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An Empirical Analysis of Peer-to-Peer Loans to Business Companies

The Case of Lendix Platform

A dissertation submitted for the Master of Science degree in Management Engineering

Authors:

Alessandro Cimino 852012

Marco Filella 852968

Thesis Supervisor: Professor Giancarlo Giudici

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Abstract (English Version)

This empirical analysis was developed within the perimeter of Peer-to-Peer Lending, a quite young industry, characterized by significant growth rates and by online platforms in a continuous global expansion process. During the last decade this topic became significantly relevant by several perspectives; in particular, researches and studies focused on the functioning and on the role those platforms may assume in financial markets, both as a source of financing and as a possible investment alternative. The analysis was developed on the identification of the critical success drivers for SMEs accessing at this credit channel, focusing on the 334 companies asking and receiving money through the French platform Lendix SA between February 2015 and December 2017, examining the eventual impact of these factors on private investors' preferences. The analysis was structured through a multivariate linear regression model aimed at identifying the existence of a relationship among some test variables, related to financing characteristics, borrower company's characteristics and the purpose of the financing, and four success measures, defined in terms of time, speed collection of the amount requested and the crowd commitment to participate to the financing. From results emerge the existence of a polarization of the preferences of private investors towards those projects characterized by elements at greater risks, where high-interest rates and limited coverage ratios related to the fixed costs of the different financing solutions of the company under analysis predominate. Moreover, was evidenced how the loan purpose has a significant impact on the critical success drivers defined.

Key Words: P2P Lending, Institutional Investors, Risk Diversification, Risk-Return Profile, FinTech, Alternative Finance, Small-Medium Enterprises (SMEs).

Abstract (Italian Version)

Questa analisi empirica è stata svolta all'interno del perimetro del Peer-to-Peer Lending, un settore relativamente giovane, caratterizzato da significativi tassi di crescita e da piattaforme online in continua espansione a livello globale. Nel corso dell'ultimo decennio il tema ha assunto una notevole rilevanza rispetto a diverse prospettive; in particolare, le ricerche e gli studi si sono concentrati sul funzionamento e sul ruolo che queste piattaforme possono assumere all'interno dei mercati finanziari, sia come fonte di finanziamento sia come possibile alternativa di investimento. L'analisi si concentra sull'identificazione dei fattori critici di successo delle PMI che accedono a questo canale di finanziamento, focalizzandosi sulle 334 imprese che hanno richiesto e ricevuto un finanziamento tramite la piattaforma francese Lendix SA tra Febbraio 2015 e Dicembre 2017, interrogandosi sull'eventuale impatto di questi fattori sulle preferenze degli investitori privati. L'analisi è stata strutturata tramite un modello di regressione lineare multivariata volto a identificare l'esistenza di relazioni tra alcune variabili test, relative a caratteristiche del prestito, caratteristiche della società richiedente il prestito e alla finalità del prestito stesso, e quattro misure di successo, definite in termini di tempo, velocità di raccolta del finanziamento e partecipazione della folla allo stesso. Dai risultati emerge come esista una polarizzazione delle preferenze degli investitori privati nei confronti dei progetti caratterizzati da elementi a maggior rischiosità, tra cui prevalgono elevati tassi di interesse e tassi di copertura dei costi fissi relativi alle diverse forme di finanziamento dell'azienda in esame limitati. Inoltre, è stato evidenziato come la finalità del finanziamento abbia un impatto sulle misure critiche di successo definite.

Parole Chiave: P2P Lending, Investitori Istituzionali, Diversificazione del Rischio, Profilo Rischio-Rendimento, FinTech, Finanza Alternativa, Piccole-Medie Imprese (PMI).

Introduction

In the last decades, financial markets were strongly affected by the difficulty of SMEs to access the traditional bank credit channel, accentuating the credit crunch phenomenon. Moreover, the development of web digital technologies disrupted financial activities carried out by traditional financial intermediaries, enabling the birth of a new channel, parallel to the traditional credit one, called Alternative Finance. This phenomenon was developed in different and heterogenic forms, such as cryptocurrencies, mini-bonds, social impact bonds and all topics related to the CrowdFunding universe. A sub-group of this last alternative financing system is known as CrowdInvesting, where to the provider of money, i.e. the lender, is recognized a monetary return in exchange of the participation to the funding campaign. Different forms of CrowdInvesting exist, among which the Peer-to-Peer Lending (P2P), or Social Lending, is one of the most interesting and developed. The term P2P Lending is referred to a set of activities and processes where individuals can lend money to a counterpart, usually an individual or a business, in exchange of a monetary reward defined through an interest rate applied on the capital financed. The transactions between the parties involved in the P2P Lending market are enabled by online platforms, matching directly the needs of lenders and borrowers without the presence and the intervention of any intermediary. The global massive growth experienced by the industry under analysis in the recent years and the high level of risk associated to these activities, given the fact that loans provided are unsecured by any collateral, lead traditional financial institutions, academics and researchers to investigate and to analyse the main potentialities, risks and opportunities linked to this kind of activities.

The main issue of lending activity regards the information asymmetry between the parties involved; usually, borrowers have more information than lenders about their creditworthiness. Also in P2P Lending asymmetric information problems are relevant and very discussed by the literature, investigating if P2P lenders are efficient in reducing problems arising from asymmetric information, i.e. adverse selection and moral hazard (ex-ante and ex-post asymmetric information problems). P2P platforms usually provide synthetic information about the creditworthiness of the borrower through the assignment of a credit rating, relying on both proprietary and external valuation models. In addition, platforms provide a set of information about the borrower's financial situation and some soft-information, called also as not-quantifiable, such as the age, the gender, the education level and others. One of the main literature stream analyses the capability of private investors forming the crowd to process this

information in order to reduce the problems arising from asymmetric information. Other studies investigate the relationship between this information and the success of the financings, based on the default risk probability. This master thesis work is referred to this stream of analysis, aiming at analysing the critical success drivers for business loans provided by one of the main European players: Lendix SA. Lendix is a French P2P business lender founded in 2014 and active in France since February 2015. In 2017, the platform obtained the authorisation to operate in Spain and, a few months later, in Italy, and it is planning to establish new subsidiaries in Germany and Netherlands within the end of the year 2018. One of the main peculiarity of this European platform is represented by the co-presence of institutional investors and private ones in the financing process; the commitment of institutional investors to lend money to all the projects is guaranteed by the participation of them in the Lendix Fund, that takes part to all the financings at least for the 51% of the amount requested. The remaining portion of the amount asked should be completed by the crowd; if it does not complete the financing, the Fund covers the unfunded portion. This mechanism guarantees the 100% probability to receive the amount requested, once the available projects are published on the marketplace of Lendix.

Considering the relatively young age of the firm, data related to defaulted loans were few in order to develop an analysis based on default rates; for this reason, the success of projects was defined by measures concerning the time on the platform, the speed collection of the amount requested and the crowd commitment to participate in the financing. More precisely, the four success variables were defined as the ratio between the amount actually financed by the crowd and the expected amount leaved by the institutional investors to the crowd (the 49% of the total amount), the ratio between the amount actually invested by private investors and the time spent by the project on the platform, its relative measure weighted on the 49% of the total amount and the time needed by each project to complete the financing. We collected the available information related to each project, i.e. for 334 projects financed from February 2015 to December 2017. From this sample of 334 projects, we do not consider 15 projects totally financed by institutional investors and 33 projects for which relevant information was not available, for a final sample size of 286 financings.

We structured a multivariate linear regression model aimed at identifying the existence of relationships among the success measures previously described and some test variables, coming from the data collected. Furthermore, we were interested in highlighting the impact of those test variables on each success measure proposed. In order to perform this analysis, we

formulated three different hypotheses, linking the success of projects firstly to financing characteristics, secondly to intrinsic borrowers' characteristics and, thirdly, to the specific loan purpose. In particular, the test variables related to the first hypothesis were the *Amount* requested, the *Interest Rate* and the *Maturity* of the loans. For what concerns the second hypothesis, the test variables considered were the indebtedness level weighted on the Equity of the company, the synthetic measure provided by Lendix describing the capability of the firm to repay the fixed costs arising from the different financing solutions (FCCR), the average revenues level of the company and its age. The test variable linked to the last hypothesis regards the loan purpose, with a special focus on projects asking money to sustain an acquisition process. After having developed three regression tests, one for each hypothesis formulated, we built a more comprehensive model, taking into account the conjoint effect of these test variables on the success measures defined with a final regression.

Results show that the more relevant variables related to our three hypotheses explaining how the success of projects is determined are the *Interest Rate*, with a positive impact, the *Fixed Costs Coverage Ratio* (FCCR), with a surprising negative impact, and the purpose of the loan, that reduce the success in the case of an acquisition. An unexpected result is the one related to the level of indebtedness, apparently not significant as a determinant of projects success, in discordance with past researches conducted on other P2P platforms. These results highlight a polarization of the private lenders' preferences towards those projects characterized by elements at greater risks, such as high interest rates and low FCCRs. This apparently higher risk propensity characterizing private investors' behaviours could be explained by different perspectives. For instance, this higher risk propensity was empirically demonstrated by Hudcová (2017) in her work, showing that investors in P2P environment result to be more risk-propense with respect to what they declare to be (Hudcová, 2017). Another support to our conclusion comes from the work of Collier et al. (2016) named "Risk Preference Inconsistencies across Low and High Stakes: Evidence from the Field", where the authors show that the risk propensity of individuals increases when they operate in a low stakes domain rather than in high stakes one. Considering the characteristics of P2P Lending, allowing investors to participate to the financing with a very low amount (e.g. in the case of Lendix, the minimum stake size is € 20 on the total amount financed) we assumed it was possible to apply the results of their paper on our findings. A third alternative explanation could be the presence of the Lendix Fund, increasing the general confidence about all the projects published on the platform,

reducing the risk-reward profile for the riskier projects and leading investors to prefer larger expected returns (interest rates) rather than smaller ones. The last possible explanation could be developed within the boundaries of the prospect theory, according to which the decision-maker could behave differently according to different prospects. In detail, in a negative domain, the decision-maker tends to be more risk-propense than in a positive domain where he prefers the safest solution. Assuming that the generally high level of risk characterizing the universe of P2P Lending could be associated with a negative domain, this lead investors to undertake behaviours with high risk propensity.

This work is organized is seven main sections. The first section provides a brief overview of the crowdfunding universe, while the second one focuses more deeply on theP2P paradigm, from its birth to its application in the financial sector. The section provides also a synthetic overview of the P2P industry. Section 3 reports the literature analysis, while section 4 regards the specific case study of Lendix. Section 5 concerns the methodology adopted, while section 6 and 7 are related, respectively, to the results of our regression model and the discussion of the main conclusions developed.

1 CrowdFunding Overview

Considering the CrowdFunding universe, an important issue is the one related to the rates applied by the banks active in microfinance. The characteristics of the actors involved (no valuable credit history and in most cases no collateral) "forced" the institutions to cover the great amount of risk with very high rates. The author of "Il Microcredito" Leonardo Becchetti[1] explains with a very simple example the difference between the rates applicable by a traditional bank (in presence of a collateral on the debt) and the ones applicable by the banks active in the microfinance, and how the model of group lending can positively impact on the rates. It is difficult to give a unique definition of CrowdFunding, and many commissions, authors and studies provide different definitions. The European CrowdFunding Network (2012) states that "CrowdFunding is a collective effort of many individuals who network and pool their resources to support efforts initiated by other people or organizations", but CrowdFunding is also considered as "a particular type of collective funding that, exploiting the potential of the Internet, allows those who have ideas or needs, but not all the funds to realize or satisfy them, to try to access third-party financial resources, starting from those of relatives and friends in the hope of attracting those - much larger - of the crowd that populates the online world, which, trusting the feedback mechanisms that are generated between users - as discriminating for the validity and feasibility of a project - are willing to finance an increasing number of ideas"[2]. Moreover, CrowdFunding can be defined as "the process by which more people give money to finance a project using websites and sometimes receiving a reward in return"[3].

In conclusion it is possible to say that CrowdFunding is a particular type of collective funding that, by exploiting the potential of the Internet, allows those who have ideas or needs, but not the capability to realize them, to try to access third party's resources through specific online platforms, going to offer their supporters financial or non-financial rewards. In other words, we can see CrowdFunding as a combination of two other concepts that are evolving recently; microfinance, i.e. the provision of a small amount to little entrepreneurs with no or low assets

[1] Professor in the University of Tor Vergata and author numerous books about finance as 'Finanza Etica' and 'Il commercio equo e solidale alla prova dei fatti'.
[2] G. Quaranta, CrowdFunding. Il finanziamento della folla, o dei "folli"?, Diritto ed Economia dell'Impresa, Fascicolo n. 5, G. Giappichelli Editore, 2016.
[3] M. Tencalla, Equity CrowdFunding per tutte le PMI con la Legge di Bilancio 2017: aspetti tributari, Rivista di Diritto Tributario, 3rd of March 2017.

as collateral, and crowdsourcing (feedback suggestion, voluntary participation, interaction with the community).

In this work we want to describe the characteristics of this phenomenon in its different forms, the role of the different actors, the key elements, the main risk factors and numbers that illustrate its evolution in Europe and in Italy to have better in mind in which framework we deal when we talk about P2P Lending, with particular focus on the CrowdInvesting.

Historically we can recognize two events antecedents to CrowdFunding: the establishment of the first European Stock Exchanges, the Dutch ones, in the 16th century and the Statue of Liberty, a symbol of New York. Regarding the first event, at that time, the funding of the Indies, which explored the markets to the East and West of the old continent, found the resources financed by all the social classes. It is not by chance that the famous VOC, i.e. the Dutch East India Company, had an initial capital of about 6.5 million florins, signed by about 1,200 people, of which almost a third were individuals belonging to the lowest social classes. For what concerns the second element, when the Statue of Liberty arrived in the United States - towards the end of the 19th century - resources were lacking to finance the construction of the pedestal that had to support it. There are several attempts to raise the necessary sum of $ 100,000, but none of them went well. So, J. Pulitzer offered to enter in his daily the name of anyone who has donated money, from the sum paid. In just five months, $ 102,000 were handled by 120,000 donors who, in most cases, donated less than one dollar each. The Internet was never invented in the mid-80s of the 19th century, and the strategy of J. Pulitzer can be configured as a first form of civic CrowdFunding, in which citizens finance their own resources with a project of public interest[4].

The first real traces of CrowdFunding date back to the second half of the 1990s, when online fundraisers began to spread for charity projects. Subsequently, in the early 2000s, web portals were born, through which it was possible to provide small loans. One of the first was Produzioni dal Basso[5], an unprecedented Italian portal based on the concept of CrowdFunding, launched in 2005. However, towards the end of the first decade of the new millennium, CrowdFunding began to spread substantially, thanks also to the emergence of leading platforms such as Kickstarter and Indiegogo launched respectively in April 2009 and January 2008[6].

[4] https://www.crowd-funding.cloud/it/le-antiche-origini-del-CrowdFunding-222.asp.
[5] Produzioni dal Basso is the first Italian CrowdFunding platform, https://www.produzionidalbasso.com.
[6] https://www.crowd-funding.cloud/it/breve-storia-del-CrowdFunding-223.asp.

CrowdFunding is part of the alternative finance sector that describes all the parallel financial channels to the traditional one, i.e. banks and financial intermediaries that are developing thanks to the Internet and to the evolution of the sharing economy. In particular, CrowdFunding is becoming one of the most interesting possibilities available for little enterprises to raise capital especially in presence of the credit crunch after the 2008 financial crisis.

1.1 Players Involved

The activity of CrowdFunding requires the interaction of different types of actors:

1. Fundraiser: the person (private) or the legal person (company, foundation, association) who launches the CrowdFunding campaign to support its idea or project.
2. Platform: the online portal in which the CrowdFunding campaigns are launched, which represents the virtual place where the meeting between demand and supply takes place.
3. Crowd: the cornerstone for the creation of a CrowdFunding campaign. This is the multitude of individuals online that through the investment of small amounts can enable the fundraisers of CrowdFunding campaigns to raise the funds necessary for the realization of their ideas and/or support their needs.
4. Consultants: They are the advisors that support the fundraiser in the CrowdFunding campaign. It is possible to divide these specialists into two categories: “classic” and “new”. The classic advisors, in general, coincide with lawyers, accountants and notaries or, however, with similar professional figures. The new advisors, on the contrary, are linked to the web world and to digital marketing and are mainly involved in the management of communication and the promotion of the online campaign.
5. Intermediaries for monetary exchange: This category includes those who manage online payments. In fact, usually, the platforms rely on external providers both in the online world (for example PayPal) and the classic banks for the management of money transactions between lenders and fundraisers.
6. Supervisory bodies: They are the subjects that, according to the laws of each State, oversee the control of certain sectors. About CrowdFunding, in Italy, the most important

supervisory bodies are CONSOB (National Commission for Companies and the Stock Exchange) and Bank of Italy. In addition to these, in the European context, even if it is not a real supervisory body, we can mention the European CrowdFunding Network (ECN). In the United States control is exercised by the SEC (Securities and Exchange Commission).

1.2 CrowdFunding Categories

It is possible to classify the CrowdFunding campaigns according to two different models, the "all or nothing" or "take it all". In the first case the success of a campaign is strictly related to the achievement of a specific target, while in the second case, any amount is accepted. It is easy to understand that the most successful campaigns are in form of "all or nothing" because, in this sense, there is also a mechanism of trust towards the fundraiser, who certainly does not acquire credibility by setting a financial goal for his project but being ready to start it with a lower amount. Exist different form of CrowdFunding for purpose or type of remuneration used. The classic models are:

1. Reward-based CrowdFunding

   In this form of CrowdFunding, lenders are paid by little rewards by the initiator of the campaign. Lenders have an important role, not only as simple financiers but with an active role in the determination of the possible features and characteristics of the final product. Usually, these rewards are presales on the finished product or little gadget. This typology of CrowdFunding allows the entrepreneur to understand if exists a potential market for his idea and eventually how to improve it.

2. Donation-based CrowdFunding

   This form of CrowdFunding is typical of social, non-profit, ecological or political projects/initiatives. In this case, the initiator of the project does not refund or remunerate the amount received. The backers devolve altruistically their money and do not receive back anything or, in particular cases, symbolic intangible rewards. It is not rare the case in which are set up ad-hoc websites for the fundraising of a specific project or supportive initiative as the case of "#UnAiutoSubito" dedicated to supporting the population of middle Italy devastated by an earthquake.

3. Royalty-based CrowdFunding

   The initiator of a CrowdFunding campaign of this type offers, in exchange for the money received a portion of the future profits (royalties) generated by the project for which is raising money. Some authors insert this activity in the category of CrowdInvesting for the monetary nature of the remuneration on the capital invested. The main difference with the Equity-Based CrowdFunding is that backers do not receive any owning right on the project or prefixed reimbursement.

4. CrowdInvesting

   In this category enter all the activities where individuals or institutional investors can fund an entrepreneurial project with real monetary remuneration on the capital invested. In this category are included the form of Equity CrowdFunding, Lending CrowdFunding or Social Lending and Invoice Trading.

A common element of these three forms of activities is the issue of the risk associated with the capital invested which is typically elevated. We can mention several forms of risks related to this typology of activities[7]:

i. The asymmetric information between the actors involved in the transaction (a recurrent issue in any type of financial transaction).

ii. The moral risk associated with possible opportunistic behaviour by the fundraiser.

iii. The low level of liquidity associated with this type of investment.

iv. The intrinsic risk of the financed project that usually is represented by entrepreneurial activities in their very first stages of the lifecycle.

v. The limited role of the supervisory bodies (in Italy CONSOB[8] and the Bank of Italy) exercising control on the investment process less significant than what happens in traditional areas for soliciting collective savings and banking, with less substantial (or zero) capital requirements for platform management.

More recently new models of CrowdFunding were born in order to exploit all the different shapes of this phenomenon.

[7] G. Giudici, 2° Report italiano sul CrowdInvesting in Italia, July 2017.
[8] Commissione Nazionale per le Società e al Borsa.

5. Civic CrowdFunding

   In this case, CrowdFunding is an important touchpoint between private and public sector. CrowdFunding becomes a source of financing for public projects. Important issues born from this activity because usually these types of projects are financed by taxes, but it seems that people feel more involved if they can support projects with public utility on their own. This typology of CrowdFunding can be shaped in form of "donation" or "reward" based, and of course, these platforms attract the interest of the crowd on a local base.

   This form of CrowdFunding presents some potentialities as the fact of being able to exploit the civic sense of people especially because these types of platforms are usually active on a local base; the public institutions become more able to understand the interest of the crowd, testified by the participation, defining the priority on the activities implemented in the territory. It is important to highlight also some obstacles that slow down the development of these activities as the low level of education around the theme of CrowdFunding among citizens that makes them reluctant in use internet-based platform for this kind of payments/donations preferring traditional channel as credit transfer; or again a too complex bureaucracy that makes difficult to realize some projects. It is possible to mention some examples in the Italian territory.

   The recovery of the portico of San Luca in Bologna, an initiative supported by a city committee and the Ginger platform, which ended with the collection of € 338,673 from around 7,000 backers. Furthermore, the reconstruction of "Città della Scienza" when 12,000 square meters of scientific exhibitions were lost in an arson during the night of the 4th of March 2013. On the platform DeRev, thanks to the patronage of the city of Naples and the support of the IDIS foundation, € 1,463,867 were collected from 2,584 lenders[9].

6. Real estate CrowdFunding

   The real estate CrowdFunding is a type of collective financing in which there is a collection of capital for real estate investments. This is a model that can be traced back, based on currently operational portals (Housers and Walliance), to Equity CrowdFunding or Social Lending. In the first case, the real estate investment takes place both in an equity-based manner and through a normal bank loan. In fact, the capital to

[9] http://italianCrowdFunding.it/fil-rouge-del-civic-CrowdFunding-italiano.

be financed is divided into two components: equity and debt. Equity weights 65-70% of the investment and it is broken down as follows: 25-30% by the entrepreneur and 40% available for the crowd online. The remaining 30-35% of the amount to be collected is disbursed by a bank (debt) in the form of a loan, which reduces the overall risk of the transaction. This is the model followed by the platform Wallance[10], first Italian Equity CrowdFunding platform dedicated to real estate, operative since September 2017. On the other hand, when real estate CrowdFunding resorts to Social Lending, the mechanism of functioning is almost identical to that of this form of collective financing, such as the Spanish platform Housers[11] born in 2015, recently introduced in the Italian market in July 2017[12].

We decide to use the "2° Report Italiano sul CrowdInvesting" as our main reference source to investigate the evolution of CrowdInvesting in Italy[13], focusing the attention on its characteristics, its advantages and disadvantages and the main numbers that have characterised its evolution in the Italian context.

7. Equity CrowdFunding

   In the Equity CrowdFunding model, innovative Startups and SMEs will be able to turn to the crowd to obtain the capital nedeed to start their business. In this case, the crowd acquires shares of the company capital. Substantially this model is typically used by companies that want to shape their future growth and their development on a community of investors, who feel part of the business idea and are willing to share their relational network, their own capital and their resources. The more classical business model on which is based a platform of Equity CrowdFunding consider as revenues stream a fixed fee of about 2-6% on the capital invested by the fundraisers.

8. Lending CrowdFunding

   Lending CrowdFunding or Social Lending is also called Peer-to-Peer Lending, referred to the "forms of loan disintermediation", both for organizations and for individuals, which in general allow the allocation of personal funds to different projects in exchange of an interest rate. In general, each loan is divided into units that are allocated to more

[10] https://www.walliance.eu.
[11] https://www.housers.com.
[12] https://www.crowd-funding.cloud.
[13] The last update was on July, 2017.

lenders and, therefore, applicants receive funding from more than one person. In a more simplistic way, this form of credit can be seen as an alternative to the tradition channel of the bank loan. The subject that requires the loan, a private (in this case we talk about platforms consumer-oriented) or a business (business-oriented platforms), receive a rating based on the information present in database made available by providers such as Cerved, Crif, Experian, the Inland Revenue, the Ministry of the Interior, IVASS and OAM - Organism of Agents and Mediators, and of course the lower the rating, the higher the interest rate required based on the risk-return profile. The investors, private or institutional, can decide on their own where to allocate their funds among the different campaigns ("direct" model) or, the platform itself allocates the amount according to the risk profile of the individual previously defined by the investors themselves ("diffused" model). Thus, the critical success factor of the platforms is the ability to correctly estimate creditworthiness in order to minimize the risk of insolvency. In this context, some portals have created protection funds in the event of non-compliance, which on the one hand increases the protection of investors, but on the other hand, increases the costs for the funded subjects.

9. Invoice Trading

Invoice trading consists of the sale of a commercial invoice through an Internet portal that selects opportunities and replaces the traditional discount of the bill implemented by the banks to support working capital. The assignment is implemented or via a competitive auction or by trenching in many portions, redistributed among different investors. The investors, therefore, anticipate the amount invoice, net of remuneration request. In Italy, the dedicated portals have grown, passed from 1 to 5. The resources collected through Internet as of the 30th of June 2017 amounted to € 88.5 million, 8 times those accumulated the previous year. Invoices sold by Italian companies through the invoice trading are now more than 2,000. This operation is associated with factoring managed by specialized companies, but in the case of invoice trading the operation is managed on the Internet by the platform and it opens the opportunity for investors by the web.

1.3 Equity Crowdfunding in Italy

Italy has the record in Europe for being the first country introducing a specific discipline of Equity-based CrowdFunding. There is an ad-hoc regulation from Legislative Decree no. 179 of the 18th of October 2012[14] which initially opened up the use of CrowdFunding only for companies with the qualification of "innovative start-ups". Subsequently, the D.L. n. 3 of the 24th of January 2015[15] allowed the access to CrowdFunding also to companies qualified as innovative SMEs, as well as giving the possibility also to collective investment savings bodies (OICR[16]) and to companies that mainly invest in innovative start-ups or SMEs to place online, through Equity CrowdFunding, their own capital. More recently, the new 2017 Budget Law of the Senate, enlarge the possibility also to SMEs, not innovative, but constituted in the form of S.p.A. Finally, the Decree-Law n. 50 of the 24th of April 2017[17] has definitively extended the possibility of resorting to Equity CrowdFunding to all SMEs. In Italy exist 19 Equity CrowdFunding portals authorized by CONSOB at 30 June 2017, with 3 new entry represented by Walliance[18] (already mentioned in the Real Estate CrowdFunding section), Clubdealonline.com[19] that works more as a club where the associates pay an initial entry fee of € 800, and Europacrowd[20]. The total number of campaigns promoted in the different Italian platforms is 109 with the more active StarUps[21] (24) Crowdfundme[22] (19) and Mamacrowd[23] (12).

The total amount raised in Italy through the 19 platforms active is € 12,417,323 (+123% respect to the last 12 months) to highlight the incredibly positive trend of this phenomenon (as the entire wave of the alternative finance), regardless the delay with the other country in Europe dominated by the UK market and in the rest of the world. Considering the average amount raised by the 109 campaigns, it is around € 246,158.

[14] Growth Decree 2.0.
[15] Investment Impact Decree.
[16] Organismo di Investimento Collettivo del Risparmio.
[17] Urgent measures in financial matters, initiatives in favour of local authorities, further actions for areas affected by earthquakes and measures for development.
[18] Walliance is the first Italian real estate crowdfunding equity portal, https://www.walliance.eu.
[19] ClubDeal is an equity crowdfunding platform that offers investors and all SMEs, http://www.clubdealonline.com.
[20] Europacrowd is an equity crowdfunding platform authorized by CONSOB to operate through the company Europa HD srl, consulting firm for business and managerial development, https://www.europacrowd.it.
[21] StarsUp is a portal, authorized by CONSOB (the 1st in Italy), for the online collection of risk capital by innovative companies (start-ups and SMEs). http://www.starsup.it
[22] Crowdfundme is a lending platform headquartered in Milan, https://www.crowdfundme.it.
[23] Mamacrowd, the equity crowdfunding platform managed by SiamoSoci since 2011 leader in matching investors and start-ups. https://mamacrowd.com.

It is important to describe that the amount raised through these platforms results in a real capital increase, and the company usually set a minimum and a maximum target.

An interesting issue is related to the analysis of the successful and not successful campaigns among the 109. Actually, the set of campaigns considered for this analysis is 89 that represent the number of projects closed at the date of publication of the report previously mentioned. 53 of them (59.6%) can be considered successful, since they result closed with the minimum target requested, the other 36 closed unsuccessfully.It is relevant to show 2 positive factors that characterised the Italian market since 2016, a real boom on the total projects offered by the different platform active that almost doubled in less than half year in 2017, and the positive trend of the successful campaigns improved since the data of 2015 (Figure 1.1).

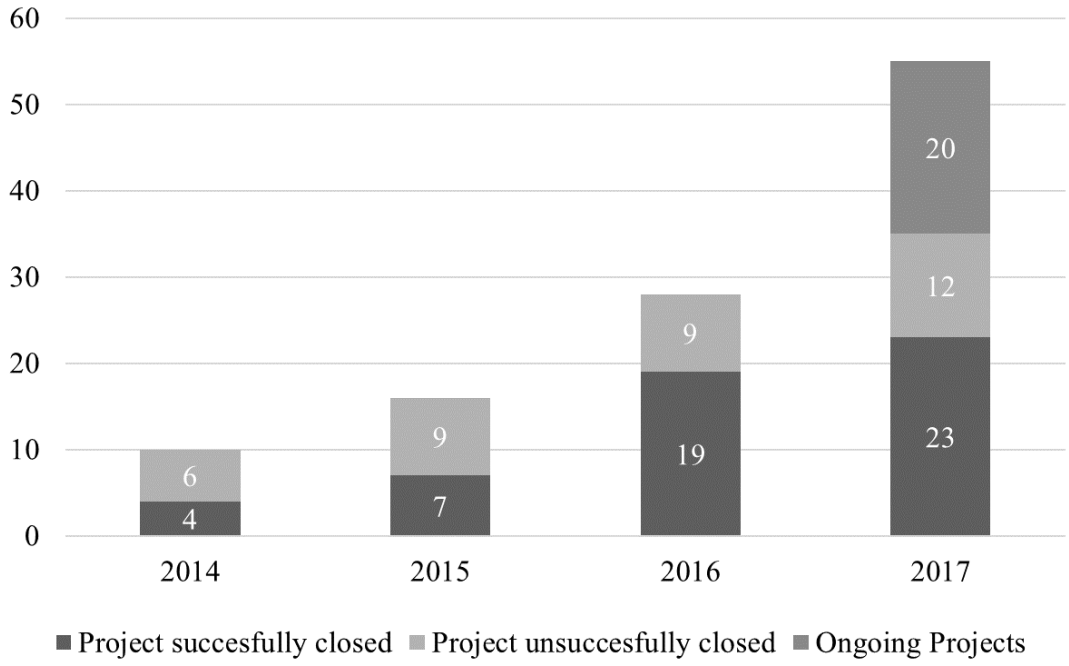

Figure 1.1 Temporal Distribution of Equity CrowdFunding Campaign till 31 July 2017.
Source: 2° Report Italiano sul CrowdInvesting. Osservatorio Crowdfunding, Politecnico di Milano, G. Giudici.

The growing relevance of this form of economy in the Italian market is also represented by some recent success, for example, the second campaign launched by Winelivery on the Italian platform CrowdFundMe closed at the 17th of January 2018, 20 days in advance. That campaign was able to reach 232 investors by the internet crowd with the incredible amount of € 400,000,

far beyond the minimum target of € 150,000[24]. This represents an important example of how these platforms are becoming important for start-ups as Winelivery, and how they see in those platforms a real opportunity for expanding their business: "The business increased as the value of the company: the investors of the first campaign experienced an increase in the value of their stakes about 240%. This favoured the team gained great credibility and, indeed, the second campaign finished the available capital in a very limited amount of time" these are the words of Tommasso Baldissera Pacchetti, CEO of CrowdFundMe. The first attempt to raise money through the CrowdFundMe platform was in February 2017 when the start-up was valued € 1.2 million[25], and it was able to reach 143 investors and € 150,000 of capital, 300% of the target settled by the manager of Winelivery.

1.4 Lending CrowdFunding in Italy

The very first Lending CrowdFunding operators in Italy received the authorization to operate as financial intermediaries by Banca d' Italia. Subsequently, the D.L. 11/2010, implementing the European Directive 2007/64 / EC (Payment Service Directive), allowed the Bank of Italy to better define the regulatory framework by grouping Lending CrowdFunding platforms under the "hat" of payment institutions. The payment institutions have specific obligations in terms of capital requirements, organizational structure, professionality, independence of directors and auditors. The activity of the portal is authorized, if it can be classified as the provision of payment services, while from the point of view of the borrower, fundraising is authorized when borrowers and lenders are able to affect contractual clauses by asserting their bargaining power in the context of a personalized negotiation.

Based on the data of the report by Politecnico di Milano, on the 30th of July 2017 there are 9 operative platforms dedicated to Lending CrowdFunding in Italy, 6 of them consumer-oriented, 3 business-oriented. The more active platforms in terms of credit supplied are Younited Credit[26] (€ 39,690,000), Smartika[27] (€ 26,785,000), BorsadelCredito (€ 13,013,000), Prestiamoci[28] (€ 6,162,000). The total amount of the entire Italian market is € 88,282,000, of which € 56,576,000 in the last 12 months, this means that in 1 year the activity is triplicated. In consumer lending,

[24] http://thefoodmakers.startupitalia.eu/61272-20180119-winelivery-raccoglie-400k-crowdfundme-arriva-torino.
[25] https://www.crowdfundme.it
[26] https://it.younited-credit.com.
[27] http://www.smartika.it.
[28] https://www.prestiamoci.it.

platforms show the minimum and the maximum amount of credit between € 500 - € 25,000 (Younited Credit also till € 40,000). Regards maturity of loans, almost all start from 12 months (Soisy[29] also from 3, BLender[30] minimum 18) while the maximum limit varies between 36 and 72 months. Some portals (Blender, MotusQuo[31], Smartika and Soisy) decided to create a mechanism of protection for investors, establishing a protection fund, which intervenes in case of default of the creditor. The fund is fed through an additional fee requested to the fundraiser (to investors in the case of BLender, MotusQuo and Soisy). Obviously, this source of protection gives greater confidence to investors (within limits, in any case, the capacity of the accumulated fund) but makes access to capital more burdensome for applicants, who feed it. A critical success factor for the platforms is the excellence in the ability to correctly estimate creditworthiness; the key factor, therefore, becomes the minimization of the risk of insolvency. The competitiveness of Lending CrowdFunding is only marginally linked to the lowest cost of capital, which is not always true; greater importance has the capability to be rapid for what regards responses to applicants and in covering market segments that currently they have little access to the banking circuit.

1.5 Invoice Trading in Italy

This model well fits the Italian context, because the possibility of selling a commercial invoice takes on more value for a cash-strapped company, the higher the payment times are left to customers. In Figure 1.2 is shown a comparison between the average time of payments, expected and real, in the B2B market in Italy and in the rest of the major European countries. Looking at the Italian profile it is easy to understand how interesting this market could be for the Italian businesses.

[29] https://www.soisy.it.
[30] https://blender.loans.
[31] https://www.motusquo.it

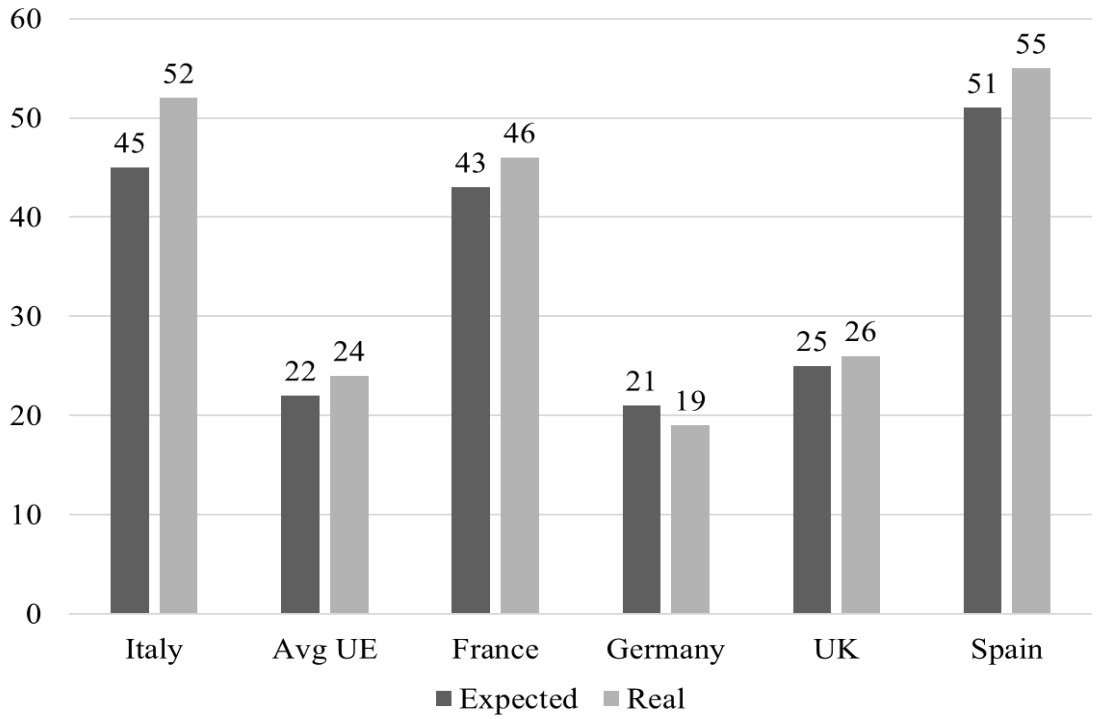

Figure 1.2 Average Time of Payments in the B2B Market.
Source:2° Report italiano sul CrowdInvesting. Osservatorio Crowdfunding, Politecnico di Milano, G. Giudici.

The company interested in receiving an advance of invoice presents its request to an invoice trading platform. The portal evaluates the proposal received on the basis of some indicators (such as creditworthiness) relating to all the operators involved and assigns a rating by crossing the available data with those present in the databases of some providers such as Modefinance[32] or Cerved Rating Agency[33], according to a process similar to that used in Social Lending. Once accepted, the invoice is published on the invoice trading platform. At this point there are three different buying mechanisms for investors: bidding war, competitive auction or direct purchase by the platforms and securitization of the same through asset-backed securities. The investor who buys the invoice must anticipate to the company an amount equal to 85-90% of the consideration, while the balance will be liquidated on maturity.

