi	Cluster Importo	Note (socio già esistente?)	SIM o Fiduciari	Età (se PF)
2	2 Sottoscrizioni	140.000,00 €	>= 50.000€	no		Società
2	2 Sottoscrizioni	50.000,00 €	>= 50.000€	no		Società
2	2 Sottoscrizioni	30.000,00 €	10.000€ - 49.999,99€	no		Società
1	1 Sottoscrizione	15.000,00 €	10.000€ - 49.999,99€	no		48
1	1 Sottoscrizione	35.000,00 €	10.000€ - 49.999,99€	no		65
1	1 Sottoscrizione	50.000,00 €	>= 50.000€	no		63
1	1 Sottoscrizione	35.000,00 €	10.000€ - 49.999,99€	no		42
2	2 Sottoscrizioni	50.000,00 €	>= 50.000€	no		41
1	1 Sottoscrizione	30.000,00 €	10.000€ - 49.999,99€	no		65
2	2 Sottoscrizioni	50.000,00 €	>= 50.000€	no		50

*Table 37 – Part of the investor's database provided by Osservatorio Crowdfunding*

## 10.8. NUMBER OF INVESTMENTS AND % OF ATTENDANCE OF PIVOTAL INSTITUTIONAL INVESTORS

Disclaimer: This annex concerns the data related to the number of investments done by each pivotal institutional investor and its percentage of attendance at the shareholders' meetings (both ordinary and extraordinary).

Source: Database realized for this dissertation work

<b>Pivotal institutional investor</b>	<b>Number of investments</b>	<b>% Of attendance</b>
3LB SEED CAPITAL S.R.L.	1	66,67%
AGIERRE S.R.L.	1	33%
ALISEI FORINVESTMENTS S.R.L.	1	67%
AMGP S.R.L.	4	25,00%
ANGELI & ANGELI S.R.L.	1	50%
ARDOR S.R.L.	1	0,00%
ASSINAONIS DI FALVO FELICE & INGARGIOLA S.N.C.	1	NA
ASSITECA SPA INTERNAZIONALE DI BROKERAGGIO ASSICURATIVO	1	0%
B-ENGINE S.R.L.	1	66,67%
Banca di credito cooperativo di san marzano	3	22,22%

BANCA POPOLARE DELLA PROVINCIA DI MACERATA SPA	1	0,00%
BANCA POPOLARE ETICA SOCIETA' COOPERATIVA PER AZIONI O IN FORMA ABBREVIATA "BANCA ETICA" O "BPE"	2	0,00%
BANNI SRL	1	0%
BITETRA S.R.L.	2	NA
BOOST HEROES S.P.A.	12	86,17%
BOREALIS - TECH VENTURES S.R.L.	1	100,00%
BPC INVESTMENT S.R.L.	1	100,00%
BRAMANI SIMONA & LOMBARDI IGOR S.N.C.	1	0,00%
BRUNO SFORNI S.P.A.	2	NA
CAFLO HOLDING S.R.L.	1	25,00%
CHIEZZO SRL	3	0,00%
CLICKAUTO S.R.L.	1	0%
CLUB ACCELERATORI S.P.A	9	39%
CLUB ITALIA INVESTIMENTI 2	4	52,08%
COBER SRL	1	0,00%
DARDANO CAPITAL SOCIETA' A RESPONSABILITA' LIMITATA	2	NA

DIATEC HOLDING S.P.A.	1	66,67%
DIGITAL NATIVE HOLDING S.R.L.	1	0,00%
DIRECTA SIM S. P. A.	45	26,38%
DISHCOVERY & PARTNERS SRL	1	100%
ENERGHEIA S.A.S DI GRIGOLO ENRICO & C.	3	0%
FAMACAPITAL S.R.L.	4	0,00%
FD HOLDING SRL	1	NA
FED S.R.L.	1	0,00%
FIDINGEST FIDUCIARIA INTERNAZIONALE DI GESTIONE S.P.A.	1	0%
FINARGO S.R.L.	1	100,00%
FINDSTART S.R.L.	2	100,00%
FINGESMA S.P.A.	1	0,00%
FIVE.EIGHT VENTURES SRL	1	0,00%
FONDO COLLETTIVO DI GARANZIA FIDI TRA LE MICRO, PICCOLE E MEDIE IMPRESE DEL CENTRO ITALIA - APIFIDI CENTRO ITALIA IN FORMA ABBREVIATA "CONSORZIO APIFIDI CENTRO ITALIA"	1	0,00%
FUTURA S.A.S. DI FRACASSI LORENZO ORESTE E C.	4	0,00%

FUTURO INVESTIMENTI S.R.L.	1	33,33%
G.P.F. FUTURE S.R.L.	1	50,00%
GML VENTURES S.R.L.	2	0,00%
GREEN AFFAIR HOLDING SRL	1	NA
HALEN S.R.L.	2	100,00%
INSQUARED HOLDING SRI	2	0,00%
KARMA S.R.L.	1	0,00%
LGC HOLDING SRL	1	0,00%
LIERI 33 S.R.L.	3	16,67%
LUNELLI S.P.A.	1	0,00%
META VENTURES S.R.L.	1	NA
METRICA VENTURES S.R.L.	1	50,00%
MGS S.R.L.	1	66,67%
MICRODATA GROUP S.R.L.	2	0,00%
MICROFIN S.R.L.	1	66,67%
MLTS S.R.L.	1	0%
MNS CAPITAL S.R.L.	23	31,93%
MOLINI BESOZZI MARZOLI S.R.L.	3	NA

NEXT S.P.A	1	22,22%
NTS S.R.L.	1	0,00%
OLTRE II SICAF EUVECA S.P.A.	1	75%
ON GROUP S.R.L.	1	0%
OPEN SEED S.R.L.	3	54,17%
OPUS ONE SRL	1	0,00%
OVAS S.R.L.	1	100,00%
PADDA S.R.L.	4	66,67%
PECOS S.R.L.	1	66,67%
PETRA S.P.A.	1	0,00%
PRIMOMIGLIO SOCIETA' DI GESTIONE DEL RISPARMIO S.P.A. O IN	1	100,00%
PRIVATE BROKING S.R.L.	1	0,00%
PUME S.R.L.	1	NA
RANCILIO CUBE SRL	1	75,00%
RAYNVEST S.R.L.	4	0,00%
RECA BENE SRL	1	0%
ROBERTO SARTORI E LUIGI RINALDINI SNC	1	NA

SIMON FIDUCIARIA S.P.A. SIGLABILE SIMONFID S.P.A.	1	25%
SO.GE.S.A. S.R.L. (SOCIETA' GENERALE DI SERVIZI ASSICURATIVI )	4	33%
SOMAPA S.R.L.	1	NA
SUPERVALE S.R.L.	3	0,00%
TAGORA COMPANY S.R.L.	2	NA
TREOTTO INVESTMENTS S.R.L.	1	50,00%
VINVEST S.R.L.	1	100%
WOLSEY VENTURES S.R.L.	2	0,00%
ZETAPLAN S.R.L.	1	22,22%

*Table 38 – Number of investments and percentage of attendance for the pivotal institutional investors (NA means that data about the attendance were not available for that company)*



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