The typical profile of the companies financed is the one of SMEs that find difficulty in being entrusted by a bank. The interest rate is therefore not necessarily competitive compared to the one practised by the banking system, as already registered for Lending CrowdFunding. The

[32] https://www.modefinance.com.
[33] https://www.cerved.com/it

advantage lies in the possibility to access liquidity to finance working capital without collateral and in the speed of response. Obviously, because of the intrinsic characteristic of the object of this market, this is the less "Crowd" between the CrowdInvesting alternative described in the work, indeed in number the investors registered to the 3 of the 5 platforms active in Italy are 31 in Workinvoice[34], 5 in Crowdcity[35], and 4 in Cashme[36-37].

[34] https://www.workinvoice.it.
[35] https://www.crowdcity.it.
[36] http://www.cashme.it.
[37] G. Giudici, 2° Report italiano sul CrowdInvesting, July 2017.

2 Introduction to Peer-to-Peer Paradigm

2.1 The Concept of Microfinancing

In order to better understand the macro environment in which different CrowdInvesting activities are expanding, we cannot avoid mentioning and briefly introducing the concept of microfinancing, known also as microcredit. The microfinancing represents the possibility to transfer resources from little savers to people that could find difficulties in accessing the traditional credit channel. Most of the time these savers are moved more by the interest of financing social projects with a positive social impact rather than making real profit on these credits. The concept of microcredit was defined from the experience of Professor Muhammad Yunus, Nobel Prize for the Peace in 2006 and founder of the Grameen Bank. Muhammad Yunus was born on the 28th of June 1940 in Chittagong, the most important economic centre of East Bengal, in Bangladesh. He graduated in Economics in his city and received his doctorate from the Vanderbilt University of Nashville, in Tennessee, and in 1972 he became head of the Economic Department of the University of Chittagong. In 1974, the Bangladesh was hit by a severe famine; every morning the professor walked through the door of the university department, there was a myriad of beggars asking for alms. Since that moment, Yunus started to feel uncomfortable in his role as professor of Economics, and he understood that all theories acquired during his professional carrier were far from the world of misery that surrounded him. From 1976, he started to provide credit to people, especially women, with no credit history. In the very first period, Yunus was able to save more than 42 women from problems of usury with only $ 27. With his activity the professor was able to understand that exists also alternative "soft" motive that pushes people to give back the amount as the sense of duty and the reputation of these people. In 1983, Muhammad Yunus founded the Grameen Bank that now counts more than seven million of clients (93% women) and it is diffused in more than 7,000 villages. Relevant information around the concept and the model of microfinancing were identified using the book "Il Microcredito" by Leonardo Becchetti. In the book, the author talks about five different types of microcredit activity.

Informal traditional microcredit, in which we can recognise all the informal markets of credit between friends and relatives. In this case, the little distance between lender and borrower reduces all the problems related to the information asymmetry that characterizes the credit

market in general. The main target of this credit activity is related to consumer loans or to finance working capital, and it is not quite used for business loans.

The second category is represented by group lending in informal market, typical of the life insurance market. Then, we have small loans by banks specialized in a specific sector. In this category enter all the credit activity that target a specific sector or industry, such as agriculture and fishing. In the fourth category of microcredit enter all the credit institutions as cooperative banks that differ in terms of proprietary structure, i.e. not limited firms. Finally, we have the more interesting form of microcredit in our analysis, the modern microfinancing. We talk about credit activities aim at financing investments or entrepreneurial activities. The peculiarity is that these actors are the ones that we can consider discarded by the traditional credit market because they are not able to provide adequate collateral for their loans. For understanding the success of this form of credit that hides the additional risk of no real collateral, we need to better understand the context in which this form of credit takes place. Firstly, the social context of the village that increases the cohesion among the members and the effect of the group loans with joined responsibility among the members increase the efficiency of these loans. Another important consideration is that most of the time these loans are provided in different tranches and this allows the bank to understand in an anticipated way possible delays or insolvency problems of a borrower. In absence of valuable collateral, institutions that work with this part of the market develop other forms of protection. For example, they forced the borrower to become also depositor of the bank, reducing the distance and the conflict of interest between the two actors, and the borrower is more engaged in the repayment of the debts, because interested in the stability of the bank. The involvement of the clients becomes one of the main success factors of the banks involved in this industry.

Today an economy can grow only when all the agents are able to contribute exploiting their talents regardless their starting point. According to this view is very important the accessibility of the credit market and the financial education, and this was the main idea that brings professor Yunus to establish the Grameen Bank.

When we deal with microcredit we need to consider one of the main critical factor, the information asymmetry among the agents involved. In the traditional credit market, this distance is reduced, borrowers have the possibility to signal their quality to the bank with a valuable collateral. For microfinance (or more in general for all the contexts of the alternative finance) that is created in order to break out the limit of the traditional finance according to

which only agents that have enough resources already can have access to additional resources, other forms of protection are necessary. In microfinance, social responsibility and reputation play a fundamental role and limit opportunistic behaviours of the economic agents. Some banks involved in this activities promote the business model of group lending with joined responsibility. In this case, every member of the group becomes responsible for the solvency of the other member. It is important to highlight some issues related to these activities. On one hand, the banks are able to reduce the screening costs because these are performed in advance by the members that are incentivized to create a valuable and responsible group. This reduction in the perceived risk by the bank could be reflected in a reduction of the rates imposed by the bank itself. On the other hand, this represents an additional issue for the single "good" borrower that could be forced to cover the losses of the other members. An alternative that is able to move the responsibility of insolvency from the entire group to the single "bad" member, is represented by the possibility to provide the single loans in tranches, where each one is subordinated to the repayment of the precedent tranche. The main problem with this process is that this is sustainable only for activities that can be runned with little starting amount, so it is difficult to apply this to real investment activities.

As we explained before another possibility to reduce the problems of the asymmetric information could be represented by the involvement of the borrowers in the activities of the banks or by forcing them to become depositors of the bank itself.

Suppose a borrower with collateral asks for a loan of *X* related to an investment project with probability of success *P*. Let's introduce *C* as the overall cost that the bank suffers related to the screening, monitoring and auditing of the result of the project, the interest rate *r* applied on the loan, and *G* the value of the collateral for simplicity equal to the value of the amount *X* plus the interest. Once defined all these parameters is easy to see which is the minimum interest rate that allows the bank to make profits in the different cases.

a) <u>Traditional bank loan with collateral</u>:

The equation that brings in equilibrium the expected revenues of the bank with the costs is:

$$P * X * (1 + r) + (1 - P) * G = C + X \qquad \text{Eq. 2.1}$$

This equation under the hypothesis that *G=X*(1+r)* becomes:

$$P * X * (1 + r) + (1 - P) * X = C + X \qquad \text{Eq. 2.2}$$

$$X * \mathrm{r} = C \qquad \text{Eq. 2.3}$$

With a hypothetical example of a loan, *X = € 50,000*, *C = € 200*, the minimum rates *r* = 0.4%.

b) Loans in microfinance without any collateral:

In this case the equilibrium equation becomes:

$$P * X * (1 + r) = X + C \qquad \text{Eq. 2.4}$$

In case of failure (1-*P*) probability the borrower is not able to repay anything. Assuming in this case an amount *X* of € 1,000 (of course lower, we are talking about microfinance and about loans without collateral), *C* stay at € 200 because the costs are not proportional to *X*, but we can assume that are fixed administrative costs that a bank has to suffer for any amount, and a probability of success of 80% the final result is a minimum interest rate *r* of 50%.

c) Group loans in microfinance

Assume the simple case in which there is a group of two borrowers and the success of one is able to completely cover the loss. Under this hypothesis the equation becomes:

$$[P^2 + 2 * P * (1 - P)] * 2 * X * (1 + r) = 2 * (X + C) \qquad \text{Eq. 2.5}$$

In this case, the bank is able to have back his return when both the projects are successful (P^2) and in the case in which only one project is successful [*2*P*(1-P)*]. Considering the same number of the previous case the equilibrium rate is reduced to 25%. Of course, the high rate remains an issue, but the model of the group loans reduces the perceived risks by the bank's side and allow them to reduce at least in part the rates. In any case, it is important to consider additional factors, like the fact that successful projects of the poorest part of the entrepreneur are the ones with the highest return on invested capital, because of the intrinsic characteristics of the projects, i.e. possible rates of 10-20% can be easily smoothed by the possible positive results.

It is possible to say that the phenomenon of microcredit was born in developing countries but is becoming an important source of finance also in industrialized countries. The Grameen Bank model now is adopted by different institutions working in microfinance around the world and

also in Italy. Let's see first which are the distinctive elements of the model developed by the Professor Yunus[38]:

i. Training: before assessing their credit, the potential borrower is introduced in a group training program in which he will understand the technology around the microfinance and will receive professional support for his business plan.

ii. Group: the Grameen model is based on the creation of a solid network as support of the potential borrower.

iii. Mentoring: the institution offers an important function of mentoring during all the process in order to increase the success of the activity.

As we are able to understand the success of all microfinance campaigns is based on a close relationship between all the actors involved in the process, not simply at financial level, but also with technical, and educational support. In Italy, in 2004, was created the "Ente Nazionale per il Microcredito" that performs activities of coordination and promotion of initiative related to the world of the microfinance at national and European level. The mission of this national body is to promote the microfinance through activities of support, research and education in order to help the social categories more in troubles. This mission is part of an ethical vision of finance but at the same time the organization sees microcredit not as a form of "welfare" or "charity", but as a real loan for the development of business projects or for the realization of projects aimed at improving the conditions of personal or family life of the weaker sections of the population.

Italy is one of the few European countries to have given a legal basis to microcredit, regulated by art. 111 and 113 TUB and by decree of the Minister of the Economy and Finance n. 176 of the 17th of October 2014. It is important to highlight the difference between the social microcredit and the entrepreneurial microcredit, that have different target objectives and characteristics:

1. Social Microcredit: a set of products and services useful for challenging poverty and social exclusion; it is an intervention that offer, on the one hand, concrete help to people and families who are in a situation of economic difficulty, by granting a small loan and, on the other hand, by spreading the culture of accountability through the passage from

[38] http://www.grameenitalia.it/microcredito/il-modello-grameen.

a logic of grant to a lost fund to that of "loan". The maximum amount is set at € 10,000 to be repaid at most in 5 years, without the assistance of collateral.

2. Entrepreneurial Microcredit: indicate products and services useful to promote the development of people's resources through the promotion of the right to economic initiative. The goal is to create a virtuous mechanism that allows micro entrepreneurs to generate income and become economically autonomous. In this case, the maximum amount is set at € 25,000 (in some case € 35,000), to be repaid at most in 7 years (in some cases till 10 years) with quarterly instalments.

As described earlier, all the set of additional services that the "lenders" promote during all the process is fundamental to the success of these campaigns. In Italy exists the Foundation Grameen Italia[39], the first institution aimed at the replication of the microcredit program as the one of the original Grameen Bank by Yunus. Grameen Italia was founded in July 2010 thanks to the collaboration between the University of Bologna, Unicredit Foundation and Grameen Trust. The main activities of Grameen Italia are the study and promotion in Italy and in Europe of Microcredit and Social Business, activities aimed at favouring the social and economic development of the weakest sections of the population. In 2010, the Foundation obtained recognition from the Supervisory Authority and started its own strategic assessment activity with the aim of promoting microcredit initiatives with a significant social impact and adapting to the economic and regulatory context of an industrialized country.

It is relevant to mention the role of "Fondo di Garanzia" in Italy, which purpose is to facilitate access to financial sources of small and medium-sized enterprises through the granting of a public guarantee that is accompanied and often replaces the real guarantees brought by the companies. The Ministry of Economic Development, with the Decrees of the 24th of December 2014 and the 18th of March 2015, integrated the Operational Rules of the Fund by introducing significantly simplified access criteria for the microcredit guarantee and the possibility for the company to make online reservations. It is important to understand that these resources do not represent a direct financing, but a guarantee for facilitating the supply of funds from banks and other institutions.

Thanks also to the promotional activity carried out by the Authority, in the last few years the number and the amount of microcredit granted in Italy has recorded a notable increase,

[39] http://www.grameenitalia.it/la-fondazione/chi-siamo.

especially as regards the entrepreneurial microcredit, whose volume of transactions has grown from € 37 million in 2011 to over € 120 million in 2014, with an annual rate of increase of 80%. An average of around € 26 million has been allocated to social microcredit every year.

Unlike the trend of previous years, when there was a prevalence of disbursements with a social purpose, in 2014 microcredits increased for production purposes, aimed at supporting the start-ups or the exercise of an activity of self-employment or micro-enterprise. The Agency estimates that about 83% of the total loans have been allocated to the latter and, despite this, the available offer is not able to satisfy the requests that, in the case of microcredit business, can find an answer only in 34.6% of cases.

This type of provision represents an impetus to the creation of new job opportunities: each recipient of productive microcredit develops, in fact, a leverage effect of 2.43 employed, that is to say, that for each microcredit granted, it gives rise to 2.43 works. In 2014 there were more than 13,800 new jobs, for a total amount of over 34,000 employed in the entire four-year period 2011-2014.

2.2 The Origins of Peer-to-Peer and its Application in Finance

The term Peer-to-Peer[40] refers, in a very broad sense, to the interaction between two parties without the need for a central intermediary (ECRI[41], 2016). This term was born in the field of computer networking in order to describe a network where a computer can act either as a server or a client to other computers within the network without the need of a centralised server. The growth of the Internet, that is itself a P2P network, and its ability to facilitate the disintermediation between users generated a range of specific P2P activities, some of which have been the source of radical changes or new opportunities in the processes or in the business sectors where they have been applied or adopted. The first P2P activity widely adopted was P2P file sharing, around the beginning of the 21st century; by installing the necessary software on their computers, users could connect directly to other users on the network who had similar softwares in order to share files such as documents, music, games or photos. The impact of the widespread adoption of P2P file sharing services offered by different players such as Napster[42],

[40] P2P.
[41] European Credit Research Institute.
[42] Napster was a file sharing program created by Shawn Fanning and Sean Parker and active from June 1999 until July 2001. It spread widely since 2000. Now it is a legalized paid service with a trial free 30-day purchase from Roxio.

LimeWire[43] and, more recently, BitTorrent[44] was dramatically massive on the music and film industries, affecting radically the sales of physical products such as CDs and DVDs, as noted by Grassmuck[45] in 2010: "What has clearly emerged is that there are a number of different dynamics at work, yielding a mixed result with respect to album sales, a likely positive result for the music industry as a whole through gains in concert and merchandising revenues, and a clearly positive effect on social welfare through improved market chances for non- star music, greater cultural diversity and increased consumer surplus".

Although ultimately delivery has moved away from P2P models to streaming services such as Spotify or Netflix in the two industries mentioned above, the statement of Grassmuck highlighted how the introduction of P2P file sharing services and the subsequent adoption in a large scale by the users created a disruption within the industries, with structural changes in the competitive environment. This is just one of the several examples regarding how the digitization process has overwhelmed its competitive edge, creating new markets and new business opportunities in all sectors. More recent examples of industry disruption through the utilization of digital technologies supporting the broader paradigm of sharing economy are the case of AirBnb[46] in the hotel sector, allowing individuals to profit from the vacant apartments offering a temporary rental service at favourable prices for all potential consumers, or the ones of Uber[47] and Blablacar[48] in the field of private car services. All these three different success cases mentioned above, particularly for the two American unicorns[49], have a common element that represents the main pillar on which these young companies have established their competitive advantage: the presence of an online platform that enables the match between the demand and the supply exploiting the disintermediation between the different parties involved. The

[43] LimeWire was a peer-to-peer client that relied on the Gnutella network and was available in various languages. It was the first file sharing program to support file transfer from firewall-to-firewall, a feature introduced since version 4.2, which was released in November 2004.

[44] BitTorrent is a P2P protocol used for exchanging files over a network. In reality it is not to be considered as a pure distributed algorithm, since its architecture foresees the presence of a server used for the phase of connection to the network. The original homonym client and protocol were developed by Bram Cohen, a programmer from San Francisco, in 2002.

[45] Volker Grassmuck (Hannover, 1961), is a German sociologist and media researcher. He earned a doctorate at the FU Berlin on Japanese media history with the topic 'Closed Society. Media and discursive aspects of Japan's "three openings". Between 2000 and 2001 he became a replacement professor for media art at the Universität Graphik und Buchkunst in Leipzig. Grassmuck organized the conference Wizards of OS which topics included operating systems, open sources and open contents.

[46] Airbnb is an online platform that connects people looking for an accommodation or a room for short periods, with people who have an extra space to rent, usually private. The site was opened in October 2007 by Brian Chesky, Joe Gebbia and Nathan Blecharczyk, and the headquarter is in San Francisco (California), www.airbnb.com.

[47] Uber is a company based in San Francisco that provides a private car transport service through a mobile application that connects passengers and drivers directly, www.uber.com.

[48] Blablacar is a company offering transportation services offered by car drivers to private passengers. Usually, passengers do not pay a transportation fee, but they pay the fuel for the distance they have to cover, www.blablacar.it

[49] A unicorn is a startup company with a valuation larger than $ one billion.

disintermediation gives the possibility to directly contact individuals who offer or require a specific good or service going to bypass the intermediary, and the respective revenues that turn into higher costs for the end user. The benefits deriving from this phenomenon affect directly final consumers, as they obtain a more satisfactory response to their needs in a quicker and cheaper way, but there is a huge impact on the whole economic system, encouraging the free competition and the proliferation of customized services. We are therefore facing important changes in the competitive structure of different industries due to the adoption of digital technologies, their impact on consumer habits and on the incumbent firms, that more and more frequently are forced to reconfigure their business models to defend their competitive position and avoiding incurring a significant reduction of their market share. Considering the very high level of interconnection existing between the financial sector and the other business sectors, it is immediate to wonder about the effects and changes that the so-called "web revolution 2.0" that happened and are going to happen in the financial world.

The Peer-to-Peer Lending, also known as Social Lending, Lending CrowdFunding or Marketplace Lending[50], applied the concept of P2P to the online financial sector and, more specifically, to the context of CrowdInvesting, creating the possibility to provide credit through an alternative that allows direct lending between applicants (i.e. all the agents that require a loan) and lenders (i.e. all the agents that invest their money by lending it to others), based on the creation of a community in which both parties mentioned can directly interact with each other, without resorting to traditional financial intermediaries[51]. In other words, in the Lending CrowdFunding, the investment takes place through the subscription of a loan with a contract envisaging the repayment and the remuneration of capital through the definition of an interest rate[52]. The online platforms connect investors and individuals seeking funding; very often the latter do not have access to traditional credit access systems, while the investors are interested in alternative investment opportunities. Although the most common term referring to this type of activities is the P2P Lending, many studies argue that the business models adopted by the existing platforms are not fully congruent with the definition given. Indeed, whilst on the one hand it is correct to state that the lenders have a direct credit to the financed subjects (unlike

[50] Terms often used synonymously, although Marketplace Lending is often used when mostly institutional investors are involved or when it addresses us. The term Peer to Peer Lending is, in general, more used, and underlines the concept of direct loans between individuals and disintermediation. Usually when platforms grow they start to attract institutional investors, this, in general, will be the trend for the future also for Italian platforms according to Roberto Condulmari, founder of P2P Lending Italia. This distinction can therefore be applied only to the early stages of platform development.

[51] Definition provided by Smartika, www.smartika.it.

[52] 2° Report Italiano sul CrowdInvesting, July 2017.

savers, who deposit their money at a bank which in turn provides credit), it is also true that the former often they do not have the possibility to choose ex-ante to whom to lend their money, making a selection among all the applicants after having analyzed the characteristics of the project as more commonly happens in another segment of the CrowdInvesting, i.e. the Equity CrowdFunding. From this perspective, the term Social Lending, frequently used by market regulators, results as more suitable, because it highlights the collective nature of the credit channelled through the platforms but, at the same time, the risk is to attribute a social value that hardly characterizes these activities. For the purposes of this study, we will use the terms Social Lending or Peer-to-Peer Lending as synonymous and as terms related to all the credit activities facilitated by electronic platforms whereby borrowers are matched directly with lenders. Usually, these entities are called also as loan-based crowdfunders or marketplace lenders.

2.3 The Peer-to-Peer Lending Industry

Generally speaking, UK and US were the two pioneers of the P2P Lending industry, probably for their regulatory framework, less stringent in terms of alternative credit circulation to the one provided by the banking sector. US and UK are, respectively, the second and the third country in terms of volumes of funds, while China is the market leader by this perspective, covering almost the 85% of the global annual volume delivered (P2P Lending Italia, 2015). Data for Chinese market were difficult to find. Moreover, data related to European, US and UK markets are limited and not always available; for this reason, this section reports some aggregate information available for US, UK, Europe[53]. Unfortunately, data related to China are not reported in this section.

The Lending CrowdFunding industry history can be traced back to the launch of two companies between 2005 and 2006: the UK-based Zopa Ltd. (2005) and the US-based Prosper Funding LLC (2006). Since their foundation till the 31st December 2017, the two platforms provided respectively £ 2.916 billion and $ 10.735 billion[54,] with a recorded one-year net return of 4.9% and 6.5%[55] and a three-year net return equal to 16% and 26.2%[56]. As it was mentioned in the previous sections, the P2P Lending industry experienced a rapid growth in all the countries in which P2P Lending platforms were established. For instance, since 2007 to 2015, the

[53] EU data do not consider UK.
[54] Source: AltFi Data.
[55] Data calculated on the 30th of November 2017 and on the 31st October 2017.
[56] Source: AltFi Data.

origination volumes of P2P Lending platforms in US have grown on average by the 84% per quarter[57] (PWC, 2015).

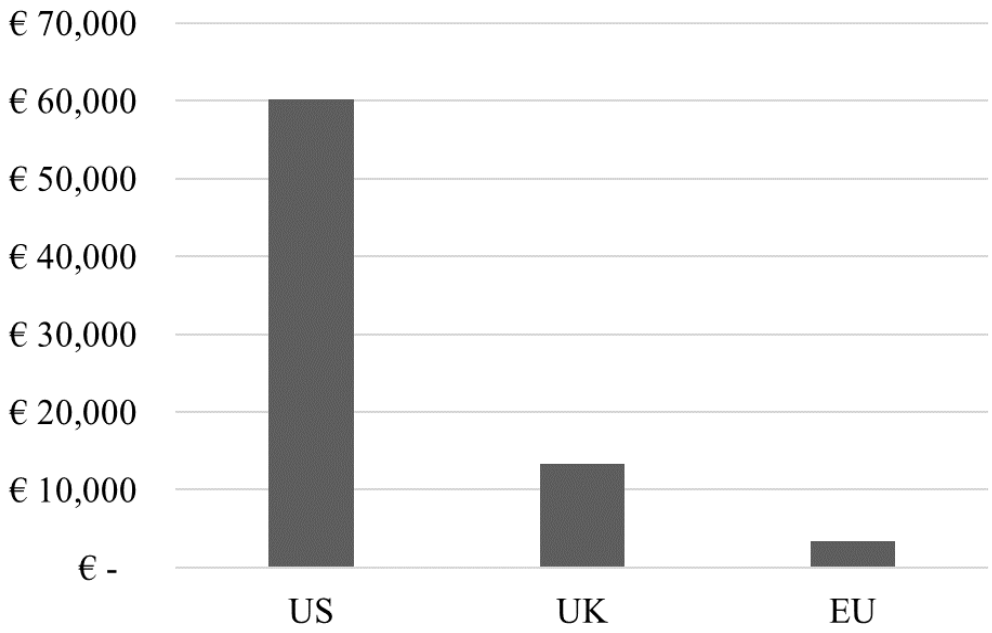

Figure 2.1 Cumulative Origination Volumes at 31st December 2017, Data in Million
Source: Altfi Data.

Figure 2.1 shows the cumulative values of origination volumes for US, UK, EU updated till the 31st of December 2017. Volume in US are almost € 58 billion[58], while in UK around € 17 billion. Values in EU are lower than € 3.5 billion. The growth of P2P volumes in the three geographical areas under analysis is reported below. Figure 2.2 is related to the US market, Figure 2.3 to the UK and Figure 2.4 to the EU volumes. From 2014 to 2017, the market in US grew at a pace of 34.44% (CAGR), with expected volumes of 2018 equal to $ 38.9 billion[59]. Growth in UK referred to the same time period was about 42.39%, while EU growth pace was reasonably the highest, considering that the market is younger with respect to the other two regions.

[57] PricewaterhouseCoopers (2015), Peer Pressure: "How Peer-to-Peer Lending platforms are transforming the consumer lending industry". This report has been realized by PWC Consumer Finance Group, specialised in offering audit and advisory services covering the full spectrum of consumer lending asset classes.
[58] Data converted by $ considered the exchenge rate at 31 December 2017
[59] Source: Altfi Data.

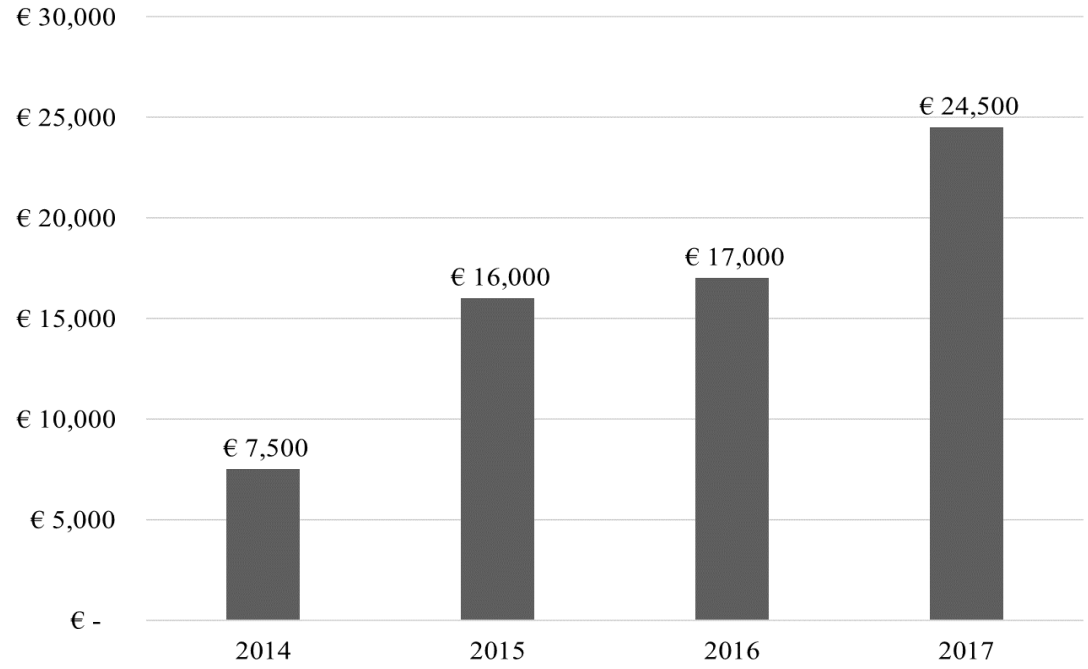

Figure 2.2 US Lending Volume Origination from 2014 to 2017, Data in Million
Source: Altfi Data.

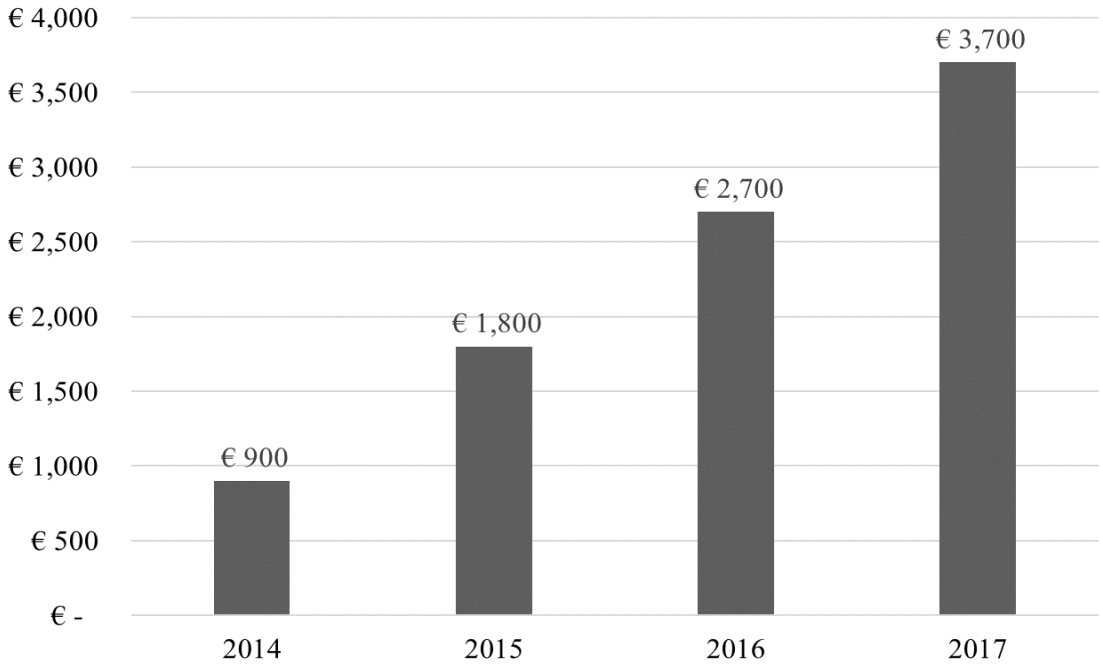

Figure 2.3 UK Lending Volume Origination from 2014 to 2017. Data in Million.
Source: Altfi Data

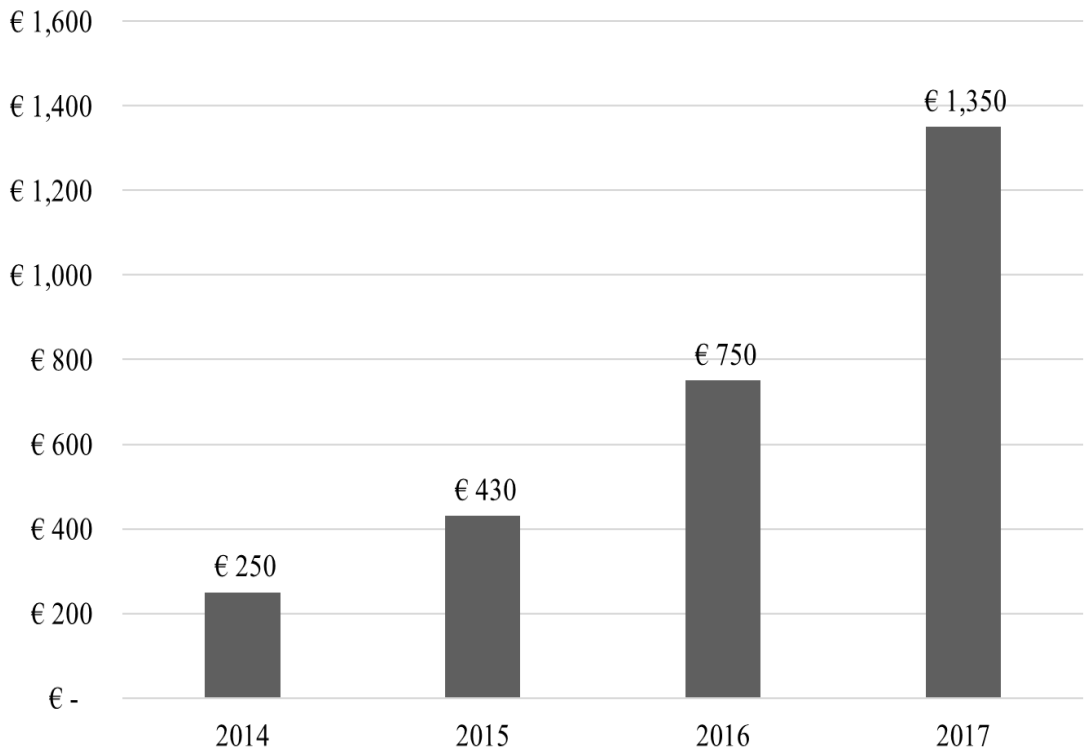

Figure 2.4 EU Lending Volume Origination from 2014 to 2017.
Source: Altfi Data.

The global industry can be divided in two macro-segments: the first one regards consumer lenders, i.e. platforms matching individuals willing to lend money and individuals asking money, while the second one regards the business lenders, i.e. platforms matching individuals willing to lend money and companies asking capital for different needs. Table 2.1 shows the main US players divided by macro-segments and their cumulative volumes till the 31st of December 2017[60]. As it is possible to see in the table, consumer lenders' segment is more developed than business lenders one, when it is reported just one player; the first segment cumulated more than € 54 billion with around € 6.4 billion cumulated.

Table 2.2 reports the same data of the previous table but related to the UK market. For both market segments, there are more data on main players compared to the US market. Comparing results of UK market with US market ones, it is possible to see how in UK the two segments are more similar in terms of volumes cumulated, respectively equal to € 5.58 billion and to €

[60] Data are provided in €, using the exchange rate at the specific date (31st December 2017).

3.8 billion. It is interesting to notice that Zopa, the first Peer-to-Peer Lending platform established, is still the market leader in the segment in which is engaged. RateSetter is the second player in the consumer lenders segment, while in the business lenders segments Funding Circle is the leader in terms of volumes cumulated, with significant difference with respect to all the other players involved in the market by the volume size point of view. The last Table 2.3 presented in this section provides information about the main market players within the European Union (EU). Comparing the size of the two segments in Europe with respect to US and UK, it is possible to say how the market in Europe is less developed and cumulated volumes are significantly lower. Indeed, EU consumer lenders segment cumulated € 2.47 billion, while the business lenders segment just collected around € 550 million.

US Consumer Lenders	Cumulative Volumes	
LendingClub	€	23,478.70
Sofi	€	22,654.58
Prosper	€	8,480.57
US Business Lenders	**Cumulative Volumes**	
OnDeck	€	6,432.90

Table 2.1 Cumulative Volumes of Best Players in US. Data in Million.
Source: Altfi Data.

UK Consumer Lenders	Cumulative Volumes	
Zopa	€	2,913.30
RateSetter	€	2,260.20
Funding Secure	€	213.10
Lendable	€	117.70
Lending Works	€	83.20
UK Business Lenders	**Cumulative Volumes**	
Funding Circle	€	2,754.77
Assetz Capital	€	360.31
ThinCats	€	238.90
Folk2Folk	€	170.16
MoneyThing	€	71.58
ArchOver	€	51.96
Downing Crowd	€	40.85
Abundance Generation	€	45.03
FundingKnight	€	27.98
Ablrate	€	27.80
LendingCrowd	€	21.23
UK Bond Network	€	10.92
Rebuildingsociety	€	10.75
Money&Co	€	7.02

Table 2.2 Cumulative Volumes of Best Players in UK. Data in Million €.
Source: Altfi Data

EU Consumer Lenders	Cumulative Volumes	
Auxmoney	€	685.90
Younited Credit	€	604.70
Mintos	€	437.80
Twino	€	221.70
Fellow Finance	€	196.40
Bondora	€	111.80
Fixura	€	80.20
Kokos	€	38.00
Smartika	€	27.90
Finansowo	€	22.90
Savy	€	10.40
Prestiamoci	€	9.70
Zlty Melon	€	8.40
IUVO	€	8.20
Zank	€	6.00
Klear	€	1.60
EU Business Lenders	**Cumulative Volumes**	
Lendix	€	143.87
Geldvoorelkaar	€	124.90
Comunitae	€	44.80
Linked Finance	€	40.90
LoanBook	€	40.70
Viventor	€	32.20
Unilend	€	29.50
Lendahand	€	22.40
MytripleA	€	21.10
Borsa del Credito	€	20.40
Arboribus	€	16.70
Raize	€	11.20
ClicInvest	€	1.10

Table 2.3 Cumulative Volumes of Best Players in EU. Data in Million €
Source: Altfi Data

2.4 The Evolution Drivers

The establishment of a huge number of P2P electronic platforms and the very rapid growth of Social Lending activities took place thanks to different factors that influenced the development of Social Lending activities and, more in general, all FinTech credit ones. The study conducted by the Financial Stability Board[61] (2017), highlights a wide variety of drivers, divided in supply factors, so considering the perspective of the platform, and in demand factors, taking into account the borrower or the lender perspective. The importance and the relative weight of each driver is strictly related to the different jurisdictions and it differs across them. In addition, we identified other factors affecting the development of Social Lending activities in a negative way, reducing the growth pace of these activities. The followings bullet points describe the three different categories of drivers analysed.

i. Supply factors:

- Technological improvements and advances: improvements in computing power, in Internet and technologies, in data storage generated a strong innovation spiral[62]for what concerns electronic platforms. The individual transaction costs are reduced by the connectivity provided by these innovations, that were able to disrupt some traditional business models. FinTech credit innovations are more recent than other digital innovations, such as file sharing or cloud computing services. While digital innovations were forces for change in credit markets and in the banking system for some time (for example, mobile or online banking, deeper quantitative risk assessment) P2P lenders may make more intensive use of digital innovations (CGFS[63], 2017). For instance, with respect to traditional credit providers, they automate far more processes providing a relatively convenient and quick service to

[61] The Financial Stability Board (FSB) is an international body that monitors and makes recommendations about the global financial system. It was established after the G20 London summit in April 2009 as a successor to the Financial Stability Forum (FSF). The Board includes all G20 major economies, FSF members, and the European Commission. Hosted and funded by the Bank for International Settlements, the board is based in Basel, Switzerland.

[62] An innovation spiral is where multiple new products emerge from a single new technology or one innovation leads to additional related new products.

[63] The Committee on the Global Financial System (CGFS), which is chaired by William C Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, monitors developments in global financial markets for central bank Governors. The Committee has a mandate to identify and assess potential sources of stress in global financial markets, to further the understanding of the structural underpinnings of financial markets, and to promote improvements to the functioning and stability of these markets. It fulfils this mandate by way of regular monitoring discussions among CGFS members, through coordinated longer-term efforts, including working groups involving central bank staff, and through the various reports that the CGFS publishes. The CGFS also oversees the collection of the BIS international banking and financial statistics.

customers.

- Scalability: scalability is a typical feature of platform-based business models, reflecting the digital contact with their potential customer base and the low incremental investment costs. One of the main reasons for this characteristic is related to the ease of standardization characterizing the underlying financial activity, although the extent of standardization that can be achieved may be different across jurisdictions. The differences are mainly due to the different legal frameworks and the segmentation of the credit market within a specific jurisdiction (Milne & Parboteeah, 2016).
- Cost advantages: traditional lenders have relatively high fixed costs due to their organizational structure, in the majority of cases divided into a network of branches and supported by very expensive IT systems to be maintained. In addition, traditional lenders face higher capital and liquidity requirements on loans with respect to P2P Lending platforms outside the prudential regulatory perimeter. Credit platforms could be considered to be benefiting from regulatory arbitrage to the extent that they structure their activities similarly to banks. It is worth to consider that most of the platforms do not bear direct credit or liquidity risk. These factors represent a cost advantage for online lending platforms.
- Opportunities for new market entrants: traditional lenders withdrew from some market segments in the post-crisis period and banks often underserviced certain market segments, such as micro business loans or loans to individuals with no collaterals (De Roure et al., 2016). In some cases, the tax policies and regulatory issues may favourite lending by alternative platforms to these segments, while in other cases the level of rents earned by incumbents can encourage the entry of platforms (Rau, 2017).

ii. Demand factors:

- Higher expectations of customers: the real-time transacting capability of digital technologies and internet-connected devices has given higher customer expectations in terms of convenience, speed, simplicity, and user-friendliness of financial services. In addition, consumer comfort with online financial transaction has grown as online business innovation has deepened; this leads to think of an ever-increasing

level of expectations in the face of continuous innovations related to online financial transactions.

- Demographic drivers: these drivers are strictly related to the shift in customer expectations and they can be summarized into the rising acceptance of new technologies and the growing financial influence of the cohorts known as digital natives and millennials. With the term millennials, we generally refer to the generational cohort born between the 1980s and late 1990s, following generation X and baby boomers, born respectively between the mid-1960s and early 1980s and between the 1940s and the 1960s. The term "digital natives" refers to those consumers who grew up with digital technologies. These younger cohorts are more likely to adopt FinTech services (EY[64], 2016), but while millennials use FinTech services more widely than other generational cohorts, this fact should not be overestimated: indeed, the US credit bureau data shows that a majority of online marketplace borrowers were baby boomers and generation X people. There are also other economic development and convergence factors that can be grouped in this category, like the rapid adoption of digital technologies in some emerging markets.
- Willingness to use the services of lending market entrants: consumers reduced their trust in existing lenders after the financial crisis and there may be a more general perception of FinTech credit services, particularly P2P Lending activities, as more socially responsible processes and of a higher social value than conventional credit services, provided by banks or other financial institutions. For these reasons, consumers may be more willing to adopt services offered by online lending market entrants rather than the ones provided by incumbent institutions (Milne & Parboteeah, 2016).
- Higher returns vs. low yields: in many advanced economies, the desire for higher returns in face of low yields has provided P2P platforms with a larger investor base, including from institutional investors. Online P2P loans can be seen as an alternative asset class, with attractive expected and actual returns and a certain level of risk

[64] EY (formerly known as Ernst & Young) is a worldwide network of professional management consulting, auditing, taxation and transaction services. EY has 250,000 employees worldwide. The network is present with more than 700 offices in 150 countries. It is part of the so-called "Big Four", or the four consulting and auditing companies that share a large part of the market in the world; the other three "big" are Pricewaterhouse Coopers, Deloitte & Touche and KPMG. The turnover of EY continues to grow year on year, from 2009 to 2017 there was a turnover increase of 46%, from $ 21.5 billion to $ 31.4 billion.

connected to. If investors consider the risk level as acceptable, they can choose this asset class to diversify their portfolios.

- Network externalities: technological innovations very often show off network externalities that drive the demand. In this specific case related to P2P Lending, it could be possible that the higher the investor demand to lend on platforms, the greater the number of borrowers may be attracted in this kind of services and interested in borrowing money through this alternative online channel.

iii. Other factors

- Regulatory requirements: regulation is a key point for what concerns the development and the widespread adoption of P2P Lending services. Several issues that are fundamental for an entity willing to provide this kind of services, such as the need to be authorized and regulated as an online lending platform, or the need to be licensed and regulated as a bank or credit intermediary in order to originate consumer loans or retain loans on balance sheet. These issues are directly connected to the different regulatory frameworks of each country in which a lending platform wants to operate, and sometimes the regulatory characteristics of a country can be an obstacle for the development of online lending activities. For instance, in Japan legislative caps on interest rates make it very hard for lending platforms to provide money to riskier customers. Moreover, there is uncertainty about regulatory frameworks given the rapid development of the industry. These innovations regarding the FinTech universe may change the nature of financial intermediation or, at least, they can cause a radical change regarding the processes governing these activities, introducing new ones not already covered by existing bank regulatory frameworks. Uncertainty is also related to how legal frameworks treat certain aspects of P2P Lending activities, such as the consumer protection or tax harmonization.

- Competitive responses by incumbents: banks built up their digital banking activities for some years and this process has been sped up by the rapid growth of marketplace lending platforms. Where bank access is already high, clients may prefer digital solution or services provided by incumbents (CGFS, 2017). It is reasonable to expect some reactions by existing banks and other financial institutions in order to slow

down the proliferation of Social Lending platforms and their increasing market share in those credit market segments which traditional banks were not able to cover and satisfy (FSB, 2017). However, there is important to underline how the relationship between incumbent institutions and online platforms is not always a competitive relationship, but there are several cases of cooperation among P2P lenders and banks which may be of mutual benefits, such as knowledge sharing and funding.

- Robustness of business models: the low level of robustness of some Social Lending platforms business models could be one of the main obstacles towards the global development of these activities, particularly in a less favourable credit or funding environment. The uncertainty related to regulatory issues and the possible modifications that could be adopted in the future may represent a strong obstacle for the survival of those business models that, nowadays, result opaque and/or prove inherent risk (FSB, 2017). Moreover, the majority of P2P lenders did not experience a full credit cycle, and how their lending and their platforms will fare in a downturn is a crucial issue to be solved.
- Reputational damage: particularly for the huge number of platforms that are still establishing and consolidating the credibility with potential investors and customers, there is the risk to misconduct and/or the mismanagement of some activities or processes. Questionable, ethically and professionally incorrect behaviours may lead to a reputational damage large enough to have important impacts on the sustainability and the survival in the long-term of Social Lending platforms competitive strategies.

2.5 Regulatory Framework Highlights

This section completes a preliminary analysis of P2P Lending industry with a synthetic discussion related to the regulatory environment. Regulation is considered by many studies as one of the main forces able to favourite the standardisation of the industry. Regulators in the US, the UK and in other jurisdictions are now looking carefully at this newly emerging form of financial intermediation. The common objective of regulators is to ensure appropriate oversight without blocking financial innovation and use P2P players as an alternative credit channel, particularly for those companies suffering credit rationing by traditional financial

intermediaries. A key issue for regulators is prioritisation, considering that they cannot address all regulatory concerns over P2P Lending at once. The immediate priority is operational risk and customer protection; several countries in Europe have introduced changes to alternative finance regulations as an attempt to regulate the activities of these emerging platforms. For instance, the UK's Financial Conduct Authority regulates loan-based and investment-based crowdfunding platforms by actively scrutinizing the advertising and selling of lending platforms. Investors in such platforms do not have access to Financial Services Compensation Schemes available under regular bank savings accounts. In the US, P2P Lending needs to be in compliance with SEC regulations and the respective state laws.

P2P platforms, provided they are operationally sound, should pose much lesser prudential risks than traditional banks. Lenders on these platforms absorb loan losses directly and the loan losses pose no threat to the viability of the platform. Moreover, the market for P2P Lending is still a long way from posing substantial systemic financial risks (Milne & Parboteeah, 2016). Nevertheless, regulators should pay close attention to prudential and systemic risks.

Milne and Parboteeah (2016) emphasize three points which do not seem particularly prominent for regulators:

- Prudential safety can be promoted by ensuring that there are no barriers to the possibility of banks reducing their risk exposures by putting their own loan books on P2P platforms and that banks receive an appropriate reduction in capital requirements for such transfers, allowing for any differences in credit quality between transferred and retained loans.
- Liquidity, rather than credit risk, is the most likely source of systemic risk in P2P platforms, in particular, the possible withdrawal of investor funds leading to a self-reinforcing collapse of prices. Regulators will have to put massive efforts to ensure this does not replicate the same kind of systemic risks that materialised in the 2008 global financial crisis, for example, if banks were to use short-term money market funding to invest in the P2P loans originated by other institutions.
- Close attention is warranted to the role of P2P Lending in property markets, and the possibility that they could exacerbate systemic risk in both commercial property and buy-to-let residential property.

Moreover, proper attention should be paid to achieving the potential for P2P Lending by overcoming barriers to access to credit.

For what concerns the regulatory framework in Italy, at the beginning the first players were authorised by the Bank of Italy to operate as financial intermediaries following the article 106 of the Testo Unico Bancario. The entry into force of the Law Decree 11/2010 implemented by the Payment Service Directive 2007 enables the Bank of Italy to categorize the Social Lending players as Payment Institutions, promoting the creation of a new set of operators, coming also from different sectors with respect to the financial one. Those institutions have to respect some provisions defined by the Comitato Interministeriale per il Credito e Risparmio (CICR) and by the General Supervisory Provisions defined by the Bank of Italy. Those provisions concern minimum capital and regulatory capital requirements for the company, the organizational structure, professional requirements, integrity and independence of directors and statutory auditors. Lending based CrowdFunding is explicitly identified in a decision published by Bank of Italy in November 2016, related to the provisions for collecting the savings of subjects other than banks, with the aim of outlining the regulatory framework regarding financing alternatives to those proposed by the banking sector. The activity of the platform is authorized if it can be categorized as the provision of payment services. From borrower's point of view, the collection is authorized when borrowers and lenders are able to influence contractual clauses, asserting their bargaining power in the context of a personalized negotiation. Supervisory Authority suggests fixing a maximum limit for online investments in order to not configure the abusive exercise of banking activities. The contractual relationship between lenders and borrowers follows the article 1813 and subsequent ones of the Civil Code as a mortgage contract through which one party provides capital to the other one, with the commitment of the other party to repay the capital received within a certain time period. The platform offers a distance payment contract, underwriting it with both the participants involved.

2.6 Advantages of Peer-to-Peer Lending

This paragraph provides a synthetic overview of the main advantages of P2P Lending platforms compared to traditional financial institutions. Competitive advantages are considered by many studies and researches as one of the main sources and reasons behind the rapid growth of P2P Lending in recent years, and they are mainly due to differences between the P2P platform and

incumbent financial players. Advantages are strictly linked to the different business models adopted (for further information, see section 2.7); however, it is possible to group them into four categories[65]:

a. Returns: P2P Lending platforms can offer better return rates with respect to those available on bank deposits. This is due to relatively low fees for borrowers. It is important to say how administrative and overhead costs required for establishing a P2P platform are relatively low, with respect to the ones faced by traditional financial intermediaries. In addition, P2P allows the direct matching between lenders and borrowers avoiding additionally required margins of interest. This is the reason why, for higher risk exposures, P2P lenders can be compensated by higher rates of return (Milne & Parboteeah, 2016; Pagotto, 2017).

b. Alternative Credit Access: the recent global financial crisis originated in 2008 led traditional lenders and banks to be more reluctant to provide credit; they imposed more stringent criteria in order to lend money particularly towards some specific borrowers' categories. This phenomenon is well known with the term credit crunch. This is the reason why Social Lending platforms are seen as an alternative by some individuals and small business facing difficulties in accessing the traditional bank credit, particularly because platforms are willing to take the risk of providing such loans to those agents or they can offer loans to them at lower interest rates with respect to banks (Milne & Parboteeah, 2016; Pagotto, 2017).

c. Constant Technical Innovation: the persistent technical innovation experienced by P2P Lending platforms since the birth of the online P2P Lending industry has a significant impact on some operative performances of platforms. In particular, technical innovation improves the quality, the efficiency and the speed of the service offered, from both borrowers and lenders perspectives. This is a key difference with respect to traditional banks, that spend a huge amount of money in order to maintain their large and rigid legacy systems, rather than investing money in innovating those systems. Moreover, a report of Boston Consulting Group (BCG), revealed that resources available for the banking sector to be allocated in R&D, for the development of new technologies and

[65] Milne & Parboteeah, 2016.

innovation of customer services, significantly decreased after the 2008 financial crisis[66]. On the other hand, lending platforms have the possibility to exploit web digital technologies in order to offer services characterized by a better quality and more efficient services for borrowers and lenders, building and consolidating a competitive advantage with respect to incumbents (Milne & Parboteeah, 2016; Pagotto, 2017).

d. Higher Social Value: P2P Lending is perceived as more responsible than traditional banks in terms of social value generation. This perception is strictly linked to the fact that lending platforms directly match borrowers and lenders interests, without the presence of other intermediaries. In this sense, Social Lending is considered as able to offer a more socially beneficial form of finance (Milne & Parboteeah, 2016; Pagotto, 2017).

2.7 Peer-to-Peer Lending Platforms: The Business Models

Considering the heterogeneity in the jurisdictions and in the business models of the P2P Lending companies the nature of this specific credit activity significantly changes across and within the different countries. The aim of the following section is to give an exhaustive and comprehensive view on the variety of organizational models adopted by different platforms within the P2P Lending industry, describing the basic features of each model and the main differences with respect to other business models adopted worldwide. The classification we followed is the one provided by the International Organization of Securities Commissions (IOSCO, Kirby & Worner, 2014), proposing four different lending models: The Traditional P2P Lending Model, The Notary Model, The Balance Sheet Model and The Guaranteed Return Model[67].

[66] Banks paid about $ 321 billion in fines and compensations for violations and illegal actions since 2008, BCG.
[67] Invoice Trading is not considered because of the clear focus of this work on P2P lending.

2.7.1 The Traditional P2P Lending Model

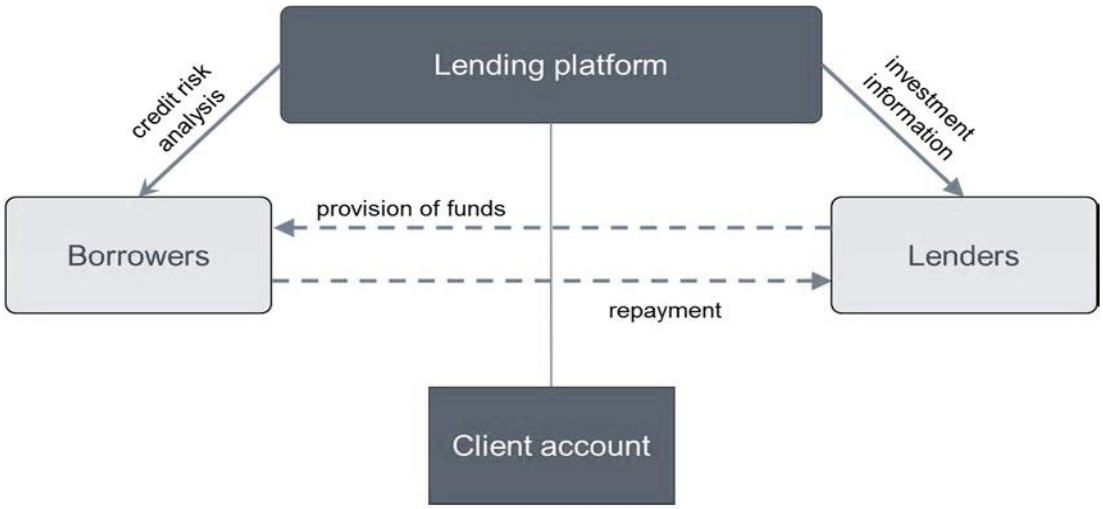

Figure 2.5 The Traditional P2P Lending Model.
Source: IOSCO, 2014

The stylised model presented in Figure 2.5 is the representation of the Traditional P2P Lending Model. The P2P Lending process starts with a prospective borrower registering for a loan on the platform. In order to be part of the platform community, borrowers have to provide a range of credit information besides the classical registry information. Credit information posted by borrowers on the platform are examined by the management team of the lending organization and must be approved by the platform. This activity is called credit risk analysis, a key activity that must be carried out in a very structured and detailed way in order to assess the risk the company is facing lending money to a specific entity.

On the other hand, potential creditors have the possibility to choose to fund loans available on the online market, considering some information related to the specific investment they are willing to finance. This piece of information is usually provided by the platform: normally, there are some information strictly related to the project, such as the maturity of the loan, the target amount and the interest rate the lenders expect to receive in addition to the repayment of capital provided but also some information related to the borrower itself, like the business description in the case of a company or a brief biography in the case of an individual. It is important to underline that, following the classification provided by Kirby and Worner, in this model the individual loan contracts are established between borrowers and lenders, rather than with the platform. Funds and contractual loan repayments, usually made by the sum of the capital received and the interests charged on it, are segregated from the platform's own account,

with the P2P platform generating revenues from fees from the transacting parties; the fees structure significantly varies between the wide range of business models adopted in the world. Both lenders and borrower may pay some fees, like the ones for account setup, for the origination of loans and for ongoing loan repayment. The Figure 2.5 summarizes the functioning of this model in a simplified way.

This basic structure can vary across the different platforms; one of the most diffused is the pure matching model, where investors directly choose prospective loans considering a broad range of credit information, for instance the general loan purpose, the loan terms (i.e. amount, maturity, interest rate), borrower industry (particularly in the case the borrower is a firm), the borrower income or net worth and other credit quality measures and indicators. Loans are originated if the funding target of the borrower is met within a predefined time window. The platforms very often provide a credit risk assessment, usually synthesized into a single credit rating or a score, with the aim to help investors in the loans selection process providing synthetic value referred to the level of risk that characterizes the specific project. Obviously, the credit risk assessment process represents one of the most delicate and crucial activities conducted by P2P Lending operators, because it can represent a source of competitive advantage during the life cycle of the company but, at the same time, it can be a weakness factor if not conducted in the right way; this is one the main reasons why some Social Lending operators use credit risk assessment from external providers or they base their own evaluations taking into account both external credit risk assessments and the results coming from their in-house grading systems[68]. Moreover, compared with traditional financial institutions, it seems that Social Lending platforms use a greater number of traditional and non-traditional data sources and, in some cases, they adopt new types of data analytics; for instance, the Indian P2P platform LendBox[69] takes into consideration thousands of data points, such as online spending behaviours and other non-traditional data points. In the US, some platforms[70] make use of data from online marketplaces, such as Amazon or (more recently) Facebook[71], while the Chinese player Dianrong[72] couple online infrastructure used for the provision of funds with offline processes.

[68] The Italian platform Prestiamoci, for instance, adopts proprietary valuation models and uses also external assessments in order to provide its credit risk valuation.

[69] Lendbox is India's premier peer-to-peer e-lending platform, https://www.lendbox.in.

[70] It should be noted that US Social Lending operators tend to be structured as Notary or Balance sheet model rather than direct matchers of borrowers and lenders.

[71] US Department of Treasury, 2016.

[72] Dianrong is an online marketplace lending company headquartered in Shanghai, China. Named the "Lending Club of China", the company was founded in 2012 by Soul Htite, co-founder and former CTO at Lending Club, who joined efforts with Kevin

This includes physical offices and commercial agents in order to obtain comprehensive information that is harder to come by in China (Deer et al, 2015). Most of the platforms encourage investors in lending money in multiple loans applications or projects in order to diversify the risk they are taking financing entrepreneurial initiatives. Some Social Lending operators provide exposure to multiple loans automatically, with an auto-selection of loans taking into account some characteristics of the project specified by the potential investor, such as the risk category or the maturity of the loan. This functionality is widely adopted in Europe, where the Cambridge Centre of Alternative Finance[73] (CCAF, 2016) found that approximately the 80% of P2P consumer lending platforms and around the 40% of P2P business lending platforms adopted the auto-selection process. The platforms can generate a large number of different contracts in order to maintain the P2P characteristics of the relationship and to consider each individual peculiarity. It is important to remind that those possibilities must be authorized by the regulation of the country or of the different ones in which a certain P2P Lending company is operating. For instance, in Japan legislation does not allow retail creditors to lend money directly to a borrower: the main consequence related to the loan selection process is that, under these conditions, loans must be "packaged" together, and investments can operate more like shares in a pooled loan scheme. Economically, this situation is very similar to a securitisation process without tranches (FSB & CGFS, 2017).

The loans selection process is strictly linked to another key process conducted by the various Social Lending operators all over the world: the interest rate setting process. Davis and Murphy (2016) provided a great contribution with their studies about this crucial process, highlighting how this process has a central role about the level of efficiency related to the functioning of the online market. Moreover, they identified three different approaches used by the Social Lending companies. The following paragraph provides a brief description of these three approaches:

1. <u>The First Approach</u>

   The first approach is a full-fledged auction process; investors place interest rate bids for the loans they are interested investing in, usually proposing a rate which is included within a range with an upper and a lower bound. The upper bound is represented by the maximum acceptable rate set by the borrower, while the lower bound consists of a

Guo, a PE fund partner and a lawyer from Shanghai to create a company similar to Lending Club in China, http://en.dianrong.com.

[73] The Cambridge Centre for Alternative Finance is an international interdisciplinary academic research institute dedicated to the study of alternative finance, which includes financial channels and instruments that emerge outside of the traditional financial system, https://www.jbs.cam.ac.uk.

minimum risk-related rate defined the platform operator. Prosper.com, for instance, is one of the platform adopting this kind of methodology.

2. The Second Approach

   In the second case, the rate is set by the platforms, taking into account the credit risk grade, value or score assigned to the specific loan or project uploaded on the platform. Regarding this second methodology, the two authors argue that platforms may have incentives to adopt opportunistic behaviours, adjusting interest rates when the demand and the supply are misaligned.

3. The Third Approach

   In this case, the borrowers receive an indicative interest rate, obtained by the online market and strictly correlated with their risk profiles. The investors can then compare these different interest rates for the different options uploaded on the platform. They respectively set the minimum and the maximum rates they are willing to receive, then the platform provider matches the bid and the offer rates that result as compatible, in order to generate the required level of funding. This methodology is similar to the stock market order book functioning (Davis & Murphy, 2016).

Another crucial issue concerning the Traditional P2P Lending Model is related to the relationship and the interaction between the lending operator, the borrowers that received the amount of money asked to the crowd and the investors that financed the project. It is very immediate to understand how possible delays in the repayment of the loan received could deteriorate not only the position of an insolvent borrower, but they can have also higher negative consequences by an operational and reputational point of view also for the platforms, especially if the volume of payments in delay is high and, even worse, if the number of the defaulted borrowers is a good portion of the total number of borrowers registered on the platform. This is the reason why most platforms adopt monitoring and preventive actions and measures. A large number of platforms offer early loan repayment options, very often without additional repayment penalties. In addition, no additional risk monitoring is carried out after the provision of funds if loan repayments are regularly made as agreed upon; in this situation, there could be potential opportunistic behaviours by the borrowers, because they have the incentive to use money with a different purpose than that for which they were solicited (Kirby & Worner, 2014). When the borrowers are close to the default or the risk of missing a repayment is high, platforms

advise the borrowers, asking for an early contact. Moreover, the Social Lending operators tend to collaborate with debt collection agencies in order to recover the loan. As such, when the collection of the loan is executed, there could be higher fees to the investors. In some cases, Social Lending platforms provide a credit losses absorption mechanism for investors, particularly those platforms with a great degree of control over loan allocation. This mechanism widely varies in relation to the legislation under which the company performs. For instance, in Spain, it is an insurance contract, but it can be also a provision fund or a dedicated guarantee (for example in Australia, China, Korea, Italy and UK). There are obviously differences in terms of coverage and loss absorption size. The coverage can be related to the entire portfolio or just to a part of it, like those platforms that offer a provision fund just for loans with disclosed high credit grades. Regarding the size of loss absorption, differences are even more evident: for example, in Korea, the funds cover from the 50% to the 70% of the principal, while the coverage for the largest platform in Italy is 2.5%. (ECRI, 2016). In the UK, these funds aim to pay out at least the expected lifetime default rates for covered loans, so provision funds may not be sufficient if loan defaults increase significantly, as it could happen in a stress market scenario.

There are some platforms operating in different countries (for instance in Australia, China, Italy, South Africa and the UK) that provide a secondary market for investors. The presence of a secondary market allows the actual creditors to withdraw their funds and the potential ones to purchase the underlying loans. This is a way also to enhance the level of liquidity of the investment by the investors perspective. However, some platforms state in their terms of use that they might need to suspend early withdrawals if the volume of withdrawals increases over a certain level and they usually charge fees for the creditors that want to liquidate their position.

2.7.2 The Notary Model

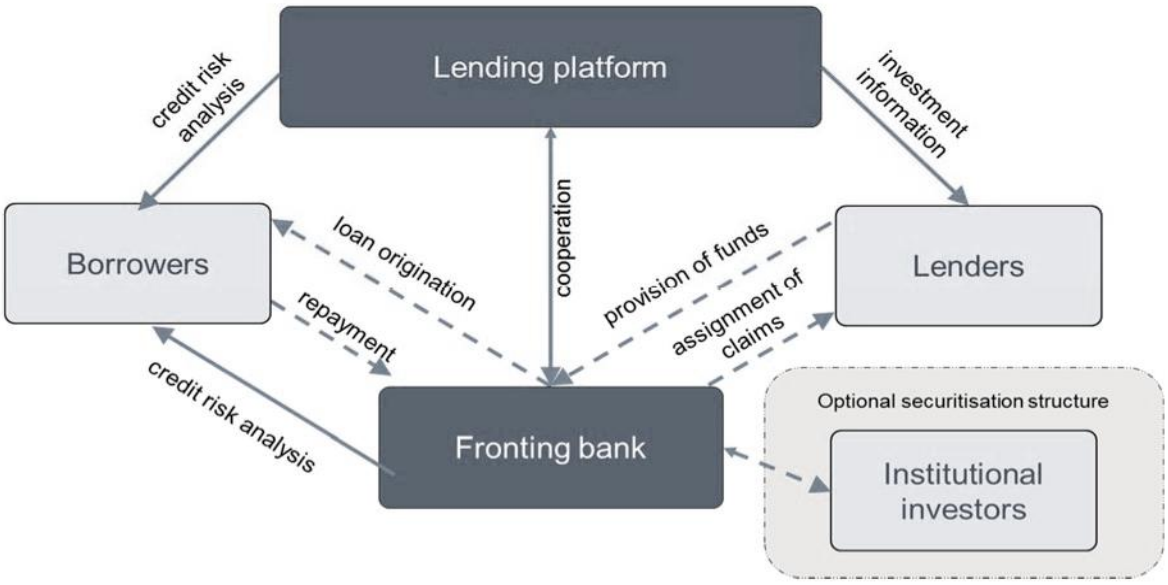

Figure 2.6 The Notary Model.
Source: IOSCO, 2014.

The Notary Model (Figure 2.6) is the most diffused model adopted by P2P Lending operators in Germany and Korea but is very common to find Social Lending companies following this organizational scheme also in the US. There are many variations in how this organizational model works, mainly due to the different legislations in which it is implemented. One of the main difference with respect to the previous model described is represented by the fronting bank and the cooperation between this entity and the lending platform. Indeed, in this model loans are originated by the partnering bank, and the online platform acts as an agent that offers a matching service to satisfy the needs of creditors and borrowers. The platform collects information about the borrowers in order to develop a credit risk analysis, but this activity is carried out by the fronting bank too; this usually leads to a more structured credit risk assessment with respect to lending operators adopting the traditional model, although results may differ considering the different methodologies and data sources developed internally by the Social Lending operators. Lenders collect and analyse information related to the different investments opportunities and provide funds to the partnering bank in exchange for an assignment of claims. After having received the amount of money requested, borrowers have to respect the scheduled repayment flows, composed by the capital received plus the interests on it. After having originated the loans, the bank can sell or assign them to creditors, either

directly to the creditors in smaller packages or to a platform subsidiary that repackages them into multiple loans. The diagram proposed in the image above represents the case in which the partnering bank retains the loans, but the cash flows would differ if the bank sells the loans after origination back to the platform or to institutional investors, including through a securitization process (highlighted in grey in Figure 2.6).

As mentioned at the beginning of this section, the main countries in which this model is frequently adopted are Germany, Korea and the US. In Germany, this organizational structure is commonly used because of the regulatory restrictions on non-authorised institutions issuing loans. In Korea, the majority of P2P lenders set up a moneylender as a subsidiary which originates loans with the funds collected from the investors by the lending operator. The platform does not engage in lending directly, in order to avoid violations of the laws related to the finance universe. The banks may issue loans for an online credit platform, with the arrangement involving the platform passing on the funds it has raised to the bank as collateral, then used by the bank to generate the loans. In the United States, some lenders make an agreement with some depository institutions to use that institution's charter to make loans at a national level, without obtaining individual state licences. The depository institution issues loans to the borrowers that register themselves on the online platform, and it can hold the loans for one or two days. Subsequently, the platform lender or an investor through the platform lender can purchase the loans. As an alternative, such loans may be retained by the issuing bank, and they can be branded under the bank's name or a co-brand (PricewaterhouseCoopers, 2015).

2.7.3 The Balance Sheet Model

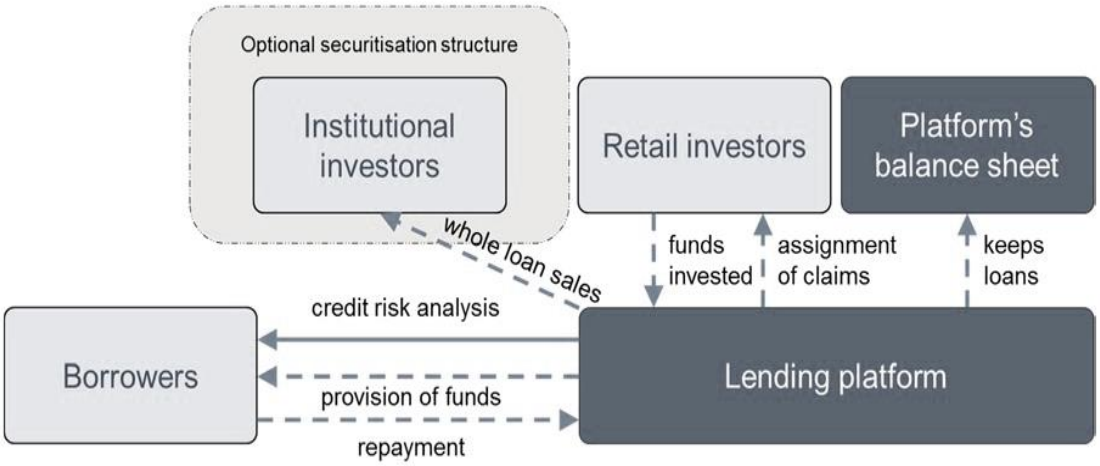

Figure 2.7 The Balance Sheet Model,
Source: IOSCO, 2014.

The diagram above represents the stylised Balance Sheet Model of P2P Lending operators. Figure 2.7 summarized the basic functioning of this model; the platforms originate and retain loans on their own balance sheet, similarly to the usual business model of a non-bank lender. The P2P Lending operators collect the lender's funds and give to them an assignment of claims. After having performed a credit risk analysis, as described in the previous models, the platform lends money to the borrowers. Borrowers pay back the capital received plus the interests charged on it. As such in the Notary Model, the securitization process is an option the lending platform can exercise in order to package the loans and sell them to institutional investors. This model is adopted in different countries and legislation, but it seems to be more prominent in the US with respect to other jurisdictions. Considering that the credit industry in the US has developed, balance sheet lenders have increasingly relied on capital sources such as equity, debt and securitization to fund origination. Some FinTech real estate platforms in the United Kingdom also invest directly in loans. For instance, a P2P property lending platform called Wellesley operates a separate finance channel relying on transfers of loans to the platform. Another P2P Lending organization called LendInvest operates a "receivables participation" model whereby a lender receives the payments that are made to LendInvest. In China, some local operators raised from small "informal banks", and they represent a hybrid between traditional P2P and balance sheet models. Moreover, some platform providers combine P2P Lending activities with other businesses. For example, the Chinese platform Credit Ease in one of the Chinese players running non-traditional wealth management companies, while Lufax

runs a major secondary trading business (Deer at al., 2015). In the US, the Social Lending company SoFi offers wealth management services and life insurance products directly online.

2.7.4 The Guaranteed Return Model

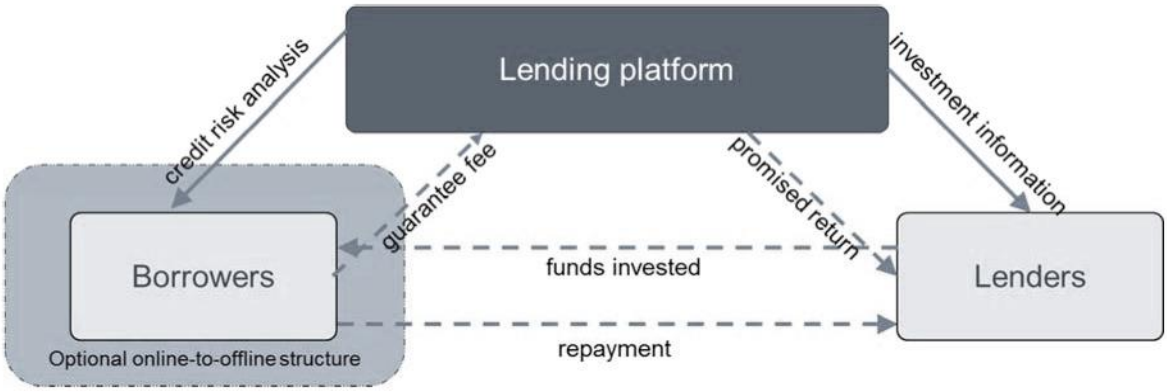

Figure 2.8 The Guaranteed Return Model.
Source: IOSCO, 2014

The Guarantee Return Model is an organizational structure characterizing Social Lending operators in which the platform guarantees the principal to the creditors or, alternatively, the lending operator guarantees the interests on loan. In few cases, the lending company guarantees both principal and interests. Figure 2.8 synthesized the functioning of the discussed model. This organization structure appears as prevalent in China over recent years, particularly after a study conducted by the Association of Chartered Certified Accountants undertaken in 2015 (Deer et al., 2015). This research showed that some large Chinese platforms guaranteed the principal of the creditors investing in a heavily diversified portfolio of loans (Deer et al., 2015). In addition, one of the largest P2P platforms in China offered to the investors the 12% return on principal regardless of the level of loan risk. New rules announced by Chinese authorities in August 2016 bar online lenders from guaranteeing principal or interest on loans they facilitate, even if there is the possibility some investors retain the expectation that their funds are safeguarded by the lending platform (Wildau, 2016).

This type of business model was the one of the online lending platform TrustBuddy[74], a Swedish P2P Lending company that went into bankruptcy in 2016. TrustBuddy promised returns of 12%

[74] TrustBuddy is a peer-to-peer group that operates in Northern Europe. The Group operates under three different brand names (Geldvoorelkaar, Crowdfunding Society and TrustBuddy) in 5 European countries. The group offers peer-to-peer financing for small and mid-sized companies and consumer loans, investor.trustbuddy.com.

and allowed investors to access to their money in a relatively easy way, and they needed just two days' notice to withdraw up to 90% of their outstanding investment.

3 Literature Review

Although P2P Lending is a quite recent phenomenon and, more generally, the crowd have only recently been recognized as an alternative source of funding, in last years the attention and the interest in CrowdFunding activities became higher and higher not just for academics, but also for financial and governmental institutions and authorities. However, the number of studies and analysis concerning this continuously evolving activity are quite limited. We can summarize the research and past study in 3 different streams: the role of information asymmetry and how this could affect the behaviour of the actors involved, the assessment of the main determinants of the default risk and the assessment of the performances of this new possible asset classes.

3.1 Information Asymmetries in Markets for Entrepreneurial Financing

Despite the motives that lead businesses to use the P2P channel are not only related to the credit crunch issues, but some of them try this new form of financing for curiosity rather than structural necessity, the access to credit by small businesses in an information asymmetry context is of valuable relevance. This section analyses the capability of small business and entrepreneurial ventures to access to external financing sources and the role of information asymmetry in the entrepreneurial financing market. Small and Medium sized enterprises (SMEs) face disadvantages in accessing external sources of financing compared with public or mature private enterprises and such lack of capital increases the risk of failure and limits the potential growth of SMEs (Chemmanur, Krishnan & Nandy, 2011). Usually, the main source of difficulty is linked to the extensive information asymmetry vis-à-vis prospective investors; small enterprises tend to have a limited track record and histories for informed assessments by lenders or prospective investors. In addition, entrepreneurs tend to have a higher amount of information related to the intrinsic quality and tend to be over-optimistic (Amit, Brander & Zott, 1998), with natural incentives to exaggerate their forecasts and previsions, withhold or temper negative information, overestimating the potential value of their firm or of the firm they are evaluating (Cooper, Woo & Dunkelberg, 1988), very often related to growth expectations rather than tangible assets in place (Barzel, 1987; Shane & Cable, 2002, Shane & Stuart, 2002). Theoretical models suggest that difficulty in distinguish between firms (e.g. borrowers) of different quality can have consequences varying from over-investment of under-investment

with the respect to the optimum (Jaffee & Russell, 1976; Stiglitz & Weiss, 1981; De Meza & Webb, 1987); this difficulty is mainly related to hidden information problems, resulting in an increasing adverse selection risk for external investors (Myers & Majluf, 1984; Greewald, Stiglitz & Weiss, 1984) and an increasing moral hazard due to agency issues after the realization of the investment (Jensen & Meckling, 1976; Grossman & Hart, 1982). The traditional financial intermediaries, for instance, banks, insurance companies, private equity funds and venture capitalists possess the specific knowledge and the set of expertise needed to overcome ex-ante and ex-post information asymmetries and financial resources to perform due diligence. Moreover, these intermediaries have also organisational advantages allowing them to reduce the asymmetric information prevalent in the entrepreneurial financing markets. Consider for instance the case of venture capitalists, experts in funding high technology start-ups providing. This category of financing provider, in order to select promising entrepreneurial ventures, and to devise mechanisms[75] to deter the opportunistic behaviours of the entrepreneurs after the investment has been made, rely on their expertise, their knowledge about the industry and the specific business there are evaluating (Amit et al., 1998; Lerner and Gompers, 2001; Baum and Silvermann, 2004). In other words, the ex-ante information asymmetry problem, i.e. the identification of the promising and not promising start-ups, and the ex-post information asymmetry problem, i.e. the opportunistic behaviours undertaken by the entrepreneurs, are solved by venture capitalists used their deep industry knowledge and their sophisticated mental schemes to detect signals from noise in decision making process, using financial resources in order to perform an accurate due diligence process.

After having introduced the theoretical framework related to the asymmetric information issue existing in entrepreneurial financing markets, in this paragraph we will focus the attention on the role of the information within the online credit markets, including the P2P Lending one. In the online credit markets, lender infers the creditworthiness of borrowers observing some financial information such as the credit score, and soft information[76] about borrowers' quality (Morse, 2015). In his personal study, Miller (2015) reports that allowing lenders to access more borrowers' information about their credit risk reduces default rates among high-risk borrowers, thanks to the improvement in the ability of lenders to select projects. This result was reported after the unanticipated increase in borrowers' credit report details, that were visible for lenders,

[75] Staging, syndicating, contractual covenants, control rights exceeding cash flow rights.
[76] Non-verifiable in the sense of Stein, 2002.

on Prosper.com, and this means that besides hard information (i.e. the credit score), soft information can reduce the risk of adverse selection (Miller, 2015). As further evidence of the role of soft information, there were some studies that showed how some borrowers' attributes, such as demographical or physical ones (i.e. beauty, age and education level) influence the decisions in P2P Lending (Duarte, Siegel & Young, 2012; Pope & Sydnor, 2011; Ravina, 2012) while other studies showed that friendship connections on Prosper.com facilitated the reduction of asymmetric information on the market by conveying costly and hard-to-imitate signals of borrowers' quality (Lin et al., 2013). In 2016, the study conducted by Iyer et al. showed that lenders in P2P markets outperform the credit band based on scoring technology in terms of the capability to predict the default of loans, using soft information such as the maximum interest rate a borrower is willing to accept (Iyer et al., 2016).

One of the main literature milestones concerning P2P Lending is related to the wisdom of crowd concept. This notion was developed considering the possibility that the aggregation of individual decisions outperforms each individual decision. CrowdFunding markets facilitate pooling resources collected from a multitude of individuals, forming a crowd of investors. The concept of wisdom of crowd predicts that mathematical aggregation, like the averaging, of the individual's judgment can cancel out individual errors of judgement, leading to a more accurate measure of true value (Makridakis & Winkler, 1983). In other words, an individual's judgement will cancel out the noise and extract the signal. There are four main conditions in order to produce the wisdom of crowd, which can emphasize the quality of the signal or the nature of the noise in the judgement of an individual. The following bullet point reports those attributes, that must be possessed by individuals in order to create the wisdom of crowd:

1. Knowledge of the subject: the crowd or, at least, a portion of the crowd should possess some relevant knowledge about the issue of judgement. In this way, individual judgements are informed and close to the true value (Keuschnigg & Ganser, 2016).
2. Motivation to be accurate: individuals should have the motivation or economic incentives to use their expertise and their knowledge in order to achieve an accurate judgement (Simmons et al., 2011).

Finally, individual errors should not be systematic, because if all crowd members make the same mistake there is not the possibility to cancel each other's errors and reach an accurate

judgement. The aggregation or the averaging of systematic errors can potentially impede the creation of wisdom of crowd. Two main factors are linked to the reduction of systematic errors:

3. Independence: individual judgements should be formed independently by others because the crowd talk to another crowd and share their information, they will share the same errors and the same bias (Hogarth, 1978; Sunstein, 2006).
4. Diversity: there should be diversity in crowd judgements about the specific issue (Larrick et al., 2011). Social influence, for instance peer pressure toward conformity or group decision-making can bias the individual errors, undermining the production of wisdom of crowd (Sunstein, 2006; Lorenz et al., 2011).

In conclusion, if the conditions of ability, incentive, diversity and independence hold, when predicting an outcome that is unknown, the central tendency of individuals' judgements estimates the truth more closely than each individual judgment. Considering the nature and the characteristics of Social Lending activities results quite clear how the impediment of the formation of wisdom of crowd, due to the absence of one or more necessary conditions can amplify adverse selection issues, with possible negative impacts on the crowd performance, compared with more skilled and knowledgeable investors.

Wang et al. (2015) compare the traditional bank loan process and the more innovative lending process model by P2P platforms with a specific focus on the flows of data and information. They conclude that flow of information is more frequent and transparent in P2P, the IT techniques as big data analysis and data mining are key points for the success of the business model promote by P2P. In contrast, the lack of post-loan information on borrower reduces the efficiencies of loan management. The distance in the information availability between the actors involved create information asymmetry that could result in the problem of moral hazard and adverse selection, this could increase the interest rate requested and could attract riskier borrower. In the traditional credit market, the banks use systems of monitoring or guarantee, but in the online world of platforms this could enlarge the transaction cost reducing so the costs advantages of this platform (Emekter et al. 2015).
What academics and scholar investigate is if the information provided by the platform around the different investment opportunity at the availability of crowd can reduce the effect of adverse selection. Providing credit to SMEs is challenging for the intrinsic characteristics of these

typologies of actors, with less track record information and riskier profile for definition (Wehinger, 2014). In this context, the capability to collect relevant information regarding the applicants of loans by the platform (activities of data mining, and data analysis) is a crucial point (Wang et al. 2015). Not only "hard information" as credit history, accounting data or debt to equity ratios are important, but also the so-called "soft information" become of relevant importance to determine the creditworthiness of loan applicants. As so one of the principal collection of research around Peer-to-Peer investigate the role of soft information and social networks as screening and monitoring tools (Freedman & Jin, 2008, 2010, 2014; Herrero Lopez, 2009; Lin, 2011).

Some of these studies are the results of the business model developed by one of the most important platforms in the P2P environment, Prosper.com[77]. The platform encourages borrowers and lenders to form groups and establish friendships with other members. A non-borrowing individual may set up a group on Prosper.com and becomes a group leader that is supposed to foster a "community" environment within the group so that the group members feel social pressure to pay the loan on time (Freedman & Jin 2008). In this way, the role of the group leader becomes fundamental because he can request some specific information regarding a new member and afford a pre-screening activity. The group leader itself has an incentive to monitor and control the behaviour of the member because the negative action could promote a negative perception to the entire group reducing his perceived creditworthiness by the crowd. According to the authors the "soft information"[78], and affect the interest rate, alleviate so the effect of credit rationing if they are well understood (Freedman & Jin, 2008). The group affiliation is itself a positive signalling increasing the possibility to be funded and the capability to enjoy lower contract rate (Freedman & Jin, 2014). Additionally, the group carry out two possible actions:

i. A simple endorsement by the group leader;

ii. An endorsement and a group leader bid;

Both have a positive effect and appear to be interpreted as additional positive information by lenders that result in higher funding rates and lower contract interest rates, and especially the presence of a leader bids offers to increase these positive effects (Freedman & Jin, 2014).

[77] Subsidiary of Prosper Marketplace, Inc.

[78] Definition provided by Lin as the set of information concerning the riskiness of a borrower as results of his networks with the community of Peer to Peer, could be used as supportive data to screen possible investment decision.

Greiner and Wang (2009) in their paper 'The Role of Social Capital in People to People Lending Marketplace' analyse what are the benefits of social capital both from the lenders' and borrower's perspective. The social capital theory suggests that economic behaviour should not be analysed without considering the social relation between individual (Granovetter, 1985). Social capital can be defined as the "sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet & Ghoshal 1998). To perform the analysis, authors use the data provided by two years of history records by Prosper.com platform with more than 200,000 loan requests and 27,500 loans. From the borrowers' perspective, social capital can be represented by the membership in a group, especially if the group has a good rating (Greiner and Wang, 2007). Another benefit of social capital is access and exchange of information between group members (Coleman 1988; Adler and Kwon, 2002) and member of a large group have a larger collective knowledge. Another strong signal of trust is if a friend, endorsement giver, or group leader makes a bid on the listing (Freedman and Jin 2008).

From the lenders' perspective, the main benefit they should obtain is its influence in actual loan performance, increasing the profitability for investors. The empirical analysis showed that social capital does influence borrowers' ability to get funded and get better interest rates. In general, borrowers with more social capital tend to get funded and obtain lower interest rates. Moreover, the influences are different across credit grades and time. The most important insights gained from the analysis are discussed in this section (Greiner & Wang 2009).

Iyer et al. (2009) investigate whether lenders in such Peer-to-Peer markets are able to use borrowers' information to infer creditworthiness and allocate in an efficient way their credit. The results show that regardless the crowd is characterised by non-expert investors, they tend to screen the different investment opportunity according to hard and soft information, especially among lower rating alternative. Of the soft information, of relevant importance is the maximum interest rate that the borrower is willing to pay (a platform which based the interest rate settlement through auction as Prosper.com allows this option). This rate is likely to serve as a credible and costly signal since borrowers posting too low a rate, risk not having the loan funded, and this signal may be costlier for lower-quality borrowers with fewer alternate funding options (Iyer et al. 2009).

Among the research, some effort was devoted to the analysis of the credit risk management by the platform of Peer to Peer. Yang et al. (2015) examined the concept of big data analysis in

the process of risk assessment and risk management in the context of online platform, and how these can reduce the selection cost. Because of the different transactions take place online, IT tools and online data can be effectively used to assist credit risk management. Peer-to-Peer Lending platforms, that for their nature deal with the online environment are more confident to use a wide range of data to evaluate credit risk, while traditional banks may not have the technical abilities or analytical skills to utilize these new forms of data. In other words, in traditional credit evaluation, lenders passively depend on the borrowers providing information about themselves while, in the big data era, lenders can proactively search the 360-degree online footprint of potential borrowers and let data tell who they really are. Big data tools allow lenders to tie all the information together and assess it from multiple perspectives to gain new insights. By identifying that, signalling and search costs are reduced by the application of big data analytics in P2P Lending, results suggested that big data can significantly reduce information asymmetry in the lending industry (Yang et al. 2015).

A research conducted by Oxera in September 2016 under the mandate of the Peer to Peer Finance Association (P2PFA)[79], the group of the major platform of P2P Lending in UK, investigate how the platform manages the risk both for the investors and for the borrowers. The analysis demonstrates that the platforms are incentive to adopt best practice of the industry that is in line with the ones of the traditional credit market and makes use of additional control to assure a fair treatment of the different classes of investors. This because manage in right and efficient way the credit risk helps to reduce the possible negative effect on the reputation side of the platform and on the industry of the P2P itself, and because it has a direct impact on the profitability of the platform as a loss on ongoing service fees.

According to the research, investors are completely aware of the risk profile of investment opportunities in the platform, and they show that the underlying risks are comparable with ones of the traditional asset classes available for retail investors, so there is no reason to consider these investments not suitable for retail investors.

Considering the effect of the asymmetry information in form of moral hazard, there is not a huge number of complete analyses showing empirical evidence of this phenomenon, although it should be of crucial importance since we are talking about unsecured loans. We have some

[79] Established in 2011, the Peer to Peer Finance Association is a representative and self-regulatory body for P2P lending in the UK. The P2PFA seeks to inform and educate, promote high standards of business conduct (primarily through the P2PFA's Operating Principles), and work with policy-makers and regulators to ensure an effective regulatory regime.

studies related to the world of microfinance that could be used in order to understand how the platform is affected by moral hazard problems and how they manage it.

In emerging economies, the major portion of the population cannot have access to credit because of the impossibility to provide a guarantee on the loans, and because the monitoring costs of the single loans by the banks are too high to create profitability for the banks (Hermes et al., 2007)[80]. In order to solve possible problem derived by moral hazard, in this economy new form of business are arising in which the credit is not provided to the single applicants, but to subject belonging to the group. Again, the social role of the group performs a crucial role in the reduction of the asymmetry information, because in this case, the responsibility of the loan repayments is on the entire group. This creates an internal process of social monitoring among the members of the group and of course increase the effect of pre-selection process of the members of the group reducing the possibility to have 'bad borrowers' among the creditors. The study of Hermes et al. (2007) is one of the few empirical studies regarding the analysis of moral hazard behaviour in the lending program to the group. He performs the interview among 102 different groups by 4-5 members. The results show that exists some internal process that is able to reduce moral hazard behaviour, and the most effective are regular contacts between the leader group (in charge of the selection of the members of the group) and the eventual relationship between members before the generation of the credit. A more recent research by Jomes 2016, propose to outsource the search, selection and monitoring of the information on the loan applicants. This because financial institutions of microfinance are more efficient and have more capability to detect and manage the information of borrowers in a more accurate way, respect to the platforms.

3.2 Assessment of Default Risk Probabilities

The researches regarding the analysis of the performances of the platforms and the main results of the investments in term of profitability in this new type of business are much less because of the limited number of consistent data provided by the platform around the different economies. The main efforts in this field of research are regards the relation between the rate of default and the interest rate associated with each investment opportunity. It is important to understand the dynamics of the assessment of the risk profile of the loan applicants and the related

[80] See section 2.1

rating/interest rate, because in most of the platforms this risk is on the lenders, that in general terms are not expert investors. In other cases, some platforms are changing their business model introducing a fund, fulfilled with the fees requested, that could be used as a protection fund in case of default of some loans[81]. These analyses help us to understand if this new type of investment could represent a new and profitable asset class for the classic retail investors considering the correlated risks, and so if the greater possible earnings in term of interest are enough to cover the greater risk associated to this asset classes. Emekter et al. (2014) demonstrated that exist some important element to take into consideration in order to assess the default risk of a loan, in particular, the credit score, the indebtedness level and the FICO score[82]. In general terms, results showed the platforms are able to predict in an efficient way the risk of default with their rating assignment and correlated interest, but this is valid only for high rating classes. Additionally, in their study, they find a positive correlation between the maturity of the loan proposed and the probability of insolvency.

Among the research that investigate the determinants of the borrower's default, Cinca et al. (2015) analyse if the platforms are able to assign efficiently the grade to the different investments opportunity with the lower grade to the borrowers with higher default risk. The sample considered in the research was composed by 24,449 loans between 2008 and 2014 provided by LendingClub[83], the biggest US P2P company. Their process goes through a hypotheses test and a survival analysis on the factors explaining loan defaults and secondly a regression logistic model to predict loan default. LendingClub assigns a grade from A to G according to the riskiness of the different investment opportunity. The study results show that there is a clear relationship between the grade assigned by LendingClub and the probability of default, in fact 94.4% of A-grade loans were reimbursed, while this percentage gradually decreases to 61.8% for G-grade loans. Among the different test variable that are able to explain the default rate of the borrowers, the result of the analysis shows that annual income, current

[81] "BorsadelCredito.it Protezione prestatore", for example, is a protection fund for the protection of lenders whose funds are supplied through a contribution requested to the applicants in order to protect the providers in the event of partial or total non-payment of instalments of the loans.

[82] The FICO score is a type of credit score created by the Fair Isaac Corporation. Lenders use borrowers' FICO scores along with other details on borrowers' credit reports to assess credit risk and determine whether to extend credit. To determine credit scores, the Fair Isaac Corporation weighs each category differently for each individual. However, in general, payment history is 35% of the score, accounts owed is 30%, length of credit history is 15%, new credit is 10% and credit mix is 10%.

[83] LendingClub Corporation is a US P2P lending company, headquartered in San Francisco (California). It was the first peer-to-peer lender to register its offerings as securities with the Securities and Exchange Commission (SEC), and to offer loan trading on a secondary market.

housing situation, credit history and indebtedness level are all relevant variables. The interest rate assigned depends on the grade assigned and the higher the interest rate, the higher the risk associated and higher the default probability is. Loan purpose is also a factor explaining default: wedding is the less risky loan purpose and small business is the riskiest. The regression model shows that the grade assigned by LendingClub is the variable with the highest predictive capability.

A subsequent research by Polena and Regner (2016) study the determinant of risk default distinguishes between different risk levels. They define four different risk classes and tested the significance of the default determining variable inside the different loan risk classes, using a new dataset of 70,673 loans observation from LendingClub. Their findings suggest that the significance of most variables depends on loan risk classes and only few variables remain consistent across all risk classes. The set of separate regressions for each loan risk class identifies only Annual Income, Debt-to-Income, Inquiries in Past 2 Years and the specific loan purposes Credit Card and Small Business as significant determinants of loan default in all loan risk classes. Revolving Credit Utilization, Delinquency in Past 2 Years and Number of Characters (in low risk classes loan, creditworthy borrowers write, on average, a longer Loan Description than borrowers who defaulted) are only significant for low loan risk classes. Length of Credit History is only significant for high loan risk classes. The analysis confirms that loan/borrower characteristics can indeed be used to predict a loan's default chances.

Similar studies that investigate the relation between the interest rate of a specific loan request and a pool of different variables was conducted by Dietrich and Werli (2015) in their paper "What Drives Interest Rate in P2P Consumer Lending Market? Empirical Evidence from Switzerland Market". This analysis was conducted with a specific focus on the consumer market in Switzerland using data provided by the most relevant Swiss P2P platform Cashare[84] where interest rates are settled by auction process. The two authors were able to deduct the real preference of investors with respect to their risk-return trade off. They investigate in what extend the loan rates are function of loan-specific, borrower-specific and macroeconomics factors. One of the most important differences among the previous studies concerning the same theme, is that in the Swiss market there is a bank-based system rather than a traditional market-based financial system in economy as UK or US, and in such economy the determinants of the

[84] Cashare AG.

interest rate could be very different. The interesting part of this analysis is that they consider also variables related to borrowers never considered before as living arrangements, number of children and marital status. The independent variables analysed were related to three main categories:

i. Loan specific: amount, duration, number of loans in the last 90 days;

ii. Borrower specific: debt-income ratio, a set of dummy variables related to the gender, nationality, home ownership, children and living arrangements;

iii. Macroeconomics: unemployment rate, yield-to-maturity (YTM)[85] of 3 years Swiss government bond and performance of 3 months of SMI (Swiss Market Index).

The results show that the interest rate is positively correlated with the duration, the amount and if there are a lot of different opportunities in the platform (variables number of loans in the last 90 days). As expected, the interest rates are higher when the debt-income ratio is larger and lower when the borrower is a homeowner, that demonstrate how lenders act almost rationally with their investment decision, and demand for a risk premium if the risk of the borrower is effectively higher. The fact of being a Swiss holder or to have less than three kids impact negatively on the interest rate that results to be significantly lower. Finally, they demonstrate that also macroeconomics variables have a significant influence, loan rates are higher when the general interest rate and the unemployment rate are high.

A recent study performed by a Dutch student of the University of Twente in 2017 in his paper called "Determinants of Loan Performance in P2P Lending" investigate which are the most relevant factors that impact on the loan success in P2P. He defines the sample of analysis considering 143,654 P2P loans funded in the US platform LendingClub between 2013 and 2014. The variable under analysis was the "Loan performance" defined as ex-post default rate or success rate[86]. The study goes through 2 different tests under analysis. First, find the actual relationship between the credit grade assigned by the platform and the loan performance (H1). The second step was to find the correlation of some variable of interest as loan amount, an annual income of the borrower, debt-income ratio, the number of inquiries in the last 6 months, the number of the open and total credit line as well as the revolving credit balance with the loan

[85] The YTM is the rate at which the sum of discounted future cash flows originated during the maturity of a bond is equal to the bond's price.

[86] On LendingClub the loan incurred in 'defaulted' after 121 days

performance (H2). These variables (the independent variables) were selected as appropriate to give an additional overview of the financial status quo and position of a borrower and allow a comprehensive sight onto the risk status. The analysis was performed at different level considering the different credit grade and considering only matured loans (with a maturity of 36 months). The methodology used is binary logistic regression and estimates are made on the basis of iterative maximum likelihood. The results indicate a descending likelihood of success from credit grades A to E, so for these grades, the H1 is supported. However, the situation changes with grades F and G, since the default risk of grade F is lower than in E. In all credit grades there is a negative relationship between the loan amount and the probability of success that suggest that each additional US-Dollar impact negatively on the probability of loan success, with the higher impact on the loan performance in credit category D.

The coefficients of annual income are positive for all grades, so a higher annual income decrease the loan risks as expected, and the impact is quite equal for all classes of credit grades. A higher debt-income ratio decreases loan success probability with significance in all grade except for grade E. Similar impact with the variable inquiries in the last 6 months, where the probability of loan success decreases as the number of inquiries in the last 6 months increase. All the coefficients are significance with except for credit grade A. concerning the last two variables, the regression results show that open credit lines and total credit lines are not a significant predictors for loan success, while the revolving credit balance is only a significant predictor for loans grade class A-G (the whole sample). The results of this and similar studies shows that the platform is able to point out the riskiness of a specific loan able with a screening activity assigning a grade that in most of the cases reflect the real default risk. Additionally, the study highlights the importance and impact on the probability of default of a series of factors related to each loan. This information is directly provided on each page of presentation of the loan. So, is important for the investor to perform a personal screening and selection considering the set of information regarding the borrower's characteristics and the loan characteristics, in order to reduce the risk of the entire loan portfolio on the investors.

The presence of these platforms and this new credit channel in the market of loans make arise important questions: are P2P Lending platforms competitors or complementary to the banking system? Are they creating a completely new market or they are dealing with the same market of banks?

De Roure et al. try to answer to some of these questions in 2016 in a quite recent research "How does P2P fit into the Consumer Credit Market" analyse the P2P Lending market in Germany'. With the focus on the German platform Auxmoney, they investigate if considering risk-adjusted indicator the rate settled by the P2P platforms are so different by those of the German bank, and if they serve the same market of the banks.

The result of the analysis shows that the rate charged by the German platform are actually higher than those of the banks, but they deal with borrowers that are riskier in general term of the probability of default. They conclude that considering some risk-adjusted indicator the rates are in line with the interest charged by the banks for one to five-year loans. Another important finding of the research is that Auxmoney[87] is lending relatively more when and where banks are lending less and combining the two result the authors were able to conclude that Auxmoney is serving borrowers largely considered as not 'bankable' by banks, that is a segment that banks are not willing to supply. The authors explain this avoidance in fulfilling this portion of the market with reputational problem costs affected by a larger rate of default of their borrower and to the higher marginal costs of these loans that are not covered by the bank's profit. Different is for the platform where the internet-based intermediation and the reduced operational costs allow these loans to still be profitable for their business.

3.3 Profitability of Lending Platform

"However, are the often-inexperienced lenders who operate in a pseudonymous online environment with potentially significant information asymmetries really able to obtain an attractive return on their investment?" (Klafft, 2008). In the paper "Online Peer-to-Peer Lending: A Lenders' Perspective", Klafft examine whether or not the information available on the platform concerning the borrower's characteristics allow the "inexperienced lenders" to obtain a valuable return. His analysis considers data from the US platform Prosper.com that applies a credit auction format; the borrower makes his request specifying the maximum interest rate he is willing to pay, and lenders bid their amount of money[88] and specify the interest rate that they want for their loan. The bids with the lowest rate are collected until the total amount is collected.

[87] Auxmoney GmbH.
[88] With a minimum investment equal to $ 50.

The information provided by the platform to facilitate the investment decision considered in the paper by Klafft are:

- The borrower's credit rating, as determined by an external rating agency;
- The borrower's debt to income ratio;
- Verified bank account information (if applicable);
- Verified home ownership (if applicable);
- Detailed information on income and monthly expenses (not verified by the platform);
- Past and present delinquencies of the borrower;
- Negative credit-related public records;
- Current credit lines;
- The current credit balance;
- Bankcard utilization;
- Enquiries by lenders during last 6 months;

The process goes through an analysis of the profitability of the different rating category considering the effect of early repayment, gross loss and the recovery ratio on defaulted loss thanks to the intervention of some debt broker that account upon 23% on AA category. The results are provided below, in Table 3.1.

Rating Category	Estimated Avg ROI
AA	5.87%
A	4.20%
B	3.10%
C	-0.33%
D	0.57%
E	-8.69%
HR	-27.61%

Table 3.1 Return on Investment related to Rating Category.
Source: Klaftt, 2008.

Additionally, the author analyses the effect of three different investments rules on the portfolio profitability:

i. Rule 1: Only invest in borrowers which do not have any delinquent accounts.

ii. Rule 2: Only invest in borrowers which do not have any delinquent accounts AND a debt to income ratio below 20%.

iii. Rule 3: Only invest in borrowers which do not have any delinquent accounts AND a debt to income ratio below 20% AND where no credit inquiries have been reported during the last 6 months.

The results show that with careful selection of the loans and very restrictive constraints, the performance of low rating category loans can become very interesting as show Table 3.2

Rating Category	ROI (All Loans)	ROI (rule I)	ROI (rule II)	ROI (rule III)
AA	5.87%	6.44%	6.85%	7.60%
A	4.20%	4.77%	5.35%	7.33%
B	3.10%	4.55%	2.84%	7.21%
C	-0.33%	0.50%	4.26%	10.70%
D	0.57%	3.55%	5.36%	4.26%
E	-8.69%	2.52%	4.29%	8.45%
HR	-27.61%	-12.76%	-10.95%	Insufficient data

Table 3.2 Annual Return on Investment depending on Rating Category and Investment Rules. Source Klafft, 2008.

One of the main discussed and debated issue regards the funding of small businesses or entrepreneurial ventures through the crowd (with equity or debt) as an alternative source of funding with respect to banks, angel investors and venture capitalists. For what concerns the P2P Lending, some studies and researches were developed in order to analyse the capability of the crowd to screen the creditworthiness of small and medium-sized enterprises (SMEs) compared to traditional financial institutions; whereas some have attributed great potential to the funding provided by the crowd, others have clearly been more sceptical. Mohammadi and

Shafi[89] provided very interesting results from their paper, entitled "How Wise Are Crowd? A Comparative Study of Crowd and Institutions in Peer-to-Business Online Markets" (Mohammadi and Shafi, 2017) focusing on how and when crowd and professional investors may differ in their ability to overcome adverse selection risks existent in the entrepreneurial financing markets. Exploiting the randomized assignment of originated loans to institutions and the crowd in the online peer-to-business platform of FundingCircle.com[90], they found that crowd underperform traditional financial institutions in screening the SMEs, thereby failing to lend at interest rates that adjust considering the likelihood of default of an online loan. In addition, they found also that the underperformance gap between the crowd and the traditional financial institutions widens with risky and small loans, suggesting that crowd lack the expertise to assess the incentives or the risks to expend resources and probably in knowledge in order to perform a due diligence process (Mohammadi & Shafi, 2017).

There are two main diverging perspectives on the ability of the crowd in the selection of good investments opportunities compared to one of the traditional financial institutions. On the one hand, the removal of formal intermediaries such as banks and venture capitalists, as a clear distinguish feature with respect to CrowdFunding, leaves individual investors with direct exposure to adverse selection risks and moral hazard problems (Ahlers et al., 2015; Mouhammadi & Shafi, 2016), which stem directly from prevalent information asymmetries in the markets of entrepreneurial financing (Gompers & Lerner, 2004). After having faced these problems, individual investors may underperform because they have limited budget and resources, including expertise and capabilities to undertake due diligence (Freedman & Jin, 2011). Moreover, they have also limited incentives due to low stakeholding to expend effort in screening firms (Ahlers et al. 2015; Shafi & Sauermann, 2017). Traditional intermediaries such as banks and venture capitalists possess of the resources and the capabilities needed to reduce adverse selection risk ex-ante and to deter entrepreneurs' opportunistic behaviours ex-post (Amit, Brander, Zott 1998; Baum & Silverman 2004; Gompers & Lerner, 2004). The authors stated that some of the necessary conditions to produce wisdom of the crowd are potentially violated. In order to understand the degree to which crowd assess the risk of funding small business loans, the authors compared the performance of the crowd against institutions (e.g. pensions funds, hedge funds, insurance companies and family offices) in screening SME

[89] Ali Mohammadi and Kourosh Shafi.
[90] P2P lending marketplace, headquartered in London, subsidiary of Funding Circle Holdings, Ltd.

borrowers in the peer-to-business lending market of FundingCircle.com, focusing on the capability of institutional investors to screen loans in a more sophisticated way with respect to individual investors. In financial literature, the capability previously described is condensed in the term "smart money". Institutional investors purchase entire loans, called "whole loans", instead of a portion of loans that appeal to individual investors with higher budget constraints. The comparison developed by the two authors bears implications for stakeholders like industry practitioners or legislators because the institutional demand[91] has a market pivot point for the growth of P2P Lending industry (Financial Times, 2013). Both institutions and crowd participate in financing loans on the same platform, removing the possibility for the influence of co-founding variables across settings, and also ex-ante selection bias is removed because the originated loans were randomly assigned to the crowd or to institutions. Through the comparison between crowd and institutional investors, exploiting the randomized assignment of originated loans to both parties and checking some loan characteristics (e.g. credit band), it was possible to underline how the crowd earn up to 40 basis point less interest return with respect to institutional investors, with no significant decrease in the default probability. This result was supported by a different identification strategy related to recycled loans, i.e. the loans left unfunded by institutional investors (following random assignment) but funded later by the crowd; applying a propensity-score matching method that matches each recycled loan with one funded by an institution based on ex-ante observable loan characteristics, the underperformance gap between the crowd and the institutional investors discovered was about 20 basis points return on interest rate, without ex-post significant changes in default rates. Moreover, there was a change in the interest rate definition policy on the platform at the end of September 2015, moving from an auction-mechanism to a fixed interest rate one directly set by the platform, and the comparison between the crowd performance and the fixed interest rates loans showed again an underperformance gap (Mohammadi & Shafi, 2017).

In order to deeply understand the way through which the crowd underperform compared to institutional investors, the authors developed a benchmarking the lending decisions of the crowd against the ones of institutional investors, formulating four main hypotheses. The first one concerns the capability of crowd to perform better than institutional investors, and states that the crowd underperform the institutional investors, i.e. the crowd request a lower interest

[91] Called also institutionalism of CrowdFunding, Nesta, 2016.

rate on a given loan compared to institutions (Mouhammadi & Shafi, 2017). The subsequent hypotheses formulated by the authors regard the boundary conditions of the underperformance of crowd. They started analysing if the assumptions related to the formation of wisdom of crowd were violated, focusing on two areas of interest, i.e. the expertise and the incentives of individuals in the crowd. Focusing on these two dimensions, they conjectured that the underperformance gap between crowd and institutional investors increases the higher the necessary expertise to assess the risk degree loans and decreases the higher the incentive of the crowd to produce information on loans (Mouhammadi & Shafi, 2017). They based the first statement assuming that return to expertise was smaller for less risky loans compared to riskier ones, developing a parallelism considering that marginal value of expertise is higher among the risky investments[92]. Three proxies of risk were developed in order to identify risky loans: the reservation rate, i.e. the maximum interest rate a borrower was willing to pay in each credit band, the legal status of borrowers' business, i.e. limited or unlimited company, and the loan size. The reservation rate distinguishes good borrowers from bad ones, as the cost of stating a low reservation rate is lower the lower the probability of loan to be funded and, for low-quality borrowers, it is costlier to risk having an unfunded loan, considering the wide variety of funding options they could alternatively adopt. For what concerns the second risk measure adopted, limited liability is often associated with agency problems related to moral hazard (Brander & Spencer, 1989) and, theoretically, the optimal exposure to the risk of the limited liability company is higher than the full liability one (Gollier, Koehl & Rochet, 1997). Therefore, the authors formulated that the gap in the underperformance of the crowd relative to the institutional investors in screening SMEs narrows with lower accepted reservation rate in each credit-band, and it narrows when the legal status of the borrower is an unlimited company rather than limited (Mouhammadi & Shafi, 2017). Finally, the loan size was the object of the fourth hypothesis, actually divided into two sub-hypotheses[93]. The first one stated that the underperformance gap decreases with a lower requested amount of borrowing. Indeed, individual borrowers are more likely to default on larger loans because they have higher incentives to undertake opportunistic behaviours. Moreover, larger requested amount of borrowing increases the default risk owing to the increased payoff of behaving opportunistically (Adam et al., 2009). The hypothesis 4.b follows the logic that investors have the incentive to spend resources to process new relevant

[92] Fund et al. (2014) showed that most skilled bond mutual fund managers are more likely to be assigned to the high yield bond market, where return to skill are arguably higher.
[93] Hypothesis 4.a and Hypothesis 4.b.

information if the expected return associated with this behaviour is higher (Grossman & Stiglitz, 1980). Therefore, the loan size was considered by the authors as an input in the decision regarding the investment the crowd makes in order to assess and screen information. In addition, larger requested amount of borrowing encourages greater incentive for the production of accurate information for crowd and increases the financial payoffs associated with being correct. Taking into account that institutional investors rely on standard routines and their expertise, they were considered as less subject to changes in the range of loan sizes available on P2P Lending platforms. This suggests that the gap in underperformance between the crowd and institutions increases the larger the size of loans.

The previously discussed hypotheses were tested on a dataset including 6,947 successful loans available in the loan-book of FundingCircle.com from the 6th of May 2014 to the 28th of September, 2015[94]. Moreover, were included also information about the borrowers' business characteristics, such as the regional location of business, type of business, industry, and the loans' ones, for instance, the loans interest rate, default, loan maturity and purpose, maximum acceptable interest rate. A significant negative relationship between crowd and interest rate was underline, with a decrease of 40 basis points in the interest rate. A second dependent variable used was the number of months between origination and the earliest date the status of the loan became 'defaulted', meaning that for the loans fully repaid (on time or late) the variable was set at the maturity of the loan. For what concerns recycled loans, the aim was to estimate the performance effect of recycled loans by accounting for the covariates that predict recycled loan funding by the crowd. This methodology allowed the two researchers to verify that covariates were between recycled loans and the comparison group were balanced. The sample sized used in order to perform the following multivariate analysis was about 1,894 loans. Recycled loans were associated with 20 basis point less interest rate. These results were aligned with previous findings. In order to summarize the main findings provided by the paper deeply discussed and analysed in this section, we can underline that, with respect to institutions, crowd earns between 20 and 40 basis point lower interest rate on loans without different ex-post default probability. This underperformance gap arises from the limited expertise and the limited capability of the crowd to process riskier loans, and their limited incentive to perform screening due to insufficient skin in the game (Mouhammadi & Shafi, 2017). Although the existence of this underperformance gap, the magnitude of these effects is not so large to suggest the so-called

[94] The reference time period is the one in which interest rates were fixed with the action method.

madness of crowd. Moreover, by analysing if the assumptions for the formation of wisdom of crowd were respected, the findings provided suggested that the limited expertise or incentives of the crowd may hamper effective participation of the individuals (Mouhammadi & Shafi, 2017). The paper underlines also the role of democratizing access to funding for companies rejected by institutional investors, i.e. not funded by them. This funding source is a cheaper source of capital than institutions provide in these markets. Nevertheless this, the capability of CrowdFunding to complement other financing sources remains limited at its current development status, although promising in its momentum (Mouhammadi & Shafi, 2017).

4 Case Study: Lendix

The main aim of this section is to present the case analysis of one of the main active platform in P2P Lending environment that recognizes an incredible success considering its young age: Lendix.

In France from 1 October 2014 was launched a normative with the very first guideline that regulates the activity of collective financing and recognizes the role of 3 typologies of actors in this new scenario:

- Portals that allow the subscription of securities issued by unlisted companies and must be registered at ORIAS[95] (as CONSOB in Italy) as Conseiller de Investissement Partcipatif[96] (CIP);
- Platforms that provide financing solution in form of loans with or without interest, registered at ORIAS as 'Intermediary in participatory financing' (IPF);
- Platforms that provide lending in form of 'donation-based', and in this case is not necessary any registration at ORIAS;

This event simplified the access to credit to SMEs and boost the development of FinTech company settled only one month before in September 2014. Lendix has seen in FinTech, one of the most recent and 'hot' trend in the past years, a real opportunity. Lendix is a Social Lending platform that allows SMEs, that do not receive funding from credit institutions, to present their project and receive funds from international investors or simple users interested in the idea. The first loan on the platform dates to February 2015. It is Alain Ducasse Entreprise[97], the company that belongs to the homonymous chef, one of the most famous chefs in the world. An immediate success that earned Lendix a huge popularity that allows it to become the first player in lending crowdfunding in France and to open its business model in other European countries as Spain and Italy.

[95] It is an association, under the supervision of the Treasury Department, which was created in 2007 to certify insurance intermediaries, in accordance with a directive of the European Union dating from 2002.
[96] Participatory Investment Counselor CIP is a regulated status created on October 1, 2014.
[97] Alain Ducasse is a French-born Monegasque chef, able to open a series of restaurant in Paris.

4.1 Company Highlights

Lendix is a lending crowdfunding platform launched in France in September 2014. It is a business-based platform and allows companies, especially SMEs that find difficult to get funded by the traditional banking system, to raise capital in form of debt (lending) by a set of investors composed in portion by institutional and private investors.

The business started in April 2015, when Lendix granted the first loan to Alain Ducasse Entreprise to renovate its restaurants and its chocolate lab in Paris.

With Lendix businesses can have access to a new form of credit with loan requested range from € 30,000 to € 5 million with a very simple, rapid and transparent process.

In March 2016 Lendix closed the acquisition of Finsquare[98] a short-term loan specialist platform in France. Finsquare's products address a real demand from lenders and borrowers alike. It fits perfectly with our current offering, which is focused on longer-term loans and financial leases. It's a logical expansion of our range of financing solutions for SMEs' declared Olivier Goy, founder and CEO of Lendix after the acquisition.

The acquisition allows Lendix to become early the first player of lending crowdfunding in France. The immediate success in France brings the company to internationalize his business in other part of Europe. In July 2016 Lendix received the approval of the Spanish regulatory authority[99] to operate as lending platform in Spain, and in February 2017 launch the first Spanish project opened to any investors in Europe. This was the first step of an internationalization process that brings the company to open his business also in Italy and in the very recent period in Germany and Netherlands.

In July 2016 launch the first European Long-Term Investment Fund (ELTIF) after the approval of the French authority of Financial Markets (AMF). This represents a peculiarity of the business model of Lendix. The management of Lendix promotes since the very first moment a platform of lending crowdfunding with the coexistence of institution/professional and private investors. The institutional investors do not invest directly in the platform but in a Fund (Fund Lendix) that lend a portion of the total amount in each loan request.

[98] Finsquare is a short-term loan specialist platform, created in 2014 by Polexandre Joly et Adrien Wiart and at the moment of the acquisition counted a community of 3,500 lenders who have lent more than € 4,000,000 since the launch.

[99] CNMV (Comisión Nacional del Mercado de Valores).

The first important award was in October 2016, when Lendix positioned itself in the 32° position in the world FINTECH100 placings promote by KPMG[100].

In March 2017 Lendix announce to open the platform also to Italian investors that in that moment had the possibility to invest in French and Spanish projects, and in April 2017 the platform announces to open funding possibility also Italian SMEs.

So, after the reaching a leadership position in France with 55% of market share and the expansion in Spain, a new important operator enters in the Italian market to support the growth of SMEs and micro-enterprises. Sergio Zocchi was nominated CEO of Lendix Italy. The co-investment Fund Lendix reach the important amount of € 90 million in July 2017 thanks to the intervention of European Investment Bank[101] through the European Investment Fund that provide additional € 18.5 million. The Fund will be completely dedicated to the financing and development of French, Spanish and Italian SMEs and micro-enterprises with a double advantage: to allow a facilitated, effective and "winning" collective financing both for private individuals wishing to invest and for entrepreneurs and project promoters looking for funding. These new capitals will be added to the loans made by private investors also originated in France, Spain and Italy according to the business model of Lendix. "We are very pleased to welcome the BEI Group as a lender in the Lendix Platform. We see that in addition to private and institutional investors, there are also prominent public institutions committed to the real economy" announced the president and CEO of Lendix Oliver Goy[102].

Indeed, together with the BEI Group, others important institutions participating in the Fund Lendix as Bpifrance, CNP Assurances, Groupama, Zencap AM, the fund Prêtons Ensemble managed by the investment group Eiffel[103].

Another important award during the evolution of Lendix was the ECOFIN[104] 'Titan of finance 2017', thanks to the capability to revolutionize the way through which the SMEs can have access to credit and people invest their savings. Particular mention for this award was the greatest operation of CrowdLending in Spain, € 1 million with 5 years maturity that reaches an

[100] KPMG is a multinational company headquartered in Amstelveen (Netherlands) that deals with the provision of professional services (administration, finance, legal advice, IT) to companies. Together with PricewaterhouseCoopers, Deloitte and EY, it is part of the 'Big Four', i.e. the four major dominant auditing firms on the market.

[101] BEI (Banca Europea degli Investimenti) in the Italian notation, is a financial institution of the European Union since 1957 with the objective to support the investment projects initiative by providing long-term funding.

[102] Lendix Press Release, 3th July 2017.

[103] Sponsored by Aviva France, AG2R La Mondiale, MGEN and Klesia.

[104] ECOFIN is an institution responsible for economic policy, taxation, financial markets and capital movements, as well as economic relation with non-EU countries. http://www.consilium.europa.eu/it/council-eu/configurations/ecofin.

incredible amount of 2,200 private investors. That loan has marked an unprecedented milestone for the financing of companies in Spain not only for the amount of money but also for its tenor and the number of investors who financed the project. Another 'plus' of Lendix, according to the jury of ECOFIN, was the hybrid investor model and the cross-border loans possibility, which means that Spanish, French and Italian companies can be financed by European investors, thus promoting a Europe of savings. Salvador Molina, president of Foro ECOFIN, adds "These awards show the reality of a sector of alternative financing platforms that is already a consolidated reality and a gift to the digital economy in Spain, as is the case of Lendix and Housers in 2017".
In January 2018 Lendix announce a new Fund of € 200 million to finance the Italian and European SMEs. This Fund takes the place of the precedent fund of € 90 million closed in July 2017 that helped to finance almost 250 European SMEs. After the intervention of € 18.5 million in July 2017, the BEI Group renovate his commitment with the platform, in line with the increase of the Fund.

Lendix is an active company since the financial year 2015, and for this reason available financial data are related just to 2015 and 2016. Figure 4.1 reports the main items of Income Statement and Balance Sheet, while the last part of the table shows some profitability and liquidity ratio. Data are taken from Orbis database, providing data in US $. We adopted an exchange rate €/$ equal to 1.0887 for 2015 and equal to 1.0541 for 2016, that are the exchange rates proposed directly by Orbis in the report. Considering the first part of the table, it is interesting to underline how Lendix was able to generate profit since the first year of activity, and profit grew by 369.5%, while Revenues increased by more than € 271,404 to more than € 1.2 million (+365.6%). Information on main cost items was not available by the report. Total assets are composed mainly of other current assets, and cash (the company has not fixed assets), while total liabilities are composed of creditors liabilities and other current liabilities. Moreover, loans in 2016 increased by € 175,859, while Shareholders Equity increased by 28.69%. Return on Assets and Return on sales ratio are very low in value, as the Net Profit Margin, while it is interesting to see how Return on Equity experienced a huge growth from 2015 to 2016 (from 4.66% to 22.31%, +378.76% in one year), probably highlighting a strategic

focus on creating value for shareholders in the medium term. Current and Liquidity ratios are higher than one, showing good capabilities in liquidity management.

Lendix Financial Highlights	2015	2016
Revenues	€ 271,404	€ 1,263,611
EBIT	€ 1,640	€ 6,949
Financial Expenses	€ 905	€ 2,432
EBT	€ 734	€ 4,517
Net Profit / Loss of the year	€ 489	€ 3,011
Total Assets	€ 471,132	€ 2,211,786
Other Curret Assets	€ 164,838	€ 1,526,739
Cash	€ 348,083	€ 763,405
Total Equity & Liabilities	€ 471,132	€ 2,211,786
Shareholders Equity	€ 10,489	€ 13,499
Current Liabilities	€ 460,642	€ 2,198,285
Loans	-	€ 175,859
Creditors	€ 194,490	€ 1,255,479
Other Current Liabiltiies	€ 266,152	€ 766,949
ROA	0.35%	0.31%
ROS	0.6%	0.55%
ROE	4.66%	22.31%
Net Profit Margin	0.18%	0.24%
Current Ratio	1.02	1.01
Liquidity Ratio	1.02	1.01
Solvency Ratio (Assets based)	2.23	0.61
Solvency Ratio (Liquidity based)	2.28	0.61

Figure 4.1 Lendix Financial Highligths.
Source: Orbis database.

4.2 The Management Team

Lendix can count on a heterogeneous team composed by 70 professionals and a Supervisory board composed by 7 members[105]. Each subsidiary of Lendix SA (France, Spain and Italy) has a top managerial position in CEO and its own personal team in term or credit analyst, relation with investors and relation with businesses.

The managerial positions (at the level of Lendix SA) are composed by the founder CEO and Chairman of the Supervisory Board Oliver Goy that starts his career in 2000 when he founded

[105] Information provided by the Lendix website https://it.lendix.com/per-saperne-di-piu/

123Investment Managers a Private Equity fund, with the objective to give the possibility to access this form of investment also to private.

Now the fund counts more than 70,000 private clients with more than 1.3Bln€ invested in 108 not listed companies. Patrick de Nonneville the COO with many years of experience in the banking sector (JP Morgan and Goldman Sachs). Then the two country CEO, Gregoire de Lestapis CEO of Lendix Spain and Sergio Zocchi CEO of Lendix Italia (see the box dedicated). The Chief Credit Officer position (CCO) is occupied by Marc Sebag with more than 28 years of experience in the field of credit, covering the position of director of credit in international groups of primary importance. The youngest member of the team is the Chief Technical Officer (CTO) Benjamin Netter that started programming since he was 8 years old. In 2009, in parallel to university studies, he created one of the first French Facebook applications, now used by over half a million users. Jean-Baptiste Sciandra is the Chief Marketing Officer (CMO) that started his activity in Lendix in 2014 as Head of Private Investors, now since December 2017 occupied the position of CMO in the company.

The Supervisory Board is a non-executive committee in charge of controlling and monitoring the activity of the company in the best interests of the stakeholders, it has no operational tasks. It is a body composed by 7 members coming from different educational and professional background and works as an advisory board which members are representative of the principal stakeholders. The chairman of the body is Oliver Goy CEO of the company. Emmanuel Russel is the COO of JCDecaux Holding the largest outdoor advertising corporation in the world. Christian Gueugnier is co-founder and CEO of Financière de l'Echiquier since 1991, one of the largest asset management company in France with more than € 8 billion of investments. Hélène Falchier since 2009 has been in charge of the private equity of CNP Assurances, among the 50 largest institutional investors in the unlisted market worldwide. Since 2015 Hélène is also President of AFIC LPs club (French Association for Investor Growth). Pascal Oddo is chairman of the Supervisory Board of LBO France, of which he joined in 1997 as a Member. Pascal was Managing Partner and then President of the Oddo & Cie company until 1998. Philippe Citerne is a director and Vice-Chairman of the Accor Group, Director and Vice-Chairman of Edenred. He is also a Director and Chairman of Telecom Business School of the Institute Mining Télecom. After 11 years at Accenture and becoming General Manager of e-commerce subsidiary of Carrefour, Philippe Collombel joined Partech International in 2001. He oversaw the development of many companies such as Dailymotion, Menlook, Brand4Friends or

Travelprice (sold to lastminute.com). Xavier Anthonioz is Chairman of the Supervisory Board of Lendix. Since September 2014, Xavier is 123Venture's Chairman of the Board. He participated in 123Venture since the founding of 123Ventures before taking over its development from 2003 as Chief Operating Officer[106].

The mission of Lendix to continuously strengthen its position in Europe in their business bring the company to recently enlarge the managerial team with 3 new profile.
Amandine Houpe, former Financial Control Director of M6 Group, joins Lendix as Chief Financial Officer (CFO). She reports directly to the Management Board. With more than 15 years of experience in corporate finance, as an auditor and consultant on financial transactions, Amandine will structure Lendix's Finance function to support its rapid development.
Francis Wenstrup, former Senior Operations Manager at OnDeck, joins Lendix as Productivity Manager and will report directly to COO Patrick de Nonneville.
After many years working for one of America's largest online lending platforms for small businesses, Francis will focus on improving and securing our processes.
Philippe Lapeyre, former Chief Risk Officer of TIP Trailer Services, joins Lendix as Chief Risk Officer for France. With 25 years of experience, Philippe will have responsibility for credit analysis and portfolio management.

4.3 Lendix Business Model

In order to describe precisely and deeply the business model of Lendix, this section provides the business model canvas for the online platform and the detailed description of each of the elements of the canvas. The business model canvas is a strategic tool typically presented as a very simple graphical scheme aiming at describing in a synthetic way the set of organizational and strategic solutions that allow the company to create, distribute and acquire value, i.e. the business model of a company. The structure of the business model canvas typically comprises nine main sections used to explain a business model. The following bullet point provides a brief description of each section:

a. Customer Segments: this part describes the classes of people and organizations that the company targets. A customer segment can be defined by demographic data (e.g. age,

[106] All the information regarding the team member composition and the Supervisory Board are taken directly from the dedicated section in the Lendix website.

ethnicity or gender) or in relation to psychographic factors such as consumption habits, needs and common interests.

b. Value Proposition: it is the real promise regarding the value of products and services, based on tangible benefits for a specific customer segment. It represents the motivation for which the target should prefer the company over the competition and, therefore, determine the same sales force. There is no univocal way to create a good value proposition.

c. Customer Relationships: all the activities, initiatives and services can help the company to acquire new customers and to retain existing ones.

d. Channels: this part comprises all the means by which the value proposition reaches the customer, in the communication, distribution and sales phases.

e. Key Activities: this block includes all the activities necessary for the creation of a value proposition. These are complemented by the most efficient processes to reach the target, maintain relations with customers and, obviously, generate revenues. The key activities can be divided into three types: production, problem-solving, maintenance or development.

f. Key Resources: all the key resources that a company must have to run its business. The set of resources obviously comprises human resources, such as the workforce, physical resources, for instance, points of sale, plants and machineries, intangible resources like softwares, licenses, copyright, patents, and financial resources, such as loans, credit lines or cash, contribute to forming the baggage of strategic assets.

g. Key Partners: a network of suppliers and partners with whom the company collaborates to create value to offer to the customer. In fact, a company is not a self-sufficient structure, but rather a system that operates within a broader context, supported by external actors. Strengthening strategic alliances responds to the business needs of reducing costs, decreasing the risks of competition and acquiring particular resources and activities.

h. Costs Structure: The blocking of the Costs Structure defines the fixed and variable costs that the company has to sustain for resources, activities and key partners. For some types

of activities, containing expenses becomes a central aspect, especially if the objectives of the business plan are to keep their prices competitive.

i. Revenues Streams: this block describes the composition of the amount of money the company obtains from the sale of products or services to a specific customer segment. The variables to consider are the prices (fixed or dynamic) and the payment methods, two fundamental aspects to make the business model sustainable. The revenue streams can be of different nature and be generated by equally varied sources: from the sale of physical products to the payment of a fee for use, from the sale of a license to brokerage commissions. In this phase, it is possible to identify the payment system preferred by the customers, as well as the added value for which the target is willing to pay.

The Figure 4.2 shows the business model canvas of Lendix, with a very brief and synthetic description of each of the nine sections. In the following part of this paragraph, a more detailed and deep analysis of each category is provided.

Key Partners

The strengh of the businees of Lendix is based on a series of Partnership and relationship built over the time

Openjobmetis to support SMEs in their recruitment process

All set of Insitutional Investors participants tu the fund (EIB, CNP Assurance, Groupama, Eiffel IM, Zencap AM, Matmut and Decaux Freres Investissements

External partner in charge of the credit recovery process

Key Activities

Selection Process of a Company

Rating Assessment

Credit Recovery Process & Default Management

Lendix Academy & Education

Key Resources

Technological Resources & IT

People

Knowledge

Value Proposition

Borrowers

Access to an alternative financing sources compared to the traditional credit channel;

Lenders

Investments' diversification opportunity with attractive risk-return profile;

The value proposition is built on five key success factors:

Speed

Simplicity

Trust

Transparency

No-uncertainty

Customer Relationships

Borrowers

Long-term oriented relationships, search of customers poentially interested in asking more than one financing;

Promotion activities through several social media to attract new clients;

No-uncertainty about the fiiancing;

Lenders

Long-term oriented relationships, interviews to customers in order to understand and improve service's criticalities

Promotion activities through several social media to attract new clients

No risk of allocating capital for a project that will not receive the amount of money requested;

Channels

Lendix Online Platform, available in four different languages (English, French, Spanish, Italian). Sections:

Borrow

Lend

Projects

Learn More

Blog

Customer Segments

Borrowers

All French, Spanish and Italian commerical companies respecting the following constraints:

Minimun Turnover of € 250,000;

Net Profit > 0;

Adequate capability of reimbursement;

Lenders

Mixed-investors model, with two big categories:

Under Mandate Investors

Insurance Companies (28.95%);

Public Institutions (25.92%);

Asset Managers (21.82%);

Family Offices (10.89%);

Private Investors (8.17%)

Around 10,500 active individual investors;

Cost Structure

Mainteneace and Update cost for the Platform & IT costs

Personell costs

Credit recovery process costs (external partner)

Revenues Streams

Project set-up fee, 3% of the total amount requested

Management Flow Fee, 1/12% of the outstanding amount to pay monthly

Renogatiotion Fee, lump sum of 400€

Recovery Fee, 10% of the recovered amount, necessary to cover the cost of the process

Delay Fee, 1.5% applied on any montly repayment in delay (the interest accrue daily)

Figure 4.2 Lendix Business Model Canvas.

4.3.1 Customer Segments

Within the business model of Lendix it is possible to identify two macro-segments of clients: borrowers and lenders. Regarding the first category, it is useful to classify the different companies present in the market and understand at which category Lendix addresses its offer. Figure 4.3 shows the classification of companies provided by the European Commission.

	Micro-enterprise	Small Enterprise	Medium Enterprise	Large Enterprise
Employees	<10	from 10 to 49	from 50 to 249	>250
Revenues	< € 2 million	< € 10 million	< € 50 million	≥ € 50 million
Total Assets	< € 2 million	< € 10 million	< € 43 million	≥ € 43 million

Figure 4.3 Entreprises Classification.
Source: European Commission

Lendix addresses its offer mostly for Micro, Small and Medium Enterprises, although it can finance also Large firms. An example of Small Enterprise is represented by Salazones Cairos, a Spanish company operating in the supply of meat and food products to supermarkets in Canary Islands, with 10 employees and with 2015 Revenues equal to € 1.7 million. Copernico S.r.l. is medium real estate Italian company, with 62 employees and 2016 Revenues equal to € 7.8 million, while Amedeite is a large French firm, with 2016 Revenues around € 119 million and employing 650 people, engaged in the preparation and production of natural additives for the food industry and animal hygiene, cement and plant nutrition. Moreover, there are some characteristics a company must have in order to be consider as targetable by Lendix perspective; indeed, Lendix direct its offer to all commercial enterprises[107] in France, Spain, and Italy that have difficulty to access to band credit. The targetable enterprises must possess the following characteristics:

a. A minimum turnover of € 250,000;[108]

[107] https://it.lendix.com.
[108] In 2015 this limit was € 750,000 while in 2016 was € 400,000.

b. Profitable companies, i.e. firms with positive a Net Profit;

c. An adequate capability to manage the repayment flows coming from the financing[109];

Those three characteristics are linked to the solidity of the firms and exclude automatically start-ups from the set of enterprises that Lendix consider as targetable. In other words, Lendix direct its offer to all the players with a minimum certain size, possessing capabilities to generate a positive net profit and able to manage adequately the cash flows and for which accessing the credit provided by traditional financial institutions is hard. This set of potential targets does not include start-ups. The main strategic reason why Lendix addresses its offer towards SMEs is related to the role of these companies within the economic European economic environment; indeed, in 2015, SMEs represented the 99.8% of the European economic landscape, they created the 57.4% of Value Added[110] and they employed the 67% of the active population considering the 28 members countries of the EU[111]. In addition, considering the three main countries in which Lendix is nowadays active (France, Spain and Italy), SMEs are mainly concentrated in the tertiary sector, in particular in commerce, in the hotel, restaurant and business services sectors, but also in the industrial and construction sector, and they represent the 99.9% of total companies in France and Spain, while in Italy they cover around the 99.8% of total companies. In Italy, SMEs employs the 77.5% of the total number of workers and they realized the 68% of the Value Added. Situations in Spain and France are similar, although percentages are lower for what concerns both workers and Value Added; in Spain, the 75% of workers is employed in SMEs, while in France just the 50%, and contribution to Value Added in Spain is similar to the Italian one (65%[112]), while in France is much lower (44%[112]). Despite the differences in terms of workforce and Value-Added production, the growth over time of SMEs is essential for the development of European economy, and Lendix desires to participate to this process sustaining the growth of SMEs through its financing. The typical motives for which a company asks Lendix to provide capital usually are:

- The purchase of tangible or intangible assets;
- The realization of renovations;
- Pursuing a commercial or operational expansion;

[109] For further information, see the section related to Key Activties.
[110] Value Added = Revenues – Intermediate Consumption.
[111] Lendix Blog, https://it.lendix.com.

- The purchase of a commercial license;
- Obtaining a short-term financing;

The second big category of Lendix customers is formed by the lenders, i.e. all those subjects that are potentially interested in lending money to one or more project uploaded on the platform. The community of lenders (they are called investors on the Lendix website) is composed by different categories of investors, and the Figure 4.4 shows this breakdown[112]:

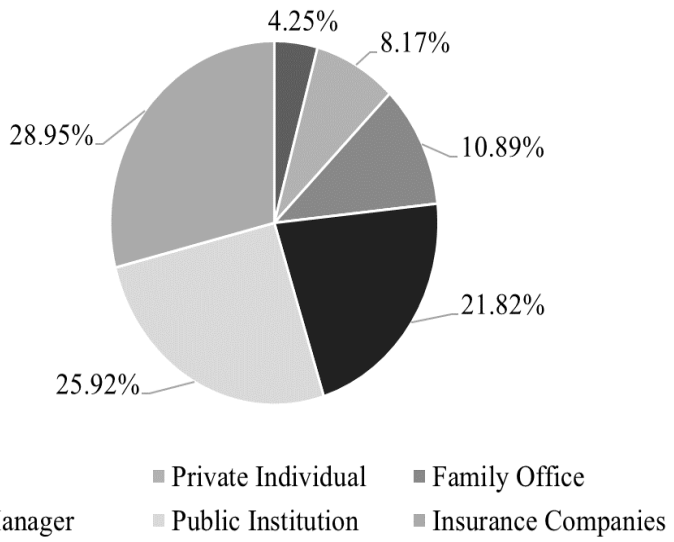

Figure 4.4 Lendix Investors Breakdown.
Source: Lendix Blog, https://it.lendix.com.

The community is composed prevalently by Insurance Companies, Public institutions and Asset Managers (76.69% of the total community), with Family Offices counting for almost 11% and Private Investors for less than 9%.

The investors breakdown proposed in the Figure above is very useful in order to underline a crucial and essential distinction between two macro-categories of investors that are active in Lendix. Indeed, there are two macro-categories of investors[113]: Investors Under Mandate and Private Investors. The first group is comprehensive of family offices, institutional investors like public institutions or insurance firms, asset managers and accredited investors; differently from private investors, Under Mandate subjects automatically invest in all the projects, covering the 51% of the amount requested. The remaining 49% is proposed to Private subjects through the

[112] Lendix Blog, https://it.lendix.com.
[113] Lendix Blog, https://it.lendix.com.

platform, where projects are available for a certain period of time[114] on average not higher than a week, defined by Lendix and the company that is asking the financing. If at the end of the publication period the project is not totally financed, the fund intervenes in order to cover the remaining part. This is one of the most interesting and discussed features of Lendix business model, and it is deeply described in the section related to the Value Proposition. Under mandate investors' category comprises also accredited investors, a particular category of investors existing just for French and Spanish investors with the following characteristics:

- A portfolio of financial securities of at least € 500,000, including real estate properties;
- They realize every three months at least 10 investment operations on financial products, each one with a minimum amount of € 600;
- They work in the financial sector since, at least, one year and with a working position that requires specific and technical knowledge for what concerns investments in financial securities;

The management team of Lendix automatically invests in all the project in order to align its interests with the ones of institutional and private investors. Family offices investing in Lendix are, for instance, Decaux Frères Investissement and Weber Investissment, while CNP Assurances, La Banque Wormser Frères and the European Investment Fund (EIF), are examples of institutional subjects investing in the Lendix Fund with the main objective of diversifying their investments and accessing to an asset class with an interesting risk-return profile.

Regarding the Private Investors' category, nowadays the community of Lendix counts around 27,000 Private investors, 10,500 of which are active investors. Considering that Lendix started operating in France, it is quite easy to understand why around the 92% of private subjects is concentrated in France, while Spain counts for a 4%, Italy for the 2% and the remaining 2% is distributed all around the world[115]. Lendix addresses its offer to all the potential subjects interested in a diversification opportunity of their investments, accessing to a new financial security with a very promising risk-return profile, and for this reason several subjects with different and, sometimes, opposite characteristics take part to the investment process. However, it is possible to identify a typical profile of a Lendix's Private Investor, that usually is a 42 years

[114] Publication period.
[115] Lendix Blog, https://it.lendix.com.

old man[116], living in an urban area, with an average portfolio of € 2,600 and that diversified its investments on 21 projects on average[117].

4.3.2 Value Proposition

Lendix offers to SMEs the access and the opportunity to alternative financing sources with respect to the traditional banking channel and, on the other hand, offers to all those suitable subjects potentially interests in diversifying their investments the opportunity to access to an asset class with a very interesting risk-return profile[22]. The proposition of value conducted by the French platform can be synthesized with few words, that representing the key success factors of the services offered by Lendix in the different countries in which the platform operates. In other words, the main contradistinctive and value-added attributes that characterize the offer of the P2P Lending player are:

- Speed: speed is a key element for both customer segments, i.e. borrowers and lenders. Assuming borrower's perspective, the financing request usually is processed within a period of time not larger than 48 hours. After two days, the entrepreneur receives an answer to his request of financing; the timing appears shorter than the average time frame at the end of which it is possible to receive an answer to a financing request through the traditional banking channel. Moreover, the procedure appears also as less complex than compared to the banking channel's one. In the case the project is uploaded to the platform, the average time frame needed in order to complete the financing offering the project to the crowd is lower than one week. Regarding lenders, there is the possibility to invest immediately when the specific project is uploaded on the platform, concentrating the investment on one or more project.
- Simplicity: The online environment provided by the French platform is very simple, intuitive and user-friendly. The entire exchange flow of information and documents that are necessary in order to send the financing request works completely online. The potential borrower has to a very simple suitability test, where he has just to enter the fiscal code, the amount and the maturity of the loan. Those data are used in order to perform a preliminary analysis using external databases, and very often this process

[116] The 89% of Privat Investors are males, https://it.lendix.com.
[117] Lendix Blog, https://it.lendix.com.

produces an immediate answer; if it is positive, the Credit Team of Lendix structures and executes a more detailed and deep analysis of the borrower using proprietary model and methodologies.

- Trust: trust is one of the key element on which Lendix developed its value proposition and also structured the relationships with its clients, both lenders and borrowers. Indeed, despite Lendix operates with firms that typically do not receive financing from the banking channel, i.e. firm considered by the traditional financial institutions as not able to manage the repayment flows of the financing, the platform does not ask any collateral, personal or insurance guarantee. This situation differs from what happens in the traditional credit channel, where banks typically request collaterals to the company asking the loan in order to protect themselves from the default risk, ensuring a form of compensation in the event of non-repayment. Moreover, these collaterals or guarantees are used to facilitate the refinancing of the banks at the European Central Bank (ECB). They are therefore adopted to obtain liquidity and reduce the need for capital, considering that the value of the guarantee is subtracted from the total capital required by the regulator.
- Transparency: like what was discussed about trust, the transparency is another factor on which Lendix was able to build its competitive advantage within the P2P Lending market. Assuming borrowers' perspective, financing conditions are clearly defined during the financing offer, and this means that there is no uncertainty about the interest rate or the date of fund disbursement. Moreover, the Management of Lendix invests in every project uploaded on the platform, in order to align its interests with the interests of institutional investors and with the ones of the private ones. This action is very useful for Lendix not just for interests' alignment issues but particularly because it allows the company to enhance transparency and to avoid the risk of a perception by the private investors of a "cherry picking" process. This term refers to a typical situation in entrepreneurial financing markets: let's assume there is a set of projects on which it is possible to invest in, and let's assume also there are two group of investors, i.e. private and institutional. Considering that institutional investors are more informed, skilled and possess a larger amount of financial resources to perform due diligence, let's assume they are able to distinguish between promising and less promising projects, while for private investors all projects appear as equally promising. The institutional investors

will invest just on the promising projects, and if private investors know this, they will invest just in the promising projects too. This process leads to a separating equilibrium[118], where institutional investors "pick" the most promising projects and private investors follow the investment behaviour of the institutional ones; just promising projects are financed, while less promising ones do not receive financing and exit the market. Investing automatically in all projects, at least at 51%[119], the Management gives to all project the same weight and does not incentivize private investors to focus their attention just on a portion of the available projects. Adopting the perspective of lenders, Lendix provides the same set of information for all the different lenders that take part of the investors' community for what concerns the characteristics of the projects and, in addition, tries to explain the most important issues related to its business and to the investing activity undertaken by all the lenders. In particular, Lendix provides a section on its website called 'Lendix Academy' in which there are some sub-sections dedicated to the 'hot issues' of this kind of activity, such as the existence and the acceptance of the default, the concept of diversification or the statistics related to the repayment flows of the different projects financed. Informing the members of its community about all the possible risks and the main issues they must be able to manage in order to invest in this kind of projects, the company shows a very high commitment to offer a very high-quality and transparent service, characterized by a very high level of information disclosure.

- No-Uncertainty of the Financing: as describe in the section related to Customer Segments, Under Mandate Investors finance the 51% of all suitable projects in an automatic way, and the 49% of the amount if offered to the crowd (i.e. private investors) for a certain period of time, called publication time, defined by Lendix together with the company asking the loan. The crowd has the possibility to finance the project till the end of the publication period. If at the end of this time window the financing is not totally completed, the Lendix fund (i.e. institutional investors) intervenes in order to fill the remaining unfinanced portion. This issue is part of the value that Lendix try to generate for borrowers and it is also a contradistinctive peculiarity of the company, that assures the 100% probability of a totally financed project in the case a company passes

[118] G. Akerlof, The Market for Lemons: Quality Uncertainty and the Market Mechanism, 1970.
[119] The investment mechanism of institutional investors is explained at the following point, 'No-Uncertainty of the Financing'.

the selection process; this means that, by an entrepreneur point of view, if its company is considered as suitable by the Lendix selection process, there is the certainty that the project will be totally financed till the end of the publication time. This situation is not very common considering a significant percentage of Social Lending platform active in the market. Moreover, this strategic decision helps the company in significantly reducing the problems arising from information asymmetries, particularly regarding the adverse selection problem[120]. Indeed, this mechanism avoids the possibility of a "cherry picking" process conducted by institutional investors and avoid also the formation of a separating equilibrium, overcoming information asymmetries problem and guaranteeing the complete financing of all the projects uploaded, without any distinction in terms of "quality".

4.3.3 Customer Relationships

As described in the previous section, Lendix tries to build close relationships with both borrowers and lenders, building it on two main pillars, i.e. trust and transparency. Firstly, the mixed-investors model developed by the P2P Lending player offers two main advantages. On one hand, guarantees companies the financing of the project without uncertainty, providing a guarantee that not all other platforms are able to guarantee to their borrowers. On the other hand, the model guarantees to investors that the transaction will be carried out without the risk of allocating capital for a project that will not receive the amount of money requested. For both categories of investors, Lendix is interested in building long-term relationships; considering lenders, Lendix tries to continuously understand which are the criticalities of the service offered, cyclically posting in the section "Blog" of its website some interviews to private investors, in which the individual answers to some questions, very often providing positive feedback and suggestions and, few times, some negative feedback. This is a clear example of how much value Lendix attributes to its investors and how the company is open to individual feedbacks and suggestions coming from individuals. Moreover, there is a chat service available for every user of the platform, in order to clarify some doubts about the functioning of the platform or for any other request.

[120] Ex-ante information asymmetries, G. Akerlof, 1970.

Considering borrowers, also, in this case, Lendix tries to establish very strong and long-term oriented relationships, offering its financing services with a very high-quality service level with two possible options related to the repayment of the amount of money provided[121]. Moreover, is interesting to underline that, theoretically, Lendix seeks for borrowers potentially interested in establishing a long-term oriented relationship, that means potentially interested in asking more than one financing. This is the case, for instance, of Oracom[122], a French publishing house established in 1994, that received five different financings from the 22th of December 2015 to the 23th of May 2017, for a total amount of € 2.632 million. The possibility to establish this kind of relationship is possible only if the company strictly respects the repayment instalments defined during the negotiation process with Lendix. This underlines the interest of Lendix in identifying borrowers with excellent repayment capabilities and establishing a relationship in which both parties, i.e. Lendix and the borrowing company, may have an incentive to keep the connection between them and extracting value from it.

In order to attract new customers from both sides, i.e. borrowers and lenders, Lendix makes use of social networks such as Twitter, Linkedin or Facebook in order to carry out promotion activities and initiatives. Moreover, the company periodically organizes road-shows and meetings with actual and potential customers with the main aim to explain its business model and its value proposition to a potentially interested audience.

4.3.4 Channels

The main channel considered and adopted by Lendix in order to deliver its value proposition to customers is the online platform, that is used for both customers' categories, investors and borrowers. The platform takes into consideration some differences related to the reference country, for instance, the version for Spain and France takes into account the presence of accredited investors, while the Italian one does not because this category is not allowed for the Italian market. The basic structure of the platform comprises two main areas, the public and the private. The public area shows five main sections:

[121] These two options are explained in the section Key Activities.
[122] www.oracom.fr.

i. Borrow: in this section the company potentially interested in asking a financing can test its eligibility, inserting five pieces of information that are the SIREN/NACE[123] code of the organization, the turnover level[124], the amount requested, the type of need and the contact preferences. The type of need is divided into intangible assets, tangible assets, repayment of a loan, working capital needs, renovation and building work, buyout and others.

ii. Lend: this section gives the possibility to private investors to lend money to the projects uploaded. In order to lend money, it is necessary to be enrolled on the platform, inserting some personal information[125], a tax identification number and ID, a bank document with your IBAN code and a proof of domicile of the last 3 months[126]. Once having uploaded all those documents, it is possible to access to the section dedicated to the personal portfolio, were investors can check their investments track record, their gross and net return, their own account balance and the level of diversification of their portfolio, that Lendix evaluates in a synthetic way with a star score, where no stars means low diversification level while five stars score indicates the highest possible diversification degree. Lendix evaluates the diversification level calculating the exposure of a certain portfolio and it suggests to all its investors to build a portfolio with a level of diversification equal to, at least, three stars, corresponding to an exposure range between 10% and 100%. If, for instance, you invest € 1,000 in one project and € 20 in other 99 projects, your exposure is:

$$Exposure = \frac{€\ 1{,}000}{€\ 2{,}980} = 33\% \qquad \text{Eq. 4.1}$$

This means, in the example, that the level of diversification of a portfolio that, apparently, seems to be diversified is not so high, because a portfolio composed by 3

[123] SIREN codes have 9 digits. The first 8 digits are the business reference, the last one is a key created with the 8 previous ones to control the validity of the code. French public organizations have 1 or 2 as first digit. NACE (Nomenclature of Economic Activities) is the European statistical classification of economic activities. NACE groups organizations according to their business activities. Statistics produced on the basis of NACE are comparable at European level and, in general, at world level in line with the United Nations' International Standard Industrial Classification (ISIC). The change in the identification and grouping of similar economic activities associated with the move to the new NACE implies a statistical break in the time series.
[124] More or less than € 250,000, the minimum amount of Revenues needed in order to be financed by Lendix, https://it.lendix.com.
[125] The usual set of information needed to create an online account (Name, Surname, Gender, Date of Birth, etc.), https://it.lendix.com.
[126] For instance, water, electricity, gas, internet, fixed or mobile phone bills, https://it.lendix.com.

investments of € 100 would have the same diversification level[127]. The last issues related to diversification regard the minimum and the maximum amount a lender can invest in a specific project; in order to avoid risk concentration on one or few projects, the platform defined a minimum amount of € 20 and suggests investing small amounts in several projects, rather than big amounts on few investments. Moreover, for projects with an amount lower than € 100,000, the platform fixed a maximum amount of € 140 for private investors: this decision was taken to give the possibility to different private investors to participate to the investment, in order to foster diversification.

iii. Projects: this is the section dedicated to all the projects uploaded on the platform by Lendix, ordered from the most current up to the first project financed. It is possible to access to the detailed section of each project, in which the main body of the webpage is a brief description of the company and of the specific market, business or industry the company is engaged in and, in some cases, additional information about the management team. This part is followed by a section called "Key Numbers", in which are provided with the main financial information of the company of the last three years[128]. Within this data set are typically reported the closing date of the accounting year, the number of months on which the different items are calculated, the Revenues level in absolute value and its percentage variation with respect to the previous year, the EBITDA margin, the Net Profit expressed as a percentage range (e.g. 5%-10%, 15%-20%, etc.), the book value of Equity, Total Assets and Equity/Total Assets, the ratio between Net Debt and the EBITDA, Net Debt on book value of Equity and the Fixed Cost Coverage Ratio (FCCR), that is a ratio directly calculated by Lendix[129]. Finally, it is provided also the analyst opinion, including the estimation of three expected ratios (FCCR, Net Debt/EBITDA, Net Debt/Equity) and some additional information, mainly related to the specific strengths and advantages of the firm. On the right side of the webpage dedicated to a specific project there is also a vertical column reporting the main information related to the financing, such as the amount requested, the interest rate, the maturity expressed in months and the rating[33] assigned by Lendix to the company, expressed for the three factors on which it is calculated (Financial Situation, Market Assessment and Management Team) and reported also in its final value (a

[127] Example provided by Lendix customer service, https://it.lendix.com.
[128] In very few cases, particurarly for the first 33 projects, those data are not available.
[129] For further informatio, see the section dedicated to Ket Activities.

weighted average of the three factors). In addition, it is reported the number of private investors that lend money to the company, the time period needed in order to reach the target amount and the portion of the total financed by institutional investors, expressed as a percentage (at least 51%). In a second vertical column following the one described above, are reported additional information about the company, such as the SIREN code, the ATECO code, the Share Capital, the establishment year, the name of the CEO and its first year in office, the number of employees expressed as a range (e.g. from 1 to 10, from 11 to 50, from 51 to 250, more than 250) and the company's website.

iv. Learn More: in this section is provided a very brief description of the functioning of the business model of Lendix, explaining the characteristics of the services offered by the P2P Lending player and the advantages for the customer in choosing Lendix's services for diversifying its own savings.

v. Blog: this section reports several information about the key process, activities and initiative conducted by Lendix during the year, such as interviews to management team members, newspaper articles regarding the company, future strategic decision regarding the medium-long period, interviews to investors and the several episodes of the 'Lendix Academy', an initiative undertaken by Lendix in order to deeply explain to its investors all the issues related to its business, from the characteristics to the industry in which Lendix operates, the relationship between traditional financial intermediaries and new FinTech platforms or operators, the crucial concept of diversification, the existence of the default and some statistics about the performances of the whole organization in terms of amount loaned and amount reimbursed.

Within the website of Lendix there also sections dedicated to statistics of the company since its first year of activity and the one related to the Frequently Asked Questions (FAQ), where actual and potential customers proposed their questions or doubt to the team dedicated to the customer service.

4.3.5 Key Activities

The key activities are those activities that allow the companies to successfully create and deliver the value proposition, to reach the customers in an efficient way and maintain a continuous and

durable relation and for generating revenues. In few words, these are the activities that permit the business to be successful on a long-term basis.

One of the key activities performed by Lendix is, of course, the selection process that is at the basis of the well-functioning of the entire business model of Social Lending platform. A good selection of projects among the thousands of loan requests, allow these platforms to reduce (but not eliminate of course) the problem related to the possible default of loans, increase success rates of the loans and as reflection, gain advantages from reputational benefits that bring to the to an increase of business volume.

The selection process is composed by 4 different steps, and everything starts with the eligibility of the company. The company provide its personal Fiscal Code with an identification code, the amount and the maturity requested. In an automatic way, it is triggered an 'eligibility test', where the process verifies the general criteria for eligibility according to the information available by Lendix in its personal database. For example, in Italy, a company in order to be considered eligible for getting fund in Lendix must have at least € 250,000 of revenues in the last year, positive profit with an adequate repayment capacity, with registered office in Italy. The requirement concerning the minimum turnover was not always the same but was set at € 700,000 in 2015 and brought then to €400,00 in 2016. The results of this eligibility test can be classified into 3 possible outcomes:

- Eligible: in this case the company pass the initial test and a member of the team dedicated to the Relation with Businesses is in charge to contact the company in order to deepen the financial requirements.
- Waiting for more documents: Lendix is not able to elaborate the request with the information available, so a team member contacts the company in order to receive additional information.
- Not eligible: in this case, the company do not pass the initial test according to the minimum criteria. Of course, the company has the possibility to contact Lendix in order to provide additional information regarding the loan request that maybe are not in possession of Lendix.

After this first step, the company can upload the documents necessary for analysis directly to the platform and experts in Lendix goes through a credit analysis with the objective to assess the financial soundness of the company. The process generally starts between 24 and 48 hours

after the eligibility test and after the team dedicated to the relationship with business (Borrower Team) gets all the financial information necessary to the Credit Team to perform the successive analysis. The focus of the credit analysis is on:

- The business environment: the presence of branches and career of the entrepreneur;
- The historical trend of turnover and profitability: the financial solvency of the company is assessed through EBITDA and equity;
- The sustainability of the business model (years of seniority) and stability (turnover of the management team);

The third step is a telephone interview with the agent or the Financial Director of the company with the aim to confirm all the financial and not-financial information under the analysis of the different analyst in Lendix. Following the phone call, the analyst assigns a grade that represents the input for the Credit Committee that is in charge to give a final response to the request.
Finally, the dossier of the project passes through the validation of the Credit Committee. This committee is composed by 3 permanent members that examine the dossier, passed through all the previous step and valid or not the launch of the project on the platform. Is necessary that at least 2 out of the 3 members accept positively the loan request and formulate a final offer to the borrower with the specific characteristic in term of rate, maturity and amount. The final decision to accept or not the offer is on the company, and if accepted the project is published on the platform and start getting fund from the crowd, with the 51% of the amount already covered by the institutional investors and the team of Lendix[130].

Another important activity is the rating assessment and the interest rate assignment to each project, performed by the analyst of Lendix as a part of the selection process. Assign a right rating that reflect as much as possible the credit risk associated to each of the different projects under analysis is fundamental, because this represents an indication of the risk profile of the company funded and is one of the most important factors considered by the investors in their diversification strategy together with the interest rate as proxy of the return. This is important because the risk of default of the project is completely on the investors. Investment opportunity

[130] See the section related to Lendix fund and the involvement of the Lendix team in the investment opportunity.

in Lendix allows a more interesting return, but this associated of course to a greater perceived risk[131].

The final rating is assigned considering 3 different factors, each one classified with a specific rating:

- Financial situation: specialised analyst performs a deep understanding of the financial situation of the company looking at the profitability, the capital structure, the level of indebtedness, and the capability of reimbursement of the company. According to the analysis the specific project receives a rating from A+ to C concerning its financial situation. This count for 60% of the final grade.
- Market assessment: the analyst investigates the market in which the company operates in order to understand the main trend of the industry, the positioning of the company and the possible future profitability. This analysis count for the 20% of the final grade.
- Management team: another important factor for assessing the credit risk of the project is the history of the management team and the governance of the company. This part count for the 20% of the final grade.

The final grade considers the outcomes of the 3 sectors under analysis and the possible grades are: A+, A, B+, B and C, with of course an increasing credit risk from A to C. Then according to the final result, the interest rate is assigned to the loan request. The decision of the interest rate is taken considering the final grade and the maturity with these possible outcomes:

- A+ could receive an interest rate between 2.5% and 4.25% according to the maturity;
- A could receive an interest rate between 3% and 5%;
- B+ could receive an interest rate between 3.5% and 6%;
- B could receive an interest rate between 4% and 6.75%;
- C could receive an interest rate between 4.75% and 9.9%;

The issue of the risk is very important for the business model of Social Lending platform and Lendix is very active in the assessment of it and provide the largest amount of information to the community of lenders. Another important assessment performed by Lendix is the

[131] See the literature part related.

calculation of the FCCR (Fixed Charge Coverage Ratio) expresses the company's ability to meet its fixed financial expenditures. The FCCR is calculated as:

$$FCCR = \frac{Gross\ Operating\ Margin - Taxes - Self\ Fin.Investments}{Fin.Expenses + Instalment} \quad \text{Eq. 4.2}$$

FCCR greater than 1.0 means that the company has a good capability of repayment, for example, an FCCR equal to 1.5 means that the company has a 50% more as security margin on their debt repayment. In the case in which the company present an FCCR lower than 1.0 the actual business profitability of the company is not sufficient, and the loan request is immediately rejected. In the particular case in which the FCCR is equal to one, the request will be analysed considered additional factors.

The other side of the risk is the return of each project and assigning a correct and adequate interest to each loan request is another important issue for Lendix and particularly for attracting and retain investors on a long-term basis. Lendix describe in very efficient way how an investor can calculate the return of the investment considered that the reimbursement of the capital is diluted over the time, and for example 6.50% of interest on an investment of € 100 does not correspond to € 6.50 of interest each year but the interest is calculated on the remaining portion of the debt. So, the return of a specific investment is not the simple interest rate assigned to the loan but is calculated considered the Internal Rate of Return (IRR). The IRR considers all financial flows (initial investment, monthly repayments, default) and expresses them in terms of annual return. The IRR applies not only to a single investment but to all the investments of the overall portfolio considered (therefore is particularly useful and accurate), also taking into account defaults and late payments. Of course, Lendix provides a dashboard where the investor is able to monitor on a real-time basis the IRR of his portfolio.

Eliminate completely the probability of default with an optimal selection and rating of the loan request is quite impossible, to implement and manage a good and efficient process of credit recovery on default is a key element.

When a get fund, Lendix withdraw the monthly instalments in an automatic way, as agreed by contractual condition with the borrower. Could happen that the automatic withdrawal does not go well (refused by the bank or recalled up to 5 days after the collection), in this case, Lendix set up the process of recovery. If this happens Lendix contact immediately the company in order to receive more information concerning the non-payment of the instalment, and 3 possible outcomes are possible:

- The company proceeds with the payment immediately after the notification of the problem.
- The company does not proceed to the payment. In this case, Lendix tries to understand the reason for the non-payment and search together with the company for a possible solution. If the non-payment is justified only by a temporary difficulty and the company has every intention of resolving, Lendix personally leads the discussion with the company in search of a bilateral agreement between the parties.
- If it is not possible to arrive at a shared solution or in case the company is not available for discussion the credit recovery procedure is transmitted to the external partner for debt collection.

From this moment on, the process is completely under the management of an external partner. The process of recovery can continue through 2 possible ways: through an extrajudicial recovery in which the partner carry out multiple actions as simple telephone contact or letter of formal notice to request the payment and procedures is concluded with a bilateral agreement; through a judicial recovery, this phase can last several months and its outcome depends on two factors: the decision of the judge (payment of the entire amount, payment of a fee, non-payment) and the solvency capability of the company.
There are 3 main types of execution for the recovery of the credit:

- Real estate, with the foreclosure of real estate owned by the company
- Securities, with the foreclosure of assets owned by the company
- Securities, with the foreclosure of receivables from third parties (i.e. banks or other financial institutions, but also credits with customers).

During the entire process, the investors are continuously updated on the progress of the procedures, and the investors can monitor the impact of the default rate on their profitability directly on the personal dashboard.
The default rate is indicated both in terms of amount (amount in default/remaining capital due) and in terms of number (number of projects in default/number of projects in progress). At the 31st of January 2018, on the 36 projects that had some delays in payments, only 13 are still affected by a default or a delay. 28 projects out of 36 were managed through a friendly and

conciliatory approach, either directly from Lendix or together with our partner for debt collection. At the end of January, Lendix had recovered 93% of the non-performing loans. For the recovery of the remaining 7%, they are evaluating the possibility of proceeding by legal means, for greater protection of the interests of investors. The past statistics show that the recovery with an agreement between the parties ends on average within 60 days[132]. Maintain informed the community of investors in the perspective of transparency, that is one of the cardinal value of the business model of Lendix, is another key activity performed by Lendix. Lendix, especially the Italian BU, decide to set-up an educational program that goes through different arguments around the P2P activities and the investment themes in general terms. Through the Lendix Academy, the platform provides a series of important information in order to educate its community (the real value for a platform). Important themes are treated, from more general economic arguments as "The role of the SMEs in the real economy" or "The main risk during the entire life of a company" or "Risk and diversification" to argument more related to the investment in P2P as "How it works an investment in Lendix" or "What are the real return of an investment on Lendix". All this information helps new and non-expert investors to become more confident with this new and alternative form of investment and allow the investors to take a decision and approach this form of the economy with greater awareness.

4.3.6 Revenues Stream

The revenues stream describes the way in which the platform get money from its customer according to the specific business model implemented in order to sustain its business activities. The main sources of revenues for the platform Lendix is through fees. It's important to describe the type of fees charged by Lendix to the different actors involved in the general loan request. In the business model implemented by Lendix the general retail investors (the "crowd") is not charged by any fees, so what he decides to invest is completely provided to the borrower. The principal source of revenues for Lendix is by fees charged to borrowers. Lendix does not apply any costs to the presentation or to the funding application that is totally free for the possible future borrower. At the moment of the origination of the loan, so after the loan request passed all the selection process and reach the crowd till the total amount is met, 2 typologies of fees

[132] All the information regarding the default rate of existing project are provided in transparent way by Lendix through its blog.

are charged on the borrower which are completely detailed in a transparent way in the loan offer.

Project Set-Up Fee (3%):

At the time of transfer of funds, a project set-up fee is charged by Lendix, that correspond to 3% of the amount borrowed. This fee is directly deducted from the amount paid into the borrower's bank account. For example, if the borrower makes a request of € 100,000 the project set-up fee will be 3% of €100,000 = €3,000. So, the total amount received by the borrower is € 97,000.

Management Flow Fee (1/12%):

In addition, a flow management fee equal to 1/12% of the outstanding amount is billed monthly as part of the management of financial flows. This fee covers the costs related to the treatment of the many financial flows (direct debit of borrower's bank account and distribution of this amount among all the lenders in proportion to the amount lent) and is directly deducted from the monthly instalments of the borrower. For example, on a loan of €100,000 at 5% over 48 months, this fee will be €83[133] the first month and €44 for the 24th month (as the outstanding amount will then be €52,493).

If any of the payments to be made by the company is not carried out on maturity, the outstanding amount is considered capitalized at the interest rate that starts from the third (3rd) day following the non-payment. Default interest calculated on the amount not paid is 1.5%. These interests will accrue daily and must be paid monthly on the basis of one (1) year of three hundred sixty-five (365) days. Interest will accrue up to the payment date, considering each day of the calendar month in which the payment is made. Additional fees could be charged on the borrower in the case in which is necessary to proceed with a credit recovery process, that depends on the difficulty of the case and if the process is managed directly by Lendix or if it is necessary the intervention of the external partner[134]. If the litigious is managed directly by Lendix, no additional fees are charged. If the recovery process is completely managed by the specialised external partners, recovery fees of 10% are applied to the amount recovered. These fees are necessary to cover the cost of the platform in the management of the recovery process, in the case of Lendix to pay the commission of the external partner in charge of the operation. To increase the protection level of the investors, in the particular case in which amount recovered

[133] € 100,000*[(1/12)/100]
[134] See the section of credit recovery process

does not cover the total of the payment, Lendix does not collect its monthly management fees. Another fee is charged in case of renegotiation of the term contract, a lump sum equal to € 400. All the fees charged represent the costs of the service for the borrower, but these can be recorded as financial expenses on the income statement of the company with the direct impact on the taxable income, that in this way is reduced[135].

4.3.7 Key Resources

The key resources are all the set of tangible[136] or intangible[137] assets required to make the business model work and allow the company to create and offer a value proposition and maintain a valuable relationship with the customer base in order to gain revenues on a long-term basis. The business model of the platform relies on a very low level of tangible and assets and this allows to gain costs advantages that permit this business model to be competitive in the specific industry. P2P platforms as Lendix base the success of their business model on a strong and solid IT system, and the possibility to automate some activities in order to speed up the entire process of data collection, selection and credit decision. At the very beginning of Lendix, automation was concentrated on data collection and disbursement/reimbursement phases. At the beginning of 2016, Lendix launched a project to accelerate significantly all the other phases of the process, apart from the advanced analysis and the decision to grant the loan, which remain 100% human. This work continues today to bear fruits. Now, the technological capability allows the process to gain efficiency, thanks to innovative tools that can read directly the data about the companies from scanned documents and this reduce the human intervention very much increase the velocity of the entire process. This progress is especially major in France, where many SMEs do not publish their financial statements on easily accessible commercial databases. The scoring model implemented by Lendix (which determines the terms of a loan, based on risk factors) provide an initial indication on the interest rate required directly to companies, and this happens online within few seconds. The companies can then complete their files within a few minutes. This allows the borrowers' team to better attend to the SMEs in their projects. It also prevents credit analysts from making manual data computing errors and it allows them to focus on better understanding of the business.

[135] Tax shield effect.
[136] Physical as buildings, machinery, raw good. Financial as cash, stock, credit.
[137] Intellectual as Brand, patents, knowledge. Human as creativity or experience.

In an organization where real and physical assets are quite inexistent, the people represent an important source of competitive advantage. People with the diverse educational background is another important resource of Lendix, that allow the platform to well fit the characteristic of each market in which decide to operate. The people that operate in Lendix are organized in several team each one dedicated to different operation. There are people organized in the team dedicated to the credit recovery that are in charge to take contact with the company subject of the delay of payment and to solve the problem following the entire step of the process, and eventually contact the external partner in case the company do not proceeds to the payment in the next days. Then there is the team dedicated to the Relation with the Companies that together with the Credit Team, composed by analyst as Federico Galdangelo graduated in Management Engineering at Politecnico di Milano and with experience in risk management field, is in charge to collect the most relevant information through telephone call with the people involved in key roles in the company asking the loan. Information are organized in qualitative and quantitative and are necessary to create a complete biography of the company in order to elaborate the most appropriate solution in term of rating and interest rate. There is an important section in the organization of Lendix dedicated to the relationship with the investors. The Team of Relation with Investor is dedicated to maintaining a close relationship with the crowd of investors and support them in any possible request, Giulia Roncalli is one of the responsible of the Italian team and in her professional history had important role during the Expo Italy 2015 as responsible for the relation with Institutional Partner for the Italian Pavilion. The final response to the approval or not of a dossier expect to the Credit Committee, composed by three members that analyse with a critical view all the results of the selection process.

Embedded in the all organization of Lendix the knowledge and the experience of the different team members and the people involved in the several managerial positions is a crucial resource for the success of Lendix. Is important to cover knowledge around different fields, from financial field as risk management, consultancy and investment banking, crucial for key role as credit analyst to programming and IT fundamental for make the platform functioning in effective and efficient way with forefront instrument and tools. But technical and financial competences are not sufficient to compete in the online world of P2P, so the Lendix team is

composed also by people experts in digital communication and marketing as Roberta Pazzini responsible of Marketing and Communication[138].

4.3.8 Key Partners

The key partners are those actors, external from the organizational structure of a company, that are necessary to make the business model work. Lendix was able to create a valuable network of partners, some necessary to cover important activity as the credit recovery activity, other financial partners that participate in the Lendix Fund as institutional portion for the funding of the different projects.

In October 2017 Lendix stipulate collaboration with Opejobmetis the first and only Employment Agency listed on the Italian Stock Exchange, in the STAR segment, and active in the HR sector for 16 years. The two companies operate both close to the world of small and medium-sized enterprises in a different way. Lendix solves the credit problem for the SMEs as a point of contact between the demand of credit and the demand of an alternative investment solution for the investors, granting rapid solution and competitive return. Openjobmetis, present on the Italian market for over 17 years, active in the administration, research, relocation and training of personnel, represent a bridge between the companies looking for staff and the resources looking for employment, with the aim of optimally matching job demand and supply. Lendix and Openjometis have decided to exploit the synergies existing between their respective activities for the launch on the Italian market of a joint offer that combines Openjobmetis staffing services with financing solutions of Lendix. Thanks to this agreement, Italian SMEs with growth plans involving the expansion of personnel will be able to take advantage of the simplicity and speed of the Lendix loan process to cover the financial needs deriving from the investment.

Another important partner that operate with Lendix is the external partner for the management of the credit recovery. The intervention of the external partner happens in the case the borrower is not able to regularize the payment after Lendix takes contact with the main manager of the company. Lendix decides to rely on an external partner because it could guarantee expertise in the field of credit recovery, because it represents an objective advice without any internal

[138] Lendix Italia.

conditioning, because it represents an efficient solution and allows the team of Lendix to concentrate on other activities, and because of mutualism of clients.

Fundamental for the success of Lendix is the role of the Fund that intervenes in any investment with at least the 51% of the total amount requested by the borrower. In the case in which the crowd (retail investors) do not provide the remaining portion (49%) according to the timing agreed with the borrower, the Fund covers the additional part necessary to close the funding. The implication of this Fund on the economy of Lendix is fundamental because it represents a real differentiation in respect to the classic P2P platform. The presence of this Fund guarantees a solid base of institutional investors, and at the same time guarantee the 100% completion of the funding. Another important consideration is that the manager of Lendix are investors in the Fund, and so indirectly in any projects published in Lendix, this creates a strong alignment of interest between the investors in Lendix and Lendix itself. The presence of the Fund which investors are insurance, banks, family office and the manager of Lendix itself represent the real power to the engine of the Lendix 'machine. Although its number of retail lenders is steadily growing, Institutional investors, family offices and qualified investors represent the bulk (over 80%) of Lendix's sources of loan financing. All the participant to the Lendix Fund become a partner in the activity of Lendix as Institutional investors. The first Fund launched during the first phase of activity of Lendix count € 90 million and was closed in July 2017 which resulted in loans to 250 European SMEs (in France, Spain and Italy). At the beginning of 2018, Lendix announced the launch of a new Fund of € 200 million with the objective to finance at least 600 different SMEs in the existing market and in the new market in which Lendix announce to expand his business[139]. "This new commitment by leading institutional investors will boost Lendix's capacity to support the development of more than 600 micro-enterprises and SMEs," said Lendix's founder Olivier Goy. Among the partner of the new Fund the European Investment Bank (EIB) Group via the European Investment Fund (EIF) renewed its commitment after the investment of € 18.5 million during the first phase. Another important partner of the Fund is CNP Assurance, one of the top 50 institutional investors worldwide in unlisted companies with investment around € 500-700 million per annum that provide an important support to little business across their lifecycle. The other participants in the Fund are Eiffel IM, the French assurance group Groupama which count more than 34,000 employees and

[139] At the beginning of 2018 Lendix announced that in the end of the year the platform will be operative also in Germany and Netherland.

13 million of clients and partner around the world, Zencap AM expert in private debt investment with more than € 1.6 billion under management, the French assurance company Matmut and also shareholder of Zencap AM and and Decaux Frères Investissements. The platform crunchbase.com provide important information about the investors that put money in Lendix during the different stage of the start-up. Partech Ventures, a global VC founded in 1982 in Silicon Valley with more than 40 exits as experience, Marc Menase BA[140] and Founder of MenInvest SAS and Christian Guegnier currently Managing Director, Finance and Administration Director and member of the Executive Committee of Financial Exchequer, invest during the seed stage of the start-up. Then an assurance company and other institutional investors finance Lendix during Series B investment, Zencap, Matmut CNP Assurance and Decaux Frères Investissements (that participate also in the launch of the last Fund) in addition to Sycomore Asset Management, Weber Investissement and Partech Ventures.

4.3.9 Cost Structure[141]

The block of the cost structure describes all the costs that the company incur in running its business. In a business model based on platform there is not all the process of supplying or inbound/outbound logistic to manage the flow of materials till the delivery to the client the finish product and the related costs, because it's not about a typical industrial company. The business model of Lendix is strongly related to the internet technology and online infrastructure. So, the main source of costs is related to the maintenance and update of the entire internet system, from the support channel through live chat, to the system that update the dashboard of the investors on his specific performance. Then is important to consider all the costs related to the personnel, the analyst, the people involved in the relationship with companies or with the community of investors. Thanks to the absence of a capillary set of physical branches (compared to the traditional banking sector) the P2P platform is able to reduce at minimum all the cost related to the management of a physical structure (regardless the presence of headquarters in any country in which is operative) and this explain the competitive costs for the borrower and the attractive interest rate for the investors. One of the cost impacting on the business model of Lendix is related to the external partner in charge of

[140] Business Angel.
[141] Lendix does not disclose any information about the voice that impact on the costs of the company, because they are still in the Start-up phase, and considered it reserved information.

the credit recovery process. The fees requested by the partner necessary to the management of the entire recovery process are in any case charged on the borrower in measure as a % on the total amount recovered.

4.4 Lendix Projects

In this section it is reported a brief description of the whole number of projects uploaded on the platform the time window from the 26th of February 2015 to the 29th of December 2017.

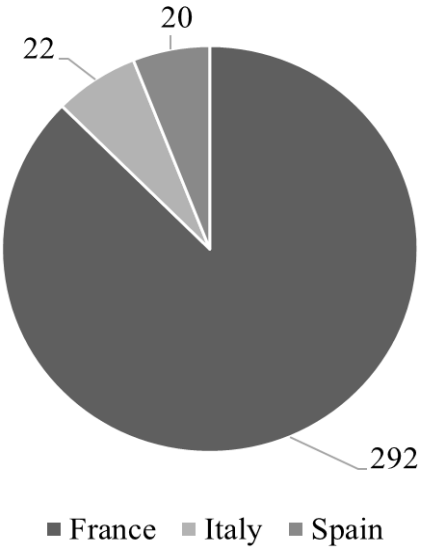

Figure 4.5 Geographical Breakdown of Lendix Projects, from February 2015 to December 2017. Source: Personal Elaboration from Data by Lendix Website.

The total number of projects that appeared on the platform within this the period of time taken into account is equal to 334 projects, particularly 292 French projects, 22 Italian projects and 20 Spanish, with 25 additional leasing solutions, for a total comprehensive amount of 359 projects[46].

Through these 359 projects, the French platform was able to lend approximately € 143,869,035 from February 2015 to December 2017; € 137,527,830 were financed through the 334 projects, while additional € 6,341,205 were financed through the leasing solutions. This service consists in financial leasing solutions available just for the French market and provided by a dedicated subsidiary of Lendix SA, called Lendix Croissance[142]. Considering that those projects are just related to the market in France and they are available for institutional investors only, they were

[142] https://it.lendix.com.

not taken into consideration in the analysis descripted in the following chapter, as other projects that were not available for private investors but just for institutional ones. Private investors financed € 26,025,162 (18.92% of the total amount), while institutional investors financed € 111,502,667 (81.08%). The Figure 4.5 shows the geographical breakdown of the projects uploaded on the Lendix's platform within the period of time previously mentioned, leasing solutions excluded. As it is possible to see by the chart, French projects represent the 87.43% of the 334 projects uploaded, while Spanish and Italian ones are, respectively, the 5.89% and the 6.59% of the 334 projects. This prevalence of financing addressed to the French market can be easily explained considering that, within the time frame considered, Lendix started operating in Spain and Italy just during the first months of 2017, particularly on February and March 2017, while it started operating in France since February 2015.

Figure 4.6 shows the evolution across the last three years of activity of the projects' volume on Lendix platform. The number of projects from 2015 to 2016 doubled the number of projects financed in one year, while in 2017 the number of projects financed was equal to 178, the 71.15% more with respect to 2016. The total cumulative amount was equal to 334 projects, and the trend shows how Lendix was able in the three years considered, to maintain o volume growth rate very high in order to expand its operations. More interesting is the analysis of the evolution of the annual amount lent, considering total amount lent in 2015 was approximately equal to € 10.12 million and, the following year, the amount lent at the end of the year was higher more than four times with respect to the value of the previous year (more precisely, a growth rate of 310.35%). Moreover, is important to highlight that this massive growth in terms of the annual amount financed was reach operating just in the French market. In the year 2017,

the annual amount financed increased by the 106.81% but, in this case, there is the contribution of Spanish and Italian projects.

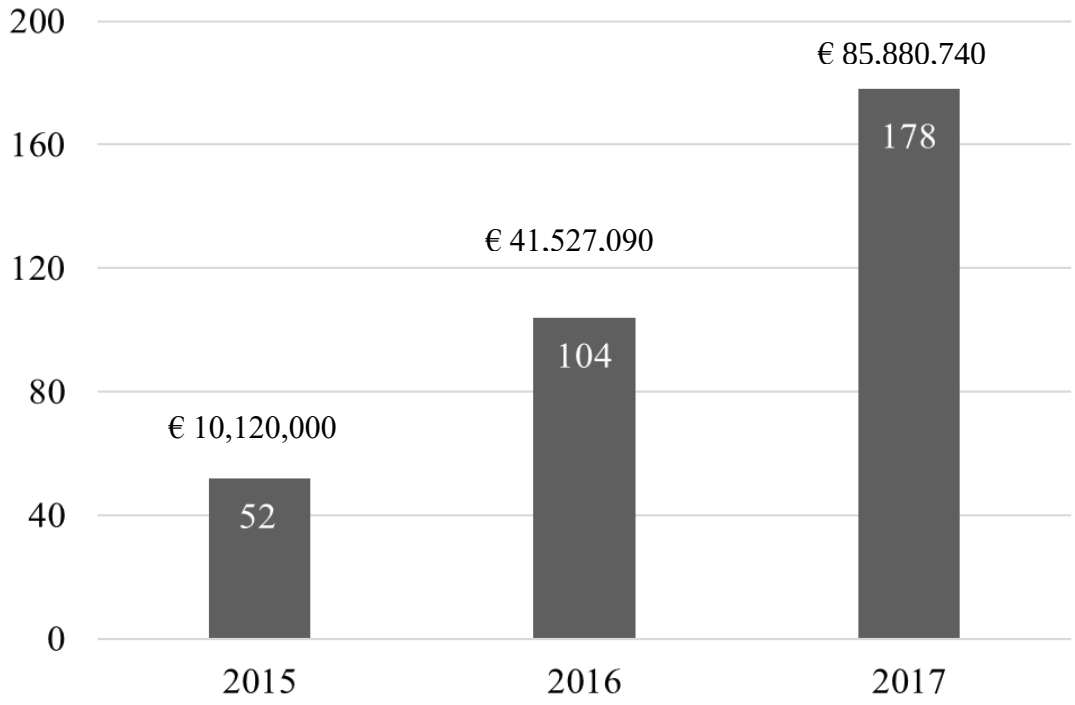

Figure 4.6 Annual Evolution of the Number of Projects and Amount Financed.
Source: Personal Elaboration from Data by Lendix Website.

Lendix financed projects belonging to the 15 following sectors: Commercial, Hotel & Restaurants, Industrial, Research & Consulting, Information & Communication, Construction-Housebuilding, Finance, Services for Companies, Real Estate, Events, Services for Private, Transportation, Education, Healthcare and Events. The Figure 4.7 shows the breakdown of projects by sectors. As it is possible to see looking at the chart below, the first three sectors in terms of number of projects, i.e. Commercial, Hotel & Restaurant and Industrial counts, together, for almost the half of the entire number of projects, precisely for the 44.91%, while the first five sectors showed in figure cover the 65.27% of total number of projects. In general, it is possible to say that the portfolio of projects of Lendix is well diversified in terms of sectors financed, because there is not the evidence of a strong concentration on one sector; this is another way through which Lendix is able to share and reduce the portfolio's risk, financing companies belonging to different environments and avoiding concentrating the risk on one or few sectors.

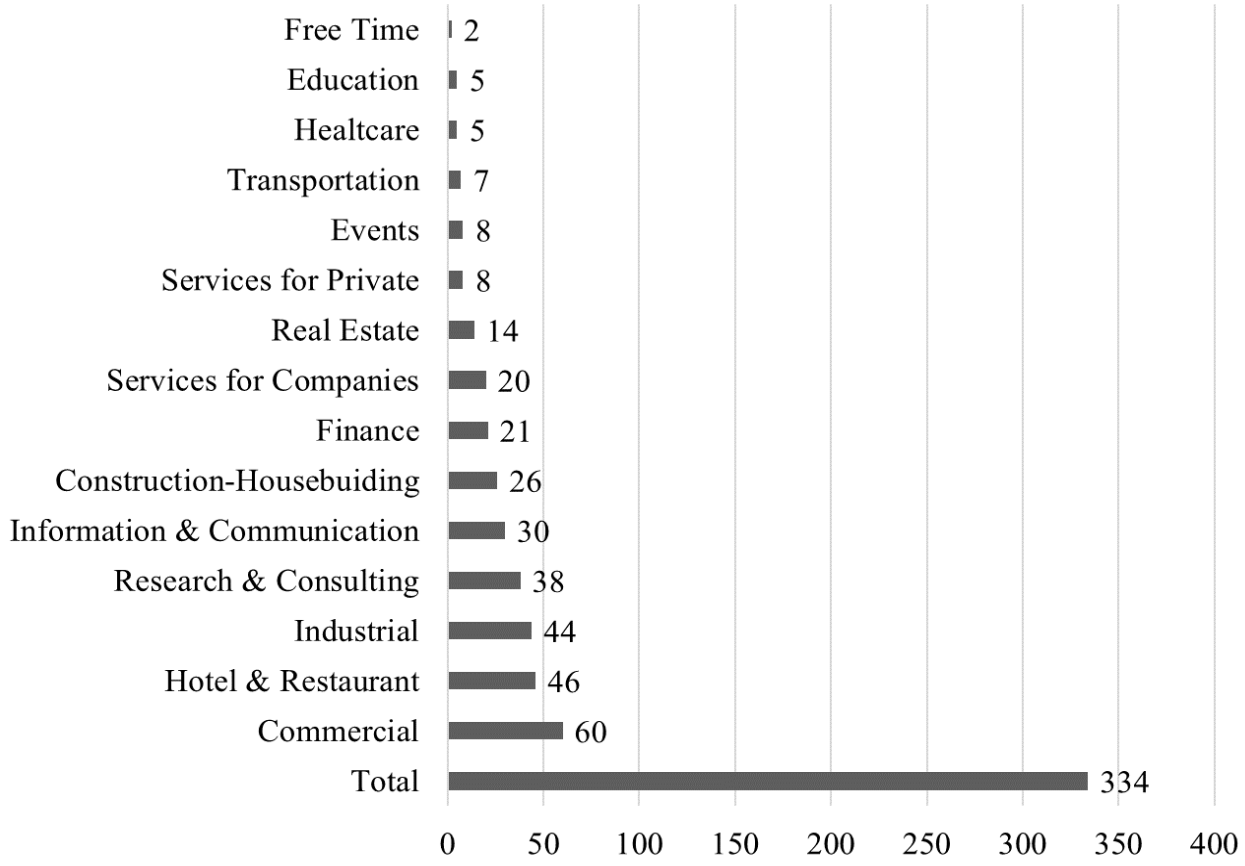

Figure 4.7 Projects Breakdown by Sectors.
Source: Personal Elaboration from Data by Lendix Website.

The portfolio of Lendix is well balanced also considering different measures related to each specific sector. As it is possible to see in the first column in Table 4.1, that shows for each sector the total amount financed, the Commercial sector records the highest amount of capital financed by Lendix in the time frame under consideration, receiving € 18.475 million, i.e. the 13.43% of the total amount financed by Lendix (value reported in the second column). It represents the first sector in terms of both number of projects and amount financed. The industrial sector is the second sector in terms of total cumulative amount financed, counting for the 11.94% of the total cumulative amount lent (€ 16.417 million in absolute terms). The third place of this ranking is occupied by the Real Estate sector that, although counts just 14 projects, received € 15.875 million, i.e. the 11.54% of the total cumulative amount lent. The first column reported the list of sectors sorted by total amount in descendent order, and the second one the percentage weight on the total amount. Considering the third column, reporting the average amount, it is interesting to underline that just for only four sectors (Real estate, Construction-Housebuilding, Finance and Transportation) have an average amount higher than the global

average amount, while the other eleven sectors have lower amounts compared to the global average one. Moreover, just Real Estate reports a value significantly higher than the others, and this happens also in the case of the median. For what concerns the average interest rates for each sector, the majority of the them are aligned with the average global one, with just two sectors reporting values higher or lower than the global average one for more than 100 bps[143]. This is the case of Services for Private, with an average interest rate of 5.88% and of Free Time, with a value of 7.63%, although just this sector counts just two projects and for this reason its values are not very significant. Also considering median values of interest rates just the two sectors mentioned shows values that differ from the global median more than one percentage point, while the other are aligned with the global median. Taking into account the maturity, both measures (average and median) show that Healthcare and Finance sectors have higher maturities with the respect to the value calculated on the total number of projects, while Real Estate and Services for Private show shorter maturities.

Sectors	Total Amount	Wieght on Total Amount	Average Amount	Median Amount	Average Interest Rate	Median Interest Rate	Average Maturity (months)	Median Maturity (months)
Commercial	€ 18,475,590	13.43%	€ 307,927	€ 155,000	6.81%	6.63%	52.80	60
Industrial	€ 16,417,000	11.94%	€ 373,114	€ 250,000	6.85%	7.00%	43.09	45
Real Estate	€ 15,875,000	11.54%	€ 1,133,929	€ 1,025,000	6.12%	6.00%	37.29	36
Construction-Housebuilding	€ 14,463,500	10,52%	€ 556,288	€ 135,000	6.52%	6.50%	46.73	48
Research & Consulting	€ 14,306,000	10.40%	€ 376,474	€ 281,000	6.45%	6.00%	46.37	48
Information & Communication	€ 14,093,000	10.24%	€ 225,000	€ 225,000	6.10%	6.00%	46	48
Hotel & Restaurant	€ 13,291,000	9.66%	€ 288,935	€ 150,000	6.74%	6.75%	58.04	60
Finance	€ 12,280,140	8.93%	€ 584,769	€ 281,000	6.57%	6.50%	60.71	60
Services for Companies	€ 7,316,600	5.32%	€ 365,830	€ 137,500	6.39%	6.00%	41.40	39
Transportation	€ 3,422,000	2.49%	€ 488,857	€ 200,000	6.81%	6.88%	47	53
Events	€ 3,182,000	2.31%	€ 397,750	€ 350,000	7.06%	7.13%	54.75	54
Services for Private	€ 1,441,000	1.05%	€ 180,125	€ 178,000	5.88%	5.50%	33	36
Healthcare	€ 1,404,000	1.02%	€ 280,800	€ 300,000	7.20%	6.50%	60	60
Education	€ 1,111,000	0.81%	€ 222,200	€ 62,000	6.38%	6.00%	45.60	36
Free Time	€ 450,000	0.33%	€ 225,000	€ 225,000	7.63%	7.63%	54	54
Total	€ 137,527,830	100%	€ 411,760	€ 200,000	6.59%	6.50%	49.08	48

Table 4.1 Sectors Statistics.
Source: Personal Elaboration from Data by Lendix Website.

[143] 100 bps correspond to one percentage point.

Considering the classification of the whole 334 projects and their final rating score, the situation is described in Figure 4.8. There are just two A+ projects, 38 A, 8 B+ and 202 B projects. The total amount of projects categorized as C, meaning that they are riskier than the other projects, is equal to 84.

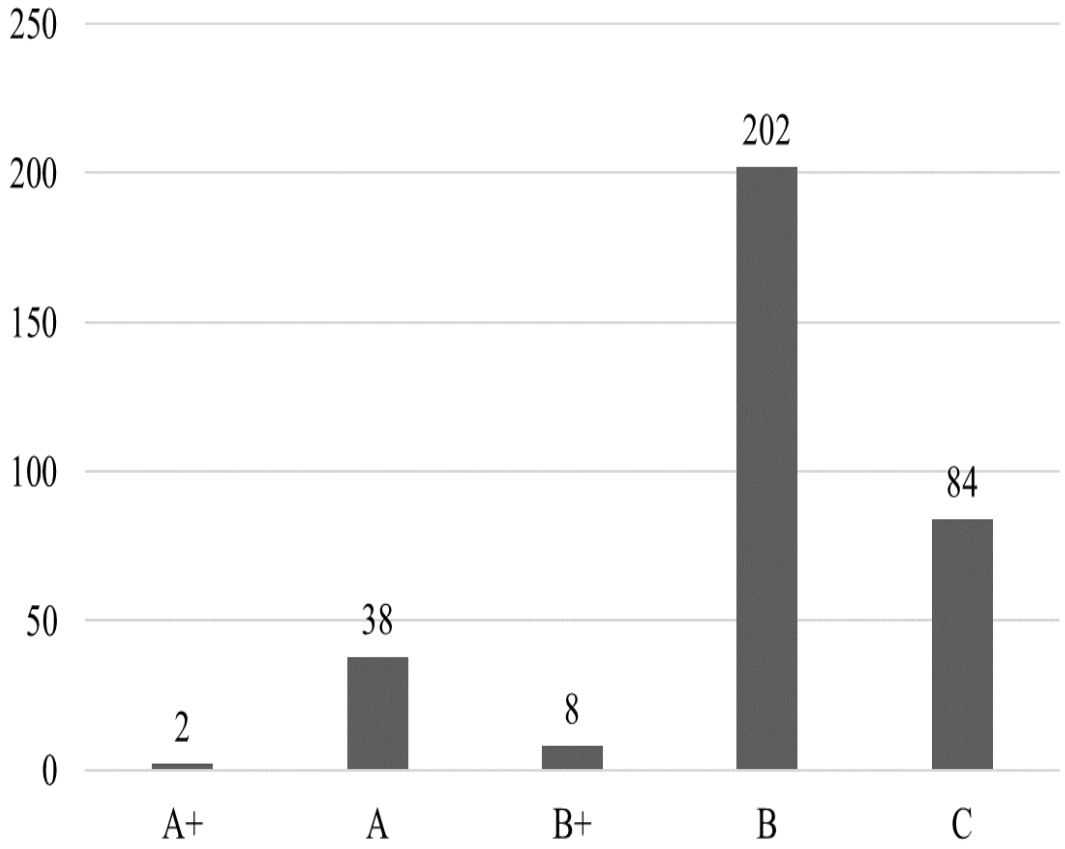

Figure 4.8 Breakdown of Projects by Rating Score.
Source: Personal Elaboration from Data by Lendix Website.

Additional information is provided in Table 4.2, showing the total amount financed for each rating category and the average and median measures related to the three different attributes that characterized each project, i.e. amount, interest rate and maturity.

Measures	A+	A	B+	B	C	Total
Total Amount	€ 4,800,000	€ 23,559,140	€ 6,485,000	€ 87,455,100	€ 15,228,590	€ 137,527,830
Number of Projects	2	38	8	202	84	334
Average Amount	€ 2,400,000	€ 619,977	€ 810,625	€ 432,946	€ 181,292	€ 411,760
Median Amount	€ 2,400,000	€ 205,000	€ 1,020,000	€ 250,000	€ 150,000	€ 200,000
Average Interest Rate	5%	5.17%	4.69%	6.27%	8.24%	6.59%
Median Interest Rate	5%	5%	4.88%	6.25%	8.13%	6.50%
Average Maturity	60 months	53.025 months	49.50 months	48.34 months	54 months	49.08 months
Median Maturity	60 months	48 months	42 months	48 months	54 months	48 months

Table 4.2 Rating Score Statistics.
Source: Personal Elaboration from Data by Lendix Website.

Firstly, although the number of C projects is higher than the number of A projects, the total amount is higher in favour of A projects. Considering the values of average amounts, in fact, it is possible to underline how, on average, the amount received by C projects is much lower than the one received by A projects. As expected, the average interest rate is higher in the case of C projects, while maturities are almost similar. It is very interesting to underline that, on average, interest rates of B+ projects are lower than A ones, but firstly the number of B+ is very low, and this class was introduced later with respect to class A; it is reasonable to think that those 8 projects were A projects, and they are re-categorized as B because some structural differences that allow those companies to be categorized as B+. B projects' values, that represent the majority of the total projects financed (precisely, the 60.47%, while A and C count for 11.38% and 25.15%) are strictly aligned with the global values, also in terms of maturity. For what concerns A+ projects, the sample available is too small to provide significant information by a statistical point of view. Considering the sectors' classification and the rating score related to each project it is possible to consider how projects that differ in terms of risk are distributed in between the different industries. Table 4.3 shows the results related to the distribution of ratings among the different sectors. For all sectors there is a strong prevalence of B projects, as it was easy to foresee considering the great number of B projects in the portfolio; this holds particularly for the Real Estate industry, in which all the 14 projects financed were classified as

B. Moreover, C projects are distributed in all sectors, except for Real Estate, and they are not concentrated in one or few industries.

The projects with rating score A are mainly concentrated in Hotel & Restaurant and Industrial.

Sectors	A+	A	B+	B	C	Total
Commercial	1	5	0	39	15	60
Hotel & Restaurant	0	9	1	25	11	46
Industrial	0	3	1	23	17	44
Research & Consulting	0	2	0	27	9	38
Information & Communication	1	11	0	12	6	30
Construction-Housebuilding	0	3	2	14	7	26
Finance	0	3	1	13	4	21
Services for Companies	0	1	2	10	7	20
Real Estate	0	0	0	14	0	14
Events	0	0	0	6	2	8
Services for Private	0	0	1	5	2	8
Transportation	0	0	0	6	1	7
Education	0	0	0	4	1	5
Healthcare	0	1	0	2	2	5
Free Time	0	0	0	2	0	2
Total	2	38	8	202	84	334

Table 4.3 Rating distribution by Sectors.
Source: Personal Elaboration from Data by Lendix Website.

Focusing our attention on the two macro-categories of investors that operate on Lendix, i.e. Institutional and Private investors, Figure 4.9 shows that 152 projects were financed for the 51% by institutional investors and 49% by the crowd, while in 165 cases the percentage of institutional investors is higher.

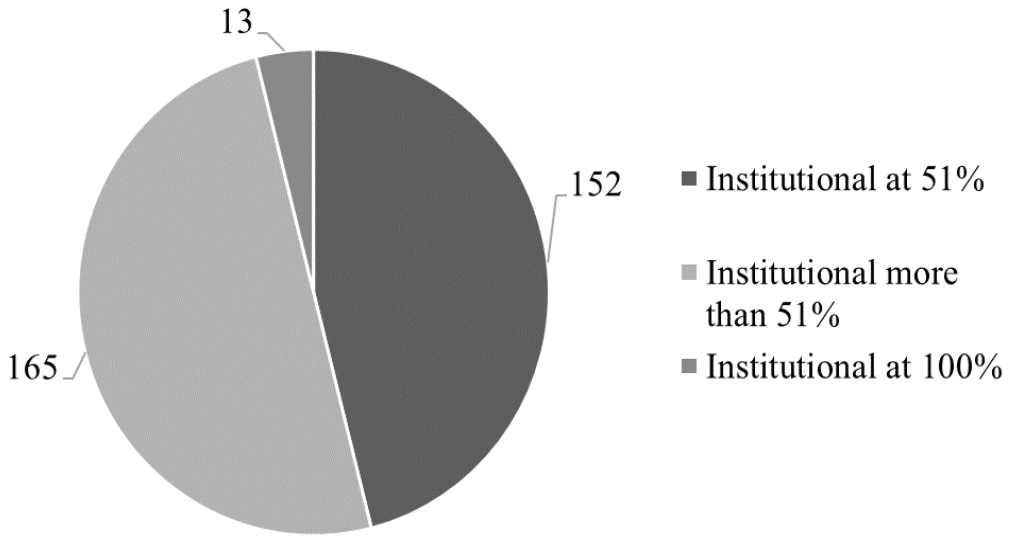

Figure 4.9 Breakdown of Projects by Investors Category.
Source: Personal Elaboration from Data by Lendix Website.

Among the totality of projects financed by Lendix, just 15 were totally financed by institutional investors. The projects financed by the 51% by institutional investors and 49% by the crowd collected € 20,851,690, while the 165 projects were the percentage of institutional investors was higher than the 51% collected € 107,839,140, Finally, the projects totally financed by institutions collected € 8,777,000. Institutional and private investors statistics are reported in Figure RRR. As it is possible to see, private investors invested very little amounts in A+ and B+ categories, and also in projects A the portion of private funds is significantly lower than the portion of institutional financing with respect to the total amount of the projects rated as A. The portion of private funds increases as the risk of the category increases; considering B and C projects, indeed, private investors financed, respectively, the 18.89% and the 40.16% of the total amount collected by the specific category. Apparently, investors are more willing to invest their money in riskier projects, with higher expected returns with respect to A+, A and B+ projects. The average number of private investors is almost aligned for projects rated as B+, B and C, while, on average, in A projects the number of private investors is lower compared to what happens for other categories. Finally, taking into account that A+ and B+ projects are very few (10 totally), it is possible to conclude that, on average, private investors invest more or less the same amount of money independently from the risk category, with little preferences for B projects. Those evaluations were conducted on 332 of the 334 total projects financed, because for two of them the percentage of institutional investors funds was not available. Class C results

as the class in which, individually, investors invest more with respect to the other rating categories, although the individual average amount al almost aligned between themselves, with the exception of A+ projects.

Measures	A+	A	B+	B	C
Total Amount Financed	€ 4,800,000	€ 23,499,140	€ 6,548,000	€ 87,455,100	€ 15,165,590
Total Amount Financed by Institutional Investors	€ 4,590,000	€ 20,815,076	€ 6,015,850	€ 70,946,081	€ 9,075,661
Total Amount Financed by Private Investors	€ 210.000	€ 2,648,064	€ 532.150	€ 16,509,019	€ 6,089,929
Average Amount Financed by Private Investors	€ 37.485	€ 57.854	€ 75.181	€ 72.190	€ 103.716
Average Number of Private Investors	601	489	669	606	774
Average Amount Financed by Single Private Investor	€ 62.42	€ 118.22	€ 112.43	€ 119.10	€ 134.05

Table 4.4 Institutional and Private Investors Statistics by Rating Score.
Source: Personal Elaboration from Data by Lendix Website.

Additional analysis on how private investors behaved was conducted taking into account the sectors' classification. Table 4.4 above summarized the main results related to the investment behaviours of private investors among the different sectors. Considering the total amount received, Industrial, Commercial and Research & Consulting sectors received more than € 3 million. Construction-Housebuilding, Hotel & Restaurant, Information & Communication and Real Estate received more than € 2 million of private funds, while Finance and Services for Companies collected an amount between € 1 and € 2 million. The remaining sectors collected an amount lower than € 1 million. Considering the average amount financed by private to each sector and comparing it with the same measure calculated on the total number of projects, Real Estate reports a value significantly higher than the average global one, meaning that private investors, on average, invest significantly more in Real Estate projects. This is in line with what was previously debated about the total amount received. The Healthcare sectors occupied the second position following this perspective, and Services for Companies and Research and Consulting follow it as sectors with average values of private amounts received significantly higher than the global average one. The opposite situation is true for Free Time, Events, Education and also for Commercial projects; the average amount of private funds received is much lower than the average global value. Considering the average number of private investor for each sector, Real Estate shows again a value greater than the average one, while the majority of the other sectors show values aligned with the average, with three exceptions represented by

Hotel & Restaurant, Events and Free Time, where the average number of investors is lower and lower compared to the 637-global average private investors. The last column shows the amount of money that, on average, an individual invests for each sector. It is interesting to underline that the highest value in this case is recorder by Free Time, while Real Estate occupied the second position, while Education possesses the lowest value compared to the other sectors. This value is also significantly lower than the global average one. In general, all values are almost aligned with the average, showing that private investors have not preferences related to the specific sector in which the company asking money is operating.

4.4.1 Lendix in France

This section provides a brief description of the French projects financed on Lendix between February 2015 and December 2017. The total number of French projects is equal to 292 for a total amount of € 122,317,830, 15 totally financed by institutional ones and collecting € 8,837,000, 151 receives institutional funds in a portion larger than the 51% of the total amount requested while 126 received 51% of the amount asked by institutions and the remaining 49% by the crowd. The amounts collected by these two categories of projects are, respectively, € 97,104,140, and € 16,376,830. The 292 can be classified as 164 micro-enterprises, 66 small companies, 47 medium companies and 15 large firms.

Most of the companies requesting a loan on Lendix have an average turnover (on the last 3 accounting years available) less than € 2,000,000. This portion represent the 52.7% of French companies requesting a loan in the period considered. Only 36 companies have more than € 20,000,000 with some pick as Capelli, a real estate company that use Lendix 3 times, with € 94 millions, Reworld Media Group, a multi-media company requested 2 different loans on Lendix (for a total amount of € 4 million), with € 94 million and Amadeite, specialized in the preparation and production of natural additives, with € 74 million (detail in Figure 4.10).

Considering the whole set of French projects, the largest portion collected an amount lower than € 250,000 (165 projects out of 292), amount that exceed € 1,000,000 was requested in 41 cases. Alsei Group request a second loan in Lendix in December 2017 for a total amount collected of € 3,150,000 after the first funding in February, and this represent the largest loan amount collected on Lendix (at 31 December 2017). Figure 4.11 shows the detail about the projects distribution considering the loan amount requested.

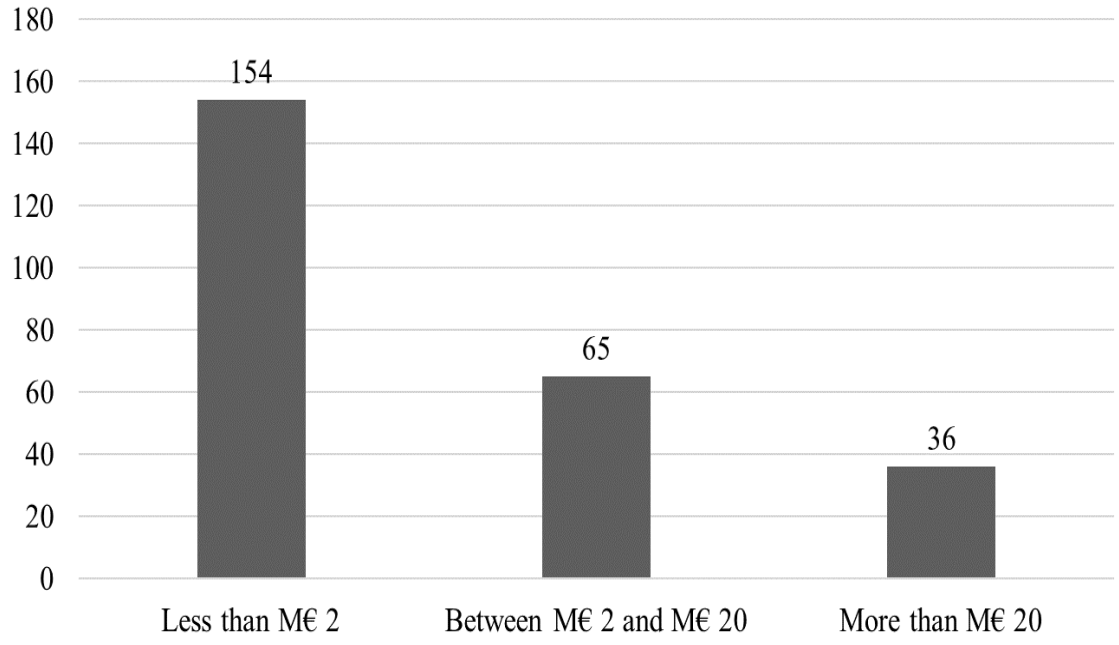

Figure 4.10 Projects Breakdown by Classes of Revenues.
Source: Personal Elaboration with Data by Lendix Website.

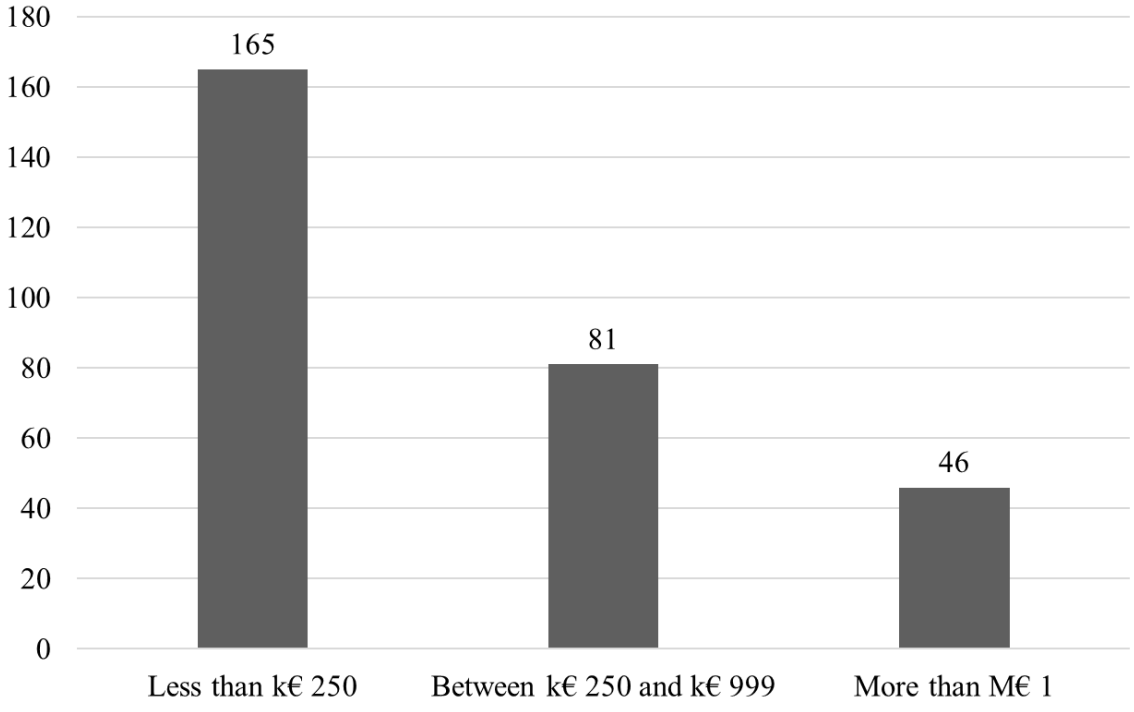

Figure 4.11 Projects Classification by Loan Amount.
Source: Personal Elaboration from Data by Lendix Website.

Table 4.5 reports the main statistics of French projects divided by sectors. The first column reports the total amount in a descendent order for each sector, following the same structure of previous paragraphs. Commercial and Real Estate occupy the first two positions in terms of total amount, while from Research & Consulting to Industrial amounts are quite similar. The first 8 sectors count for the 87.14% of the total amount financed, while the last 7 sectors the remaining 12.86%. Considering the average amount lent, Real Estate sector show values significantly higher than the global average amount. Also, the Transportation industry has an average amount much higher than the average one. Hotel & Restaurant and Education, oppositely, have values lower than the global average, while all the other sectors are aligned with the global average. Focusing on interest rates, taking into account that Free Time sectors counts just two projects, just Healthcare has an average interest rate higher than the average one for more than 100 bps, while Transportation appears as the less risky sector in terms of interest rate. For what concerns the time horizon of the different projects, Transportation and

Sectors	Total Amount	Average Amount	Median Amount	Average Interest Rate	Median Interest Rate	Average Maturity	Median Maturity	Projects
Commercial	€ 17,567,590	€ 325,741	€ 158,000	6,73%	6,50%	54,61	60	54
Real Estate	€ 14,875,000	€ 1,144,230	€ 1,050,000	6,13%	6,00%	43,69	36	14
Research & Consulting	€ 12,671,000	€ 383,970	€ 156,000	6,49%	6,00%	56	48	33
Construction-Housebuilding	€ 12,563,500	€ 523,479	€ 110,000	6,61%	6,50%	55,00	48	23
Information & Communication	€ 12,353,000	€ 475,115	€ 255,000	5,95%	5,75%	37,15	48	26
Finance	€ 12,280,140	€ 584,769	€ 281,000	6,57%	6,50%	56,14	60	21
Hotel & Restaurant	€ 12,191,000	€ 277,068	€ 150,000	6,73%	6,50%	51,41	60	44
Industrial	€ 12,087,000	€ 389,903	€ 250,000	6,59%	6,50%	45,03	48	31
Services for Companies	€ 6,416,600	€ 377,447	€ 125,000	6,26%	6,00%	48,71	48	17
Events	€ 2,682,000	€ 383,143	€ 200,000	7,07%	7,25%	41,14	60	7
Transportation	€ 2,607,000	€ 869,000	€ 1,000,000	5,42%	5,50%	38	36	3
Services for Private	€ 1,441,000	€ 180,125	€ 178,000	5,88%	5,50%	52,50	36	8
Education	€ 1,111,000	€ 222,200	€ 62,000	6,38%	6,00%	50,40	36	5
Healthcare	€ 1,054,000	€ 263,500	€ 202,000	7,63%	7,75%	57	60	4
Free Time	€ 450,000	€ 225,000	€ 225,000	7,63%	7,63%	54	54	2
Total	€ 122,317,830	€ 419,006	€ 200,000	6,53%	6,50%	50,43	48	292

Table 4.5 French Projects Statistics by Sectors.
Source: Personal Elaboration from Data by Lendix Website.

Information & Communication seems to have an orientation for shorter maturities with respect to the majority of sectors. Most them have maturities comprises between 45 and 55 months.

Considering the project breakdown by rating categories, Table 4.6 summarized the main measures related to the 292 French projects financed. A+ and B+ count just three projects in total, and. The majority of projects is categorized as B, collecting a total amount of € 82,042,100. C projects are 68, while A ones are 37 (Figure 4.12).

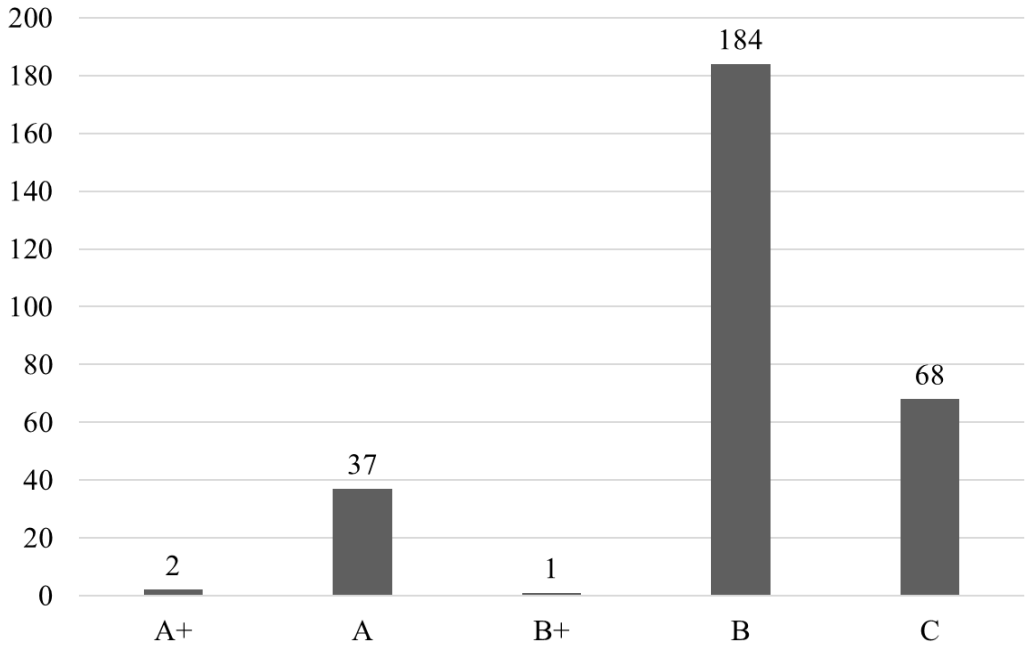

Figure 4.12 Projects Classification by Rating Class.
Source: Personal Elaboration from Data by Lendix Website.

Although these differences in terms of number, C projects collected € 11,208,590, while A rated projects € 23,209,140. Considering the average amount, A category is the one with the highest value, followed by B and then by C. Maturities are aligned between them, while interest rates for C projects are quite higher with respect to the average global interest rate, with more than 200 bps more.

Measures	A+	A	B+	B	C	Total
Number of Projects	2	37	1	184	68	292
Total Amount	€ 4,800,000	€ 23,209,140	€ 1,090,000	€ 82,042,100	€ 11,208,590	€ 122,349,830
Average Amount	€ 2,400,000	€ 627,274	€ 1,090,000	€ 445,881	€ 164,832	€ 419,006
Median Amount	€ 2,400,000	€ 200,000	€ 1,090,000	€ 224,000	€ 127,500	€ 200,000
Average Interest Rate	4.60%	5.19%	4.75%	6.18%	8.26%	6.53%
Median Interest Rate	4.60%	5%	4.75%	6%	8.25%	6.50%
Average Maturity (months)	60.00	52.78	48.00	49.23	52.15	50.43
Median Maturity (months)	42	36	24	60	48	48

Table 4.6 Rating Categories Statistics for French Projects.
Source: Personal Elaboration from Data by Lendix Website.

4.4.2 Lendix in Spain

On 27 April 2015, the Spanish government approved the specific regulation for participatory financing platforms (Law 5/2015 for the promotion of corporate financing). With this regulation, Spain has become one of the main European countries to have a clear and favourable regulatory framework for the development of this type of Fintech company. According to a report by Cambridge University about alternative finance on-line, which includes P2P Lending, Spain ranks in 6th position in Europe, with funds under management of €63m, behind the leader the UK, with a volume of €2,337m, and other countries such as Sweden, Germany and France. Considering the number of platform in Spain there are 34 active in the alternative finance ecosystem (Invoice trading, P2P, Crowdfunding).
The presence of Lendix in Spain started in July 2016 when the platform received the formal authorization to operate in the Spanish market by CNMV, Spanish government agency responsible for the financial regulation of the securities markets in Spain. The role of CEO of Lendix Spain was assigned to Grégoire de Lestapis, previously CEO of BBVA[144] in France, with more than 30 years of experience in the banking sector.
The real activity of the platform started at the beginning of 2017, the first project was launched at 3 February 2017, J.I.Z. Operaciones a company Specialized in logistics, storage, packaging and document management. The company demand for € 310,000 with 60 months

144 The second banking group in Spain after Banco de Santander.

maturity and receive a rating C with 9.0% of interest rate. The funding campaign was completed in less than 1 day (20h on the platform) reaching crowd 1,124 investors, without the necessity of additional intervention of the Fund[145] and was a real success for the platform. Since that date the platform funded 20 different projects for a total amount of € 7.445 million. The Spanish companies that get fund from Lendix comes from disparate industries as described in the Figure 4.13

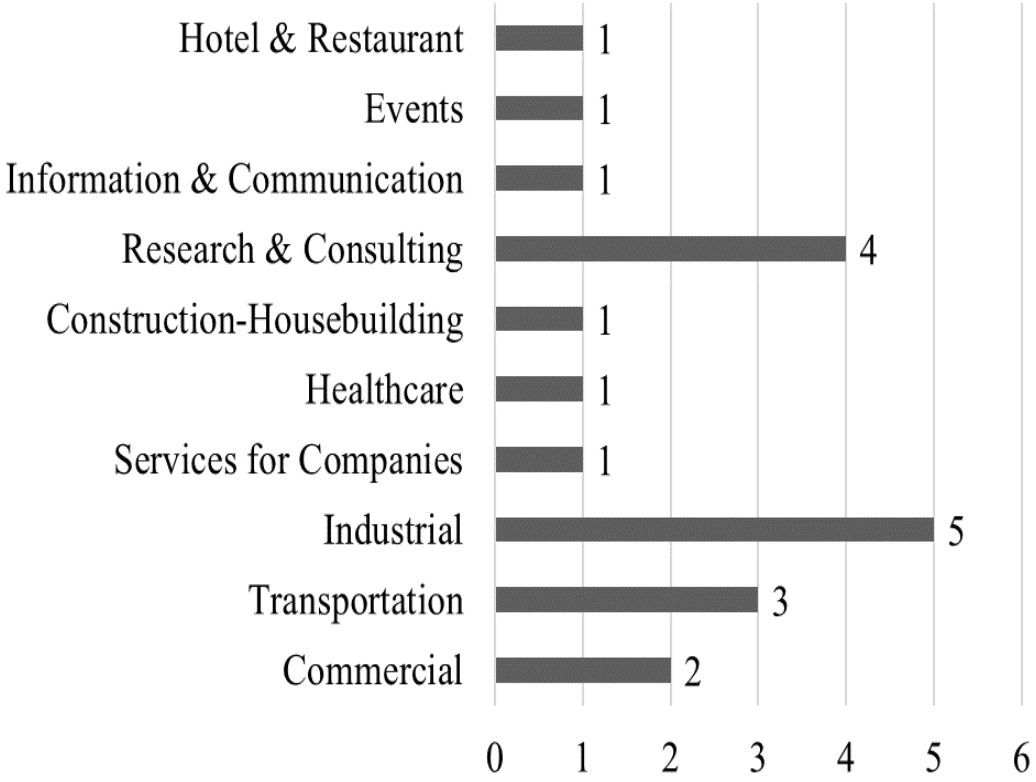

Figure 4.13 Projects Breakdown by Sectors in Spanish Market.
Source: Personal Elaboration from Data by Lendix Website.

The average loan amount is € 372,250 with a median equal to € 280,000 in line with the Italian numbers. Considering a deeper analysis in Spain are funded 9 companies for an amount less than € 250 thousand, 9 companies for an amount between € 250 thousand and € 999 thousand and only 2 companies for more than € 1 million (Figure 4.14).

[145] See the section that explains how the Fund works.

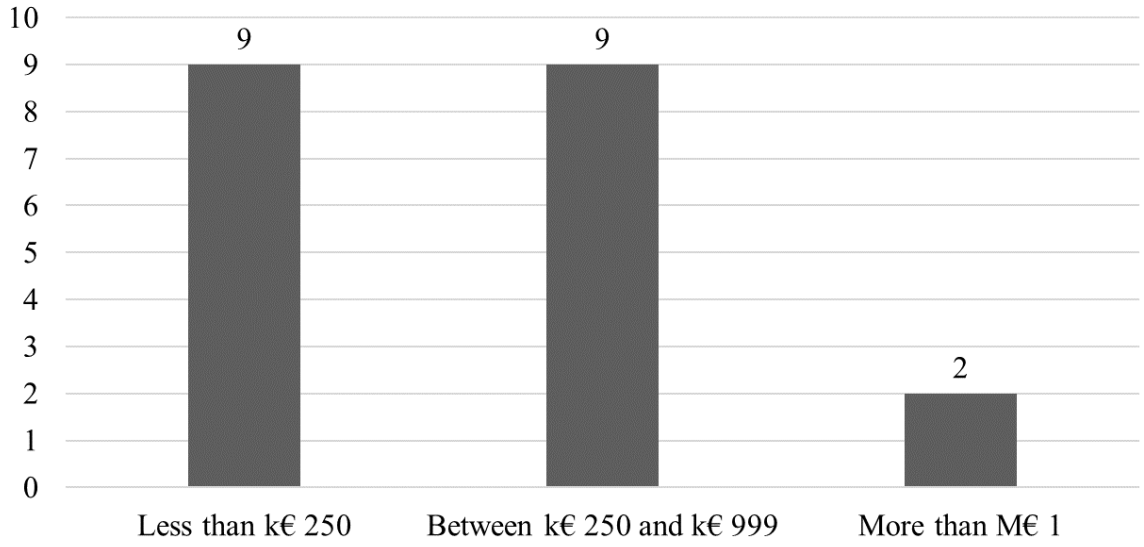

Figure 4.14 Projects Classification by Loan Amount.
Source: Personal Elaboration from Data by Lendix Website.

Different from the Italian projects, for the Spanish projects the are quite similar distribution in term of rating between B and C rating class. Figure 4.15 describe the distribution of the Spanish projects among the 5 different rating classes in Lendix. There are only 1 projects that receive a rating of A ("Imeo") with an interest rate assigned equal to 5.50% with 48 months maturity, and 1 project with rating B+, 5.25% as interest rate with a maturity of 60 months. There are 10 project rated B, and the average interest rate of the rating class is 6.48% and for rating class C is 7.91% (quite lower than the average Italian project rated C with 8.40%).

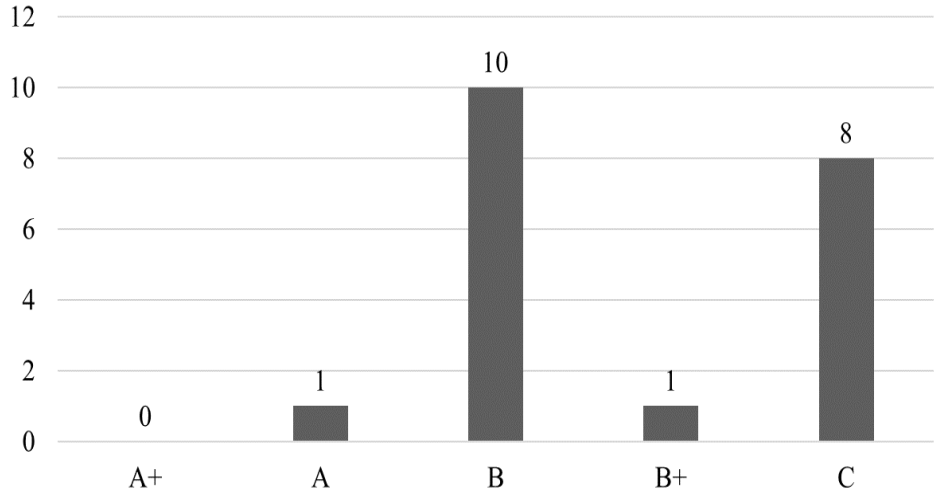

Figure 4.15 Projects Classification by Rating Class.
Source: Personal Elaboration from Data by Lendix Website.

Considering the all set of projects the average interest rate assigned is 6.97% and the median is 7.00%. The average maturity requested by a loan applicant in Spain is 42.6 months and the median is 36 months.

The presence of private investors is quite larger in proportion to the total amount invested in respect with the Italian situation. The private investors participate for the 29% of the total amount (€ 2,158,550) while the remaining portion (€ 5,286,450 that represent the 71% of the total) is provided by the institutional investors through the Fund. On average 938.3 private investors participate to the funding campaign with an average amount invested of € 108.35, larger considering the average investment of an investor in an Italian project. Considering the behaviour of the investors in term of average amount invested in the different rating class, it seems to be a sort of preference among the projects rated C with an average amount invested equal to € 113.70 while for the rating class B the average amount invested is equal to € 103.38[146].

	A	B+	B	C
Number of projects	1	1	10	8
Total Amount Financed	350,000 €	1,000,000 €	3,715,000 €	2,380,000 €
Total Amount Financed by Private Investors	164,500 €	70,000 €	912,850 €	1,011,200 €
Total amount Financed by Institutional Investors	185,500 €	930,000 €	2,802,150 €	1,368,800 €
Average Number of Investors	1318	709	795	1099
Average Amount Financed by Single Private Investors	124.81 €	98.73 €	103.38 €	113.70 €

Table 4.7 Rating Categories Statics for Spanish Projects.
Source: Personal Elaboration with Data by Lendix.

Considering the characteristics of the companies that get fund form Lendix in Spain there is a much larger presence of companies with less than € 2 million as revenues, 7 with respect to the 4 of the Italian market. Only 1 company exceed the amount of € 20 million, “Cide Interactive” with an average turnover of € 52,3 million based on the last 3 accounting years.

[146] Are not considered in the analysis the amount invested in rating B+ or A because they are single project.

The company is active in the production and distributing talking toys, electronic puzzles and other electronic games, it operates with numerous distributors, toy stores and supermarkets, including Wall-Mart, FNAC, Carrefour, Toys R Us and El Corte Ingles. The company request a funding of € 400,000 with a maturity of 18 months and an interest rate of 7.00%. The large portion of the Spanish sample (12 out of 20) is composed by companies that have an average turnover larger than € 2 million but less than € 20 million (detail in Figure 4.16)

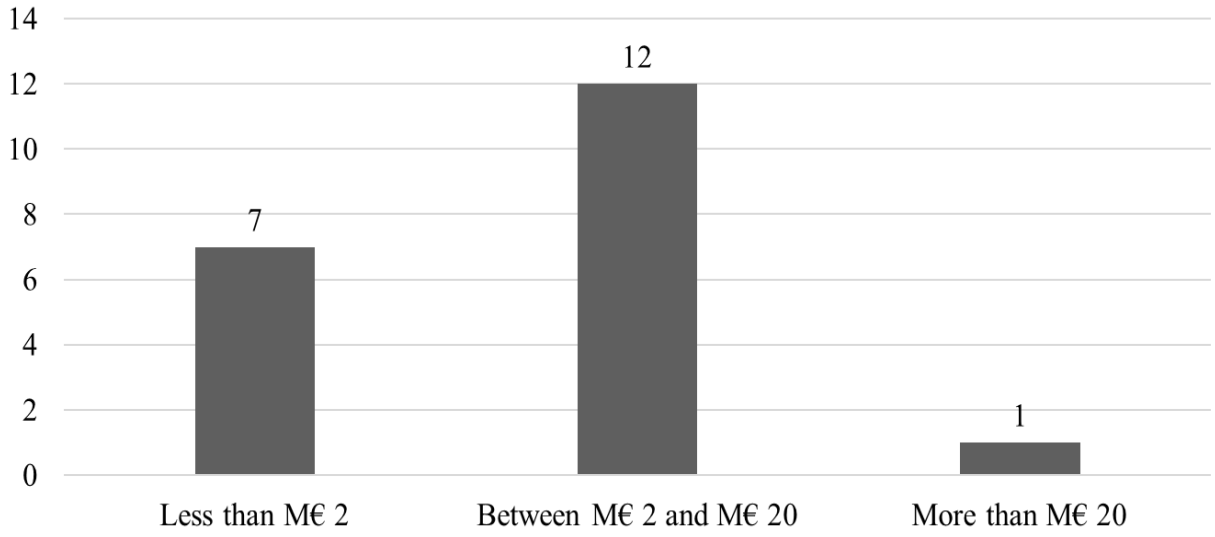

Figure 4.16 Projects Breakdown by Classes of Revenues.
Source: Personal Elaboration with Data by Lendix Website.

In more detail considering the classification in Micro, Small, Medium and Large enterprise, there is a quite equal distribution of the company in Micro (6) Small (6) and Medium (6) and only 2 companies can be considered Large according to the classification that consider revenues and number of employees.

4.4.3 Lendix in Italy

In an interview to P2P Lending Italia, the most important Italian platform dedicated to the argument of P2P Lending, the actual CEO of Lendix Italia Sergio Zocchi explain the reason and motivation that bring the headquarter of Lendix to expand their business in the Italian territory. Italy indeed is a country where historically the national production system is guided by SMEs. Just think that in 2006 the number of SMEs were 4,335,448 on the total amount of

4,338,766 businesses[147], the 99.9% and 95% of that were constituted by less than 10 employees. With this data is easy to understand how Italy is a concrete marketable area for the economy of the alternative finance and is quite an empty market if compared with the UK or other European countries. If we look at the number considering the entire pool of alternative finance volume cumulated, that consider all the solution of crowdfunding, invoice trading and P2P Lending, UK can be considered as a stand-alone economy with his € 4,348 million, in the rest of Europe of notable relevance France with € 319 million, Germany with € 249 million and Netherlands with € 111 million. Italy occupied only the 7° position of this special ranks with € 32 million[148]. So, it easy to understand how great the potentiality of the Italian market for the entire economy of alternative finance is, and in particular for the form of lending crowdfunding solution.

So Lendix together with the other actors of lending crowdfunding for businesses as BorsadelCredito.com and Prestacap.com represent a real opportunity for the Italian businesses and also for a new form of investors searching for new interesting risk-reward profile investments.

Sergio Zocchi stressed out the real difference between the French, Spanish and Italian market, that is represented by the regulatory framework for P2P Lending activity. In France and in Spain exist a specific regulation that define a set of rule and guidelines for the operator active in those countries. In Italy indeed, do not exist a specific regulation that control the activity of lending crowdfunding platforms, and provide rules and constraints, and the different actors develop personal and different organizational structure and operative models.

Since the launch of the first Italian project in date 22 May 2017 the platform was able to finance 24 different projects and bring to the Italian SMEs a total amount of € 9.983 million[149], with € 717,710 reimbursed already to investors of which € 150,958 in interest. Considering that BorsadelCredito.com (the principal actor in P2P Lending for businesses in Italy) that in the entire 2017 reach a total amount of € 15.3 million[150], is easy to understand the incredible success gained by Lendix in the first months of activity. "The decision to expand the business outside the French borders has borne fruit. The challenge was to find investors interested in an alternative credit market in Italy". Challenge won. "Then we also added an element of geographical diversification, giving the possibility to invest in foreign companies, for example

[147] Data from https://www.confcommercio.it/-/le-piccole-e-medie-imprese-in-italia.
[148] Data from the "European Alternative Finance Report-Sustaining Momentum" by the Judge business school of University of Cambridge 2015.
[149] Data directly provided in section 'Statistics' of the platform, updated at 31 January 2018.
[150] Data from the website of BorsadelCredito.com, https://www.borsadelcredito.it/home/statistiche.aspx.

companies outside the boundaries of the investor. Our community continues to expand and to date the investors present on the platform come from around 40 countries in the world who can invest without any difference in transactions on the Italian, Spanish and French markets. And tomorrow also in other European countries", says proudly Sergio Zocchi in an interview on Forbes[151].

The presence of additional actors in P2P Lending in Italy can be seen only as a positive factor for the development of this industry in Italy. The number justify this analysis, looking at the data provided by P2P Lending Italia[152] the turnover of the entire marketplace (business/private lending and invoice trading) of the P2P Lending in Italy in the fourth quarter is 111.5 million€ an incredible +40.4% in respect to the third quarter of the same year and +267% in respect with the same period of the year 2016. Of course, these number are strongly affected by the presence of new important actors as Lendix, Cashme and Fifty, not present in 2016 but this is the result of an evolutionary process of this industry in Italy and show the incredible potentiality of this market (in the same period the UK market count € 1,400 million).

Considering the first 7 months of activity in Italy (till 31 December 2017), Lendix select only 21 companies after the all process of selection (see the section related to the selection process of a company). ST Protect S.p.a. company active in the production and sale of technical and accident prevention clothing, receive 2 different funding (the first of €400,000 and the second of €350,000 after 6 months) from the platform, and this is not rare in the history of Lendix. A lot of companies after approaching for the first time this kind of process, they decide to use it again, because of the limited processing time in which they seen approved (or not) their request and the velocity in receive the money request, not comparable with the typical process of the bank[153].

The companies that receive funding from the platform come from different sectors but the prevalent one is the Industrial sector with 7 projects, followed by Commercial sector with 4 (Figure 4.18 for more detail).

[151] Forbes journal February 2018, the entire interview available, https://it.lendix.com.
[152] In the sample under the analysis of the portal P2P Lending Italia are not present 2 important actors as Prestacap.com and Credimi (invoice trading).
[153] Comparison between screening process of bank and of P2P lending activity (Wang et al. 2015).

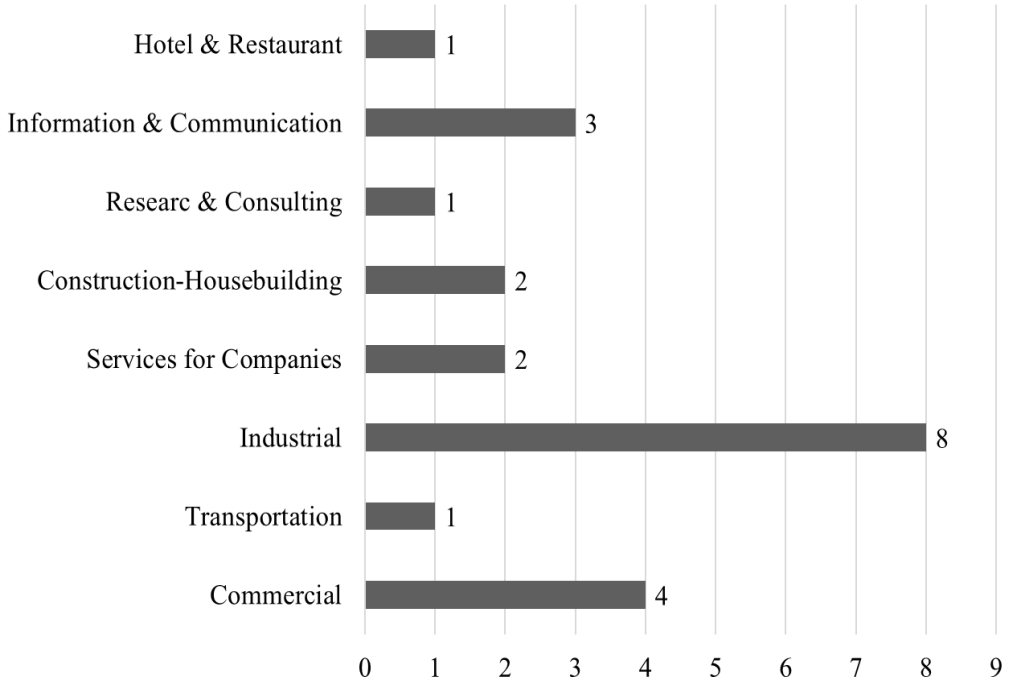

Figure 4.18 Project Breakdown by Sector Source.
Source: Personal Elaboration from Data by Lendix Website.

The total amount funded is € 7.773 million and the average amount requested is € 351,500. The Figure 4.17 shows the distribution of loans considering different revenues classes. In more details, there are 10 projects with less than € 250,000 requested, 10 projects with an amount between € 251,000 and € 999,000 and only 2 projects with more than € 1,000,000 requested.

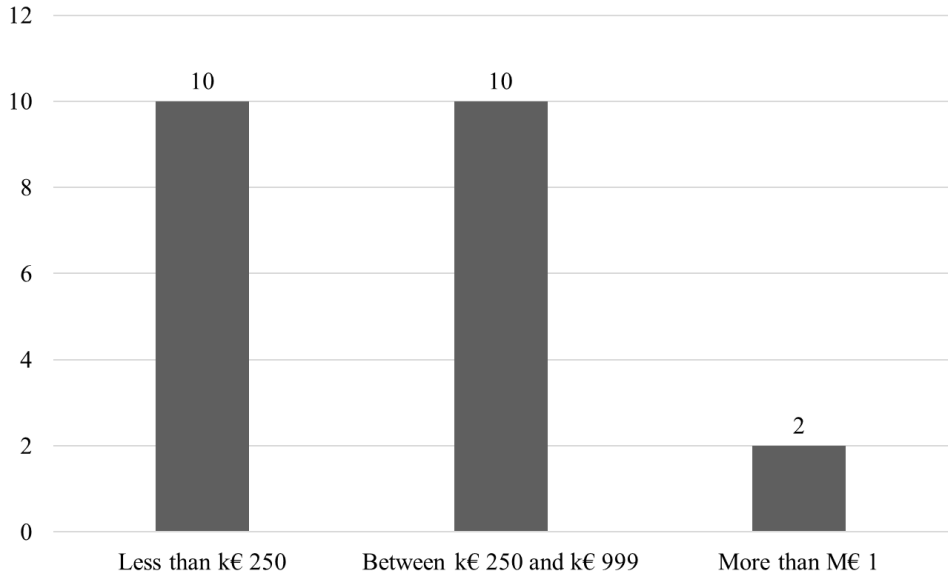

Figure 4.17 Project Breakdown by Loan Amount.
Source: Personal Elaboration from Data by Lendix Website.

The Figure 4.19 shows how the Italian projects are distributed among the different rating classes. The majority of projects receive a rating B or B+ (14 out of 24). The average interest rate of projects with rating class of B is 6.58% and the single project assigned with a rating of B+ has an interest rate equal to 5.00%. Among the projects of rating C, the average interest request is 8.41% (the range goes from 8.00% to 9.50%). There are no projects with rating assigned equal to A or A+ among the companies that request loan in Italy.

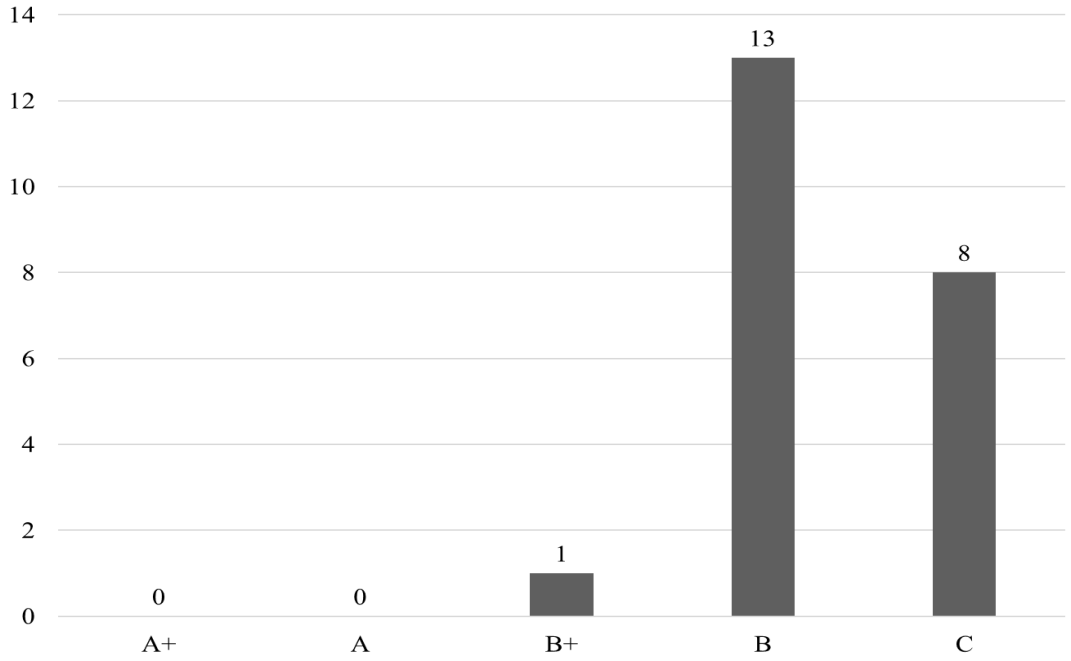

Figure 4.19 Projects classification by Rating Class.
Source: Personal Elaboration from Data by Lendix Website.

Considering the whole set of projects, the average interest rate requested to an Italian company is 7.17%, and the median is 7.00%. Lendix give the possibility to refinance the debt with a maturity that goes from 3 to 84 months. The average maturity requested by the loan applicants is 37.09 months and the median are 36 months. The objectives of the loan could be the "acquisition of new materials and equipment", "renovation of buildings" or in some cases "development of the business".

Is interesting to note the geographical distribution of the companies that request a loan on Lendix and their impact on the total amount distributed to the Italian economy in this first 8 months (detail in Figure 4.20) Only 5 companies are settled in the south of Italy (Napoli, Salerno, Messina, Gela) but they have a great impact on total amount provided as loans (€

2,593,000). The north of Italy with companies coming mainly from Lombardia and Piemonte get a total of € 4,550,000 with 15 different projects, and finally the centre of Italy € 590,000 with only 2 projects from Siena and Firenze.

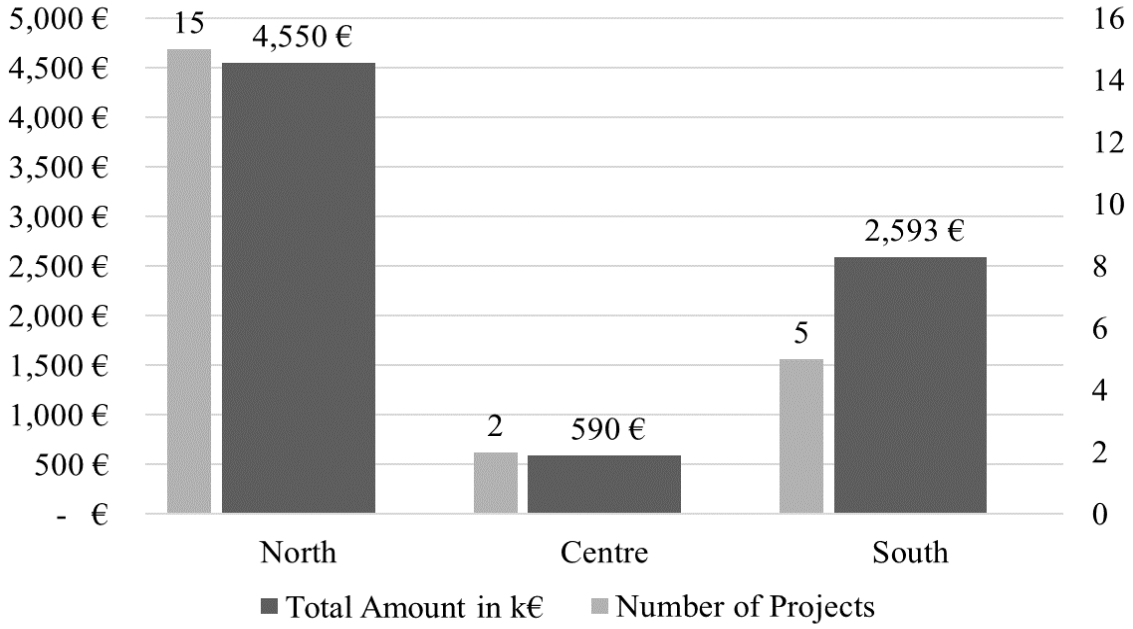

Figure 4.20 Geographical Distribution of Italian Projects.
Source: Personal Elaboration from Data by Lendix Website.

This means that the average amount requested by a company of South of Italy is € 518,000 while the same statistic for a company of the north is € 303,00 and even less for the centre with € 295,000. Considering the distribution between private investors and institutional investors (participant to the investment with the Fund), the presence of the latter portion is predominant with the 74% corresponding to € 5,735,830. The remaining portion (26% with € 1,997,170) represent the total amount invested by the private investors in the Italian projects.

The average funders of an Italian project are 917 (private investors) that provide and average amount of € 95.68 (numbers relatively lower compared with the same statistics for Spanish projects that were 938 average investors with an average amount of € 108). Considering the investment activity towards the specific rating class it's interesting to note that in average term the amount invested by single investor in project rated C is larger (€ 99.16) than the average investment in a rated B project (€ 93.40), as in the case of the Spanish projects. Detail are available in Table 4.8

	A	B+	B	C
Number of projects	1	1	10	8
Total Amount Financed	350,000 €	1,000,000 €	3,715,000 €	2,380,000 €
Total Amount Financed by Private Investors	164,500 €	70,000 €	912,850 €	1,011,200 €
Total amount Financed by Institutional Investors	185,500 €	930,000 €	2,802,150 €	1,368,800 €
Average Number of Investors	1318	709	795	1099
Average Amount Financed by Single Private Investors	124.81 €	98.73 €	103.38 €	113.70 €

Table 4.8 Rating Categories Statics for Italian Projects.
Source: Personal Elaboration with Data by Lendix.

Figure 4.21 shows the distribution of the Italian companies among different class of revenues, and as for the case of the Spanish case the scenario is dominated by companies with an average turnover comprise between € 2 million and € 20 million. The typical profile of the Italian company that get fund from Lendix have some millions of revenues (average value € 12.77 million[154]) with a positive growing rate in the past 3 years, there are only 4 companies that exceed the amount of € 20 million revenues (with one exceptional case of Sicilsaldo with € 118.7 million in the last accounting year and an average of the last 3 years equal to €83 million). These companies have positive and growing EBITDA and a solid and stable financial situation considering that most of them have a gearing ratio lower than 1,5[155], with only one exception Dmedia group that present the balance of the holding company Netweek SpA. The holding is listed in the MTA of Borsa Italiana and pass through very troubled years caused by the business unit Ecommerce of the company (now sold) but that never involved the business unit of Dmedia Group. Additionaly, Vittorio Farina, former president of the Board of Directors of Netweek, was subject to precautionary measures on September 14 for the alleged fraudulent bankruptcy in relation to the bankruptcy proceedings of the company ILTE SpA, a printing company controlled by the same for several years.

[154] Average build one revenues of the last 3 year.
[155] The gearing, calculated as net debt/equity, measures the level of debt exposure of a company in relation to its net assets and provides information on the financial structure of the company and its degree of dependence on external sources of financing

Lendix declares to support the request for funding based on the following considerations:

- Netweek has informed the market that the allegations concern a period before the entry of Mr. Farina in the Netweek group and concerning a company (ILTE) not connected to the group;
- On September 22nd the Board of Directors appointed Mr. Alessio Laurenzano, formerly Chief Executive Officer, as new Chairman of the Board of Directors;
- Vittorio Farina today indirectly holds a minority stake in Netweek SpA (<5%). He is no longer a member of the Board of Directors and has no operational roles in the company.[156]

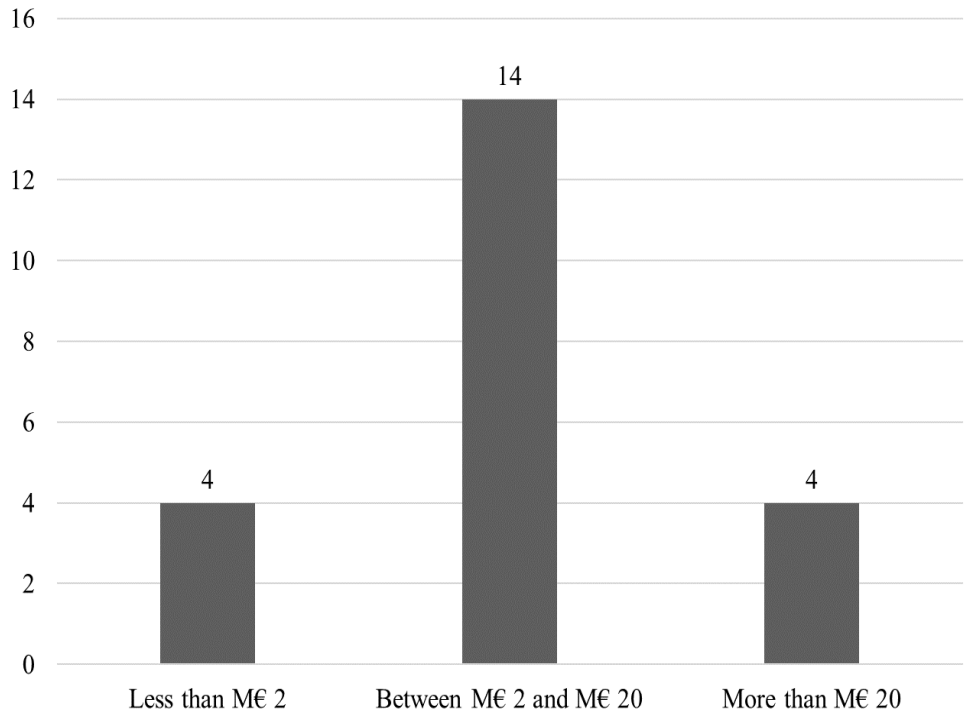

Figure 4.21 Projects Breakdown by Classes of Revenues.
Source: Personal Elaboration from Data by Lendix Website.

[156] Information provided directly in the presentation page of the project

According to the structure used by Lendix to classify the companies in Micro-Small-Medium and Large[157] enterprise in Italy there is a predominance of Small and Medium enterprise, respectively 9 and 8, while there are only 3 Micro and 2 Large enterprise.

[157] See the description in the related section

5 Methodology

This section describes the reasoning path followed during our analysis related to the success determinants of the projects uploaded on Lendix platform, trying to extrapolate the key success factors that drive private investors to prefer one project with respect to another available one. From the Literature, analysis emerges that there were several studies focusing on the measurement of the failure for the different projects potentially addressed to the crowd. The majority of these works analysed the default risk and its determinants associated with the failure of some projects, i.e. all the projects that result as not able to repay the capital received and the interests associated. For instance, Emekter et al. (2014) link the risk of default to four variables, i.e. the indebtedness level of the company asking money, the FICO score, the credit score assigned by the platform and the maturity of the loan, showing and increase in the risk of default the higher the values of debt and maturity and the worse the credit score assigned. Cinca et al. (2015) demonstrate the existence of a strong correlation between the rating score assigned to a specific project and the default probability, i.e. as the credit rating gets worse the probability of default increases. In particular, the authors investigated most relevant variables connected to the default rate, such as the annual income, the housing situation, the credit history and the level of indebtedness. Another study very useful and linked to our methodological framework is the one conducted by Möllenkamp (2017), investigating which are the most relevant factors impacting on the success of loans in P2P platforms. The author developed two different hypotheses, the first one related to the connection between the loan performances and the credit grade, and the second one trying to explain the success of a specific project in relation to some variables, like the loan amount, the annual borrower income, the Debt-to-Income ratio and other variable related to the financial situation of the borrower company. The study showed a negative relationship between the loan amount and the loan performances, a positive relation between success and annual income, the higher Debt-to-Income ratio the lower the performances (in terms of success).

Taking into account these studies and the main results and conclusion developed from this analysis, we formulated three main hypotheses focused on the measurement of the success of the projects on Lendix. Previous studies highlight the existence of some variables able to explain the way through which some projects were more likely to default than other projects with different characteristics; in our research, we focused the attention on the identification of independent variables linked to the capability of a project to be more successful than another

one. Considering that, in many studies, projects characteristics were strictly correlated with the probability of default, and, in particular, those characteristics were used by Dietrich & Werli (2015) in order to explain the differences in terms of interest rates assigned to the different projects on the Swiss platform Cashare, i.e. they drive the pricing choices of the platform, we focus our attention on some loans' specific factors as determinants of success. Particularly, they showed a positive correlation between the amount, the maturity and the possibility of other investment opportunities in the platform, meaning that the interest rate increases the higher the value of the variables mentioned. Therefore, the first hypothesis developed in this work investigate if there are variables specifically related to the project able to explain its success on the platform. These variables were identified in three main project determinants: the loan amount, the interest rate and the maturity of the project.

Hypothesis 1 (H1): *The success of the projects on the platform depends on the loan specific variables, i.e. the loan amount, the interest rate and the maturity of the loan.*

Borrowers' financial situation, for both individual and businesses, result to be significant in the predictability of default or success for P2P online financings. Borrower risk drivers were considered fundamental for the explanation of the pricing choices and of the interest rate assignment in many platforms, also with different business models with respect to Lendix. This preliminary evidence leads us to formulate the following second hypothesis:

Hypothesis 2 (H2): *The success of the projects on the platform depends on the borrower specific variables, i.e. the expected ratio between the Net Debt (NFP) and the Equity, the expected FCCR, the Revenues level and the years of establishment of the firm.*

As it will be explained in the following sections, the variables related to the borrower financial situation were in part actual variables, such as the Revenues level, and in part variable related to the expected future values of the specific company, such as the expected FCCR and the expected NFP/Equity. Among the researches taken into account, the one proposed by Cinca et al. (2015) investigates the role of the purpose and its relationship with success or failure measures. Moreover, this paper shows that the loan purpose is another variable that drives the default risk of the projects, stating that the money asked by small businesses are the riskier. Although literature studies are not mainly focused on the loan purpose as one of the principal determinants in terms of success or failure, we thought that, in our specific case, the purpose of

the projects, particularly the case of Acquisitions could affect the success of the projects on the platform. The main objective of this work is to find and explain the main factors driving the success of a project and, as it will be explained in the following sections, it was generally defined as the capability of a particular project to attract investors preferences. Different success measures will be defined in the section related to the variables. We identified the main purposes for each project, classifying it as Acquisition, Business Development, Employment Recruitment, Equipment Purchase International Expansion and Renovation and Maintenance. Among these, we thought the situation of an Acquisition is quite different with respect to all the other purposes. This topic was deeply discussed and analysed by different researches and academics during the past years and, nowadays, it continues to be one of the most interesting and investigated topics in managerial and financial literature. Among the several perspectives through which M&A transactions were analysed, one of the most discussed issues regards the impact of M&A process on the creation of value for shareholders of both parties involved, i.e. the bidder and the seller. A great contribution to this question was provided by Robert F. Bruner[158] with his paper entitled "Does M&A pay? A Survey for Evidence for the Decision-Maker" (2001), in which he analysed different studies related to M&A processes and transactions with the aim to answer to the question included in the title of the paper. In order to do this, he firstly defined three different measures of success or failure of the Acquisitions or Mergers processes; the value conservation, i.e. an investment with a null Net Present Value (NPV), the value creation representing a situation in which the NPV of the investment is positive and, finally, the value destruction, where the NPV is negative (Bruner, 2001). After that, he highlighted four different approaches from which was possible to consider the different effects and outcomes of M&A processes: the first one regards the examination of abnormal returns[159] for shareholders in the period surrounding the announcement of the deal, and it is called "event studies". The second approach is called accounting studies and it is related to the examination of accounting results before and after the acquisition. The third approach concerns "surveys of executives", asking to professionals if the acquisition created value or not, while the last approach focuses on one or a sample of few transactions, and it is called "clinical

[158] Distinguished Professor of Business Administration and Executive Director, Batten Institute, Darden Graduate School of Business, University of Virginia.

[159] The abnormal return is simply the raw return less a benchmark of what investors required that day. The benchmark is the return dictated by the capital asset pricing model (CAPM) or quite simply the return on a large market index, such as the S&P500. The raw return for one day is simply the change in share price and any dividends paid, divided by the closing share price the day before.

studies". Literature focuses on analysing performances for both acquirers and target firms; for the aim of our work, we focus our attention or acquirers, because the projects asking a financing for an Acquisition correspond to this category and not to one of target companies. Considering returns for buyers, a study conducted that on a sample of 41 researches showed that one third of the companies experienced value destruction, one third experienced value conservation and the remaining third experienced value creation (Bruner, 2004). For what concerns accounting data analysis, Geoffrey Meeks (1977) analysed a sample of 233 transactions for UK market between 1964 and 1971, founding the existence of a decline in the ROA for the acquirers following the transactions and, for two thirds of them, the performance was lower than the industry standard. He concluded that the mergers in his sample suffered a mild decline in profitability (Meeks, 1997). Another important finding was discussed by Dennis Mueller (1980), examining a sample of transactions across seven different nations[160] and investigating the changing in size, in the financial leverage level and profitability. He discovered that acquirers were larger than comparable companies that did not experience an Acquisition process, that the level of financial leverage was higher in the case of acquirers and that profitability of acquirers worse in the first year following the acquisition, but the difference was not so significant. He concluded stating that "from looking at this literature, is that the firms themselves are performing no better on average than they would have been in the absence of the mergers, and the stockholders who hold shares in those firms are doing no better than if they had shares in a firm that was not." (Mueller, 1979-1980). For the stream of studies analysing profitability drivers, Berger and Ofek (1995) found an average loss in value from diversification of between 13% and 15%; moreover, the degree of relatedness between the businesses of the buyer and seller is positively associated with returns. In particular conglomerates deals are associated with lower returns and worse performances with respect to related mergers (Berger & Ofek, 1995). Rau and Vermaelen (1998) found that the post-acquisition underperformance by buyers was associated with acquirers with high book-to-market value ratios (glamour), while value-oriented buyers (low book-to-market ratios) outperform glamour buyers. They discover that value acquirers earn significant abnormal returns of 8% in mergers, and 16% in tender offers, while glamour acquirers earn significant -17% in mergers and insignificant +4% in tender offers (Rau & Vermaelen, 1998). Efforts to enhance market position through M&A yield no better performance, and sometimes worse

[160] Belgium, Germany, France, Netherlands, Sweden, UK and US.

(Mueller (1985); Ravenscraft & Scherer (1987); Eckbo, 1992). Stillman (1983) and Eckbo (1983) found that the share price movements of competitive rivals of the buyer do not conform to increases in market power by buyers. It suggests that the sources of gains from M&A do not derive from anticompetitive combination of firms (Bruner, 2004). Negative returns to shareholders for acquisitions are more prevalent than the prevailing folklore on the subject admits. Most studies confirm that, in general, target firm shareholders are winners. The evidence presented here indicates that, on average, acquiring firm shareholders are not as fortunate. At best, these shareholders are no worse off, but often they lose during acquisitions (Weidenbaum & Vogt, 1987). Moreover, Datta, Pinches and Narayanan (1992) considered 41 studies related to M&A transactions, concluding that, on average, bidders earn a return of less than one-half of one percent; they wrote "The synthesis of ex ante event studies presented in this paper provides robust evidence that, on average, shareholders of bidding or acquiring firms do not realize significant returns from mergers and acquisitions" (Datta, Pinches & Narayanan, 1992). Di Sabatino (2015) proposed a model analysing the differences in terms of operative performances[161] for a sample of 108, experiencing M&A transactions from the 1st of January 2007 to the 31st of December 2011. He performed two different analysis aimed at understanding if performances post-M&A transaction were significantly different from performances recorded before the transaction. The first non-parametric analysis showed a worsening of performances, particularly for the second and the third years after the transactions. Results were confirmed also correcting the benchmark adopting the average value of the industry, while median values lead to an improvement of performances for the second and the third year, although results concerning performance of the first year were aligned with the ones obtained with the average values. The second analysis was a multivariate regression, confirm the negative effect determined by M&A transactions of performances of the first year after the transaction, with respect to performances of the last year before it (Di Sabatino, 2015).

The reasons why we thought this was related to the effects that typically and Acquisition generates some possible advantages or disadvantages. The formers can be translated as an increase in the market power and in the diversification level, cost synergies, possibility to learn and develop new competences, the reshape of firm's competitive positioning and the overcoming of entry barriers. For what concerns latters, it is possible to note down the

[161] The performances considered were the ratios between EBITDA and Total Assets, FCFF and Total Assets, EBITDA on Sales. In a subsequent analysis, the author corrects the numerator of each of the three ratios dedcutin ghte value of the Net Working Capital variation.

difficulties in integration and the inability to exploit costs and commercial synergies, the limits of the evaluation methods that can lead to the inadequate value of the target, cultural barriers that can be hardly surmountable. We were not interested in the results of the Acquisition process, but we focus our attention on the fact that an Acquisition lead to a situation in which there is an integration between two business models, i.e. integration of processes, activities, commercial networks and organizational cultures that completely changes the legal and the organizational structure of the parties involved. The issue we took into account was that the entity asking money for an Acquisition, after that, is not more the same entity, and it comprises a pool of potential risks or benefits completely different from all the other projects (the ones with a purpose different from Acquisition), and for this reason we wanted to take into consideration these differences. As support element to our reasoning, let's take the example of a business evaluation process based on comparable transactions: usually, from a sample of potential comparable companies, all the companies that experienced an Acquisition or a Merger process cannot be taken into account; the main reason is that those processes dramatically change the business model of the entity that undergoes in this direction, and it is possible to say that a company starting and completing it, after the process is not the same company, and its characteristics change significantly form the initial situation in which the Acquisition was not already conducted. In addition, the majority of the Acquisitions in Lendix were described as Leverage Buy-Outs (LBO), that basically represent an Acquisition were the portion of Debt capital is quite high; this add another element of complexity and of heterogeneity that we consider as interesting for our analysis. According to what discussed above, we believed that an acquisition purpose impacts negatively with the success variables under analysis. After those considerations, we proposed the following third hypothesis.

Hypothesis 3 (H3): *The success of the projects on the platform depends on the purpose of the project, in particular the Acquisition impacts negatively on the success of a project.*

These three hypotheses were tested separately, considering just the test variables related the specific hypothesis under analysis. Knowing that the impact of the test variables on the success measures could be strongly affected by the omission of some relevant variables, we developed a final regression test, aiming at analysing the conjoint effect of the different variables on the success of the projects. This test is the one on which we based the majority of reasoning in order to develop the conclusions of our work. The analysis was composed by two different regression

tests; the first was proposed as the final regression analysis and the second one was included in the section related to the robustness analysis regarding the results obtained.

5.1 Variables

In order to assess the capability of all the projects to be successful taken into account in the sample used, we performed a multi-variate linear regression model. This model helps us in defining the impact of our variable set on the success of the different loans, defined through four main different measures, considering both the positive/negative relation and the magnitude of the effect. The result of the regression model will be in a form of:

$$Y = \beta_0 + \sum_i^n \beta_i X_i + \varepsilon_i \qquad \text{Eq. 5.1}$$

Where X_i represent the variables under analysis, β_i are the coefficients for each variable that give us the information about the relation between the independent variable i and the dependent one.

Defining the success of a project in a context like the environment that Lendix was able to build up through its platform was different with respect to the main successful measures proposed in other studies. The main reason why is related to the differences in the business model of Lendix compared to other platforms; in particular, the majority of the platforms analysed in the past researches were based on an action process for what concerns the financing method, while Lendix has a particular mixed-investors model, as described in the 3rd chapter. This lead all the projects to be "successful" in terms of their capability to collect all the amount requested; fundamental is, in this case, the presence of Lendix Fund, as mentioned in 3rd chapter. Moreover, we had few data about defaulted projects and, considering that Lendix is quite young as a company, and this lead to a situation in which was not possible to measure the failure rate of the projects on Lendix with statistical significance. The success can be preliminarily defined as the attractiveness of the projects by lenders perspective. The four main dependent variables adopted in order to measure the success level of the projects are the following:

- The Time on Platform measured in hours (*TOPh*): this is one of the most immediate and direct success variable. It measures the velocity at which a project is financed. This piece data was available on the platform, and we transform all these times in a common scale (hours). The maximum value this variable may have is the publication time defined

by Lendix and the management team of the company asking the loan, and it is obviously different among the projects.

- The Amount Financed by Private Investors divided by the Time on Platform: this variable measures the ration between the stake of the loan financed by the crowd and time the platform was available on the platform. It measures the capability of project to collect money per unit of time. In order to normalize the results coming from the observations, we transform the amount variable using the natural logarithm. In formulas:

$$ln\left(\frac{Amount\ Private}{TOPh}\right) \qquad \text{Eq. 5.2}$$

- Amount financed by Private Investors divided by the Expected Amount available for Private: this variable is defined as the ratio between what private investors financed weighted on the amount that, theoretically, Lendix leaved to them after having published the project (i.e. the 49% of the amount asked). This means that, the denominator of the variable will be always the 49% of the total amount of the loan asked by the company, while for the numerator we have two cases. On one hand, if the project is totally financed within the publication time, this means the crowd financed the 49% of the total loan's amount, and the variable is equal to 1. On the other hand, the portion of total amount financed by the crowd is lower than the 49%, because the crowd as not able to cover the 49% of the total amount within the publication time period; the fund intervenes at the end of this time window, to cover the portion unfunded. This means that the value of the variable in this case is lower than 1. In order to summarize, the higher the value of the variable the higher the success of the project, while the lower the value of the ratio the higher the failure of the project. In formulas:

$$\frac{Amount\ Private}{Amount\ Private\ Exp.} \qquad \text{Eq. 5.3}$$

- The Amount Financed by Private Investors divided by the Time on Platform divided by the Expected Amount available for Private (*Y*): this variable is the ratio between the second variable described and the numerator of the third variable. This is the ration between the amount of money a project was able to collect per unit of time, in relation with the value that Lendix proposed for the crowd. It represents the relative measure of the total amount (expected, not actual) available for the crowd the project is able to

collect in one hour. The higher the value, the higher the success of the project; it is important to underline that this variable can be larger than 1 for all the projects that last less than one hour on the platform.

$$Y = \frac{ln\left(\frac{Amount\ Private}{TOPh}\right)}{ln(Amount\ Private\ Exp.)} \quad \text{Eq. 5.4}$$

Having described the dependent variable, let's focus our attention on the independent ones. These represent the set of variables we decide to focus the attention affecting the project success as defined. The list of independent variables is the following:

- Loan Amount: this is the whole amount asked by the company. In order to normalize the observations, the variable is transformed using the natural logarithm. In formulas:

$$ln(A) \quad \text{Eq. 5.5}$$

- Interest Rate (*IR*): it represents the interest rate Lendix defines for each loan. It is a measure of the return for lenders investing in the specific project and it is also linked with the riskiness of the project, i.e. the higher the interest rate the higher the risk of the project. For further information, see section related to Key Activities, 3rd chapter.
- Maturity (*M*): measured in months, it represents the time window, the company asking money has to repay the capital received and the interests on it. It is linked to the degree of liquidity of the financing, from the investors' point of view.
- Expected FCCR: the expected Fixed Costs Coverage Ratio is defined by Lendix as follow:

$$FCCR = \frac{Gross\ Operating\ Margin - Taxes - Self\ Fin.Investments}{Fin.Expenses + Instalment} \quad \text{Eq. 5.6}$$

  FCCR greater than 1.0 means that the company has a good capability of repayment, for example an FCCR equal to 1.5 means that the company has a 50% more as security margin on their debt repayment. The value taken into consideration by us was the expected one, coming from the Analysist opinion related to the following year the company received the financing.

- Expected Net Debt-to-Equity ratio: it is the ratio between the Net Debt of the company (called also Net Financial Position, NFP) and the book value of Shareholders Equity. The numerator is the financial debt of the firm net of the liquidity available. In the

calculation, the financing received by Lendix is already included. The Shareholders' Equity is the amount of Capital, Reserves and Retained Profits. The ratio indicates the debt exposure of the company weighted on its Equity. Is a proxy of the indebtedness of the firm, the higher the value the higher the level of debt in the capital structure. In formulas:

$$Expected\ \left(\frac{NFP}{Equity}\right) \qquad \text{Eq. 5.7}$$

- Revenues Level: this variable is calculated on the average value of Revenues of the last years. In some cases, it is calculated on three years, in other cases on two or one year. After having calculated the average Revenues of the firm, the variable is transformed with natural logarithm. It represents the amount of money the company collected in the fiscal year from the sale of products or services or, more general, from its business operations and it is also a proxy of the size of the company. In formulas:

$$ln(RevenuesAvg) \qquad \text{Eq. 5.8}$$

- Years of establishment: this represents the number of years the company was active, i.e. from its foundation to 2017. It is, basically, the age of the company. In this case, again, the variable is transformed with logarithm. In formulas:

$$ln(Years) \qquad \text{Eq. 5.9}$$

- Acquisition: this is a dummy variable that takes into account if the purpose of the loan is an Acquisition or not. The reason why we decided to consider the fact that the company is asking money for financing an acquisition has been explained in the paragraph 4.1. related to the Methodology.
- Simultaneously (*Simultaneously*): this is a variable that measures for each project if there were other projects available on the platform in the moment in which the project was uploaded. It counts the number of projects available to be financed in the same moment. In order to assess the values of this variable, we extracted the exact time the project was uploaded (e.g. 11.00 am), the time the project stayed on the platform and we consider if, in this time frame, there were other projects available to be financed.
- Sectors: this is a dummy variable taking into account the industry in which the company is engaged. The different 15 sectors are: *Commercial*, *Construction-Housebuilding*, *Education*, *Events*, *Free Time*, *Finance*, *Healthcare*, *Hotel & Restaurant*, *Industrial*,

Information & Communication, *Real Estate*, *Research & Consulting*, *Services for Companies*, *Services for Private*, *Transportation*.

Initially, the variables considered were more than the ones proposed above, but there was necessary a correlation analysis through a correlation matrix. A correlation matrix is a matrix reporting the variables under analysis on the two axes and, for each position, calculates the correlation between the two crossing variables. On the diagonal, all values are equal to one, because the variable in that cases in compared with itself. Figure 5.1 shows the Correlation Matrix, obtained with the statistical software Stata. A correlation larger than 0.50 between two variables (in absolute terms) is commonly considered by the scholar as a signal of high correlation that could distort the result of a regression analysis and for this reason in important to avoid the presence of this couple in the same regression test. As it is possible to see, there are couples of variables presenting value of correlation too high (larger than 0.50) in order to be used together in the same test of regression. In particular, *ln(TotAss)* and *ln(Equity)* were excluded from the second sample of variables used in the second test, because they are too correlated with the Revenues level, with value higher than 0.5 in absolute terms. Moreover, *ln(TotAss)* is also too correlated with *ln(Years)*, another variable included in the sample for the second regression. Another variable significantly correlated with two other ones is the *Acquisition*, that cannot be used together with *ln(Years)* and maturity *M*. Moreover, also *ln(A)* results as highly correlated with *ln(ReveneusAvg)*. These relationships between the variables led us to develop the last regression test with two different sub-samples in which variables showing high correlation were not included together.

	Simultaneously	IR	M	Exp. FCCR	Exp. NFP/E	Acquisition	ln(A)	ln(RevenuesAvg)	ln(Years)	ln(TotAss)	ln(Equity)	Commercial	Transportation	Finance	Industrial	Services for Companies	Services for Private	Healthcare	Construction-Housebuilding	Real Estate	Research & Consulting	Information & Communication	Events	Education	Free Time	Hotel & Restaurant
Simultaneously	1.000																									
IR	-0.071	1.000																								
M	-0.043	0.329	1.000																							
Exp. FCCR	-0.016	0.404	0.245	1.000																						
Exp. NFP/E	0.014	-0.325	0.033	-0.057	1.000																					
Acquisition	-0.072	0.201	0.579	0.199	0.098	1.000																				
ln(A)	-0.034	-0.231	0.146	0.005	-0.018	0.090	1.000																			
ln(RevenuesAvg)	-0.004	-0.313	-0.276	-0.066	-0.014	-0.314	0.679	1.000																		
ln(Years)	-0.037	-0.239	-0.413	-0.144	-0.043	-0.559	0.093	0.405	1.000																	
ln(TotAss)	-0.039	-0.297	-0.295	-0.122	-0.599	-0.293	0.686	0.937	0.405	1.000																
ln(Equity)	-0.050	-0.302	-0.236	-0.216	-0.078	-0.243	0.685	0.851	0.369	0.940	1.000															
Commercial	0.012	0.068	0.099	-0.054	0.056	0.075	-0.093	-0.082	-0.005	-0.120	-0.093	1.000														
Transportation	0.008	0.008	-0.015	0.090	-0.011	-0.077	-0.023	-0.014	0.123	-0.011	-0.034	-0.073	1.000													
Finance	-0.108	-0.017	0.171	-0.030	0.020	0.292	-0.007	-0.125	-0.172	-0.129	-0.080	-0.126	-0.040	1.000												
Industrial	0.011	-0.120	-0.122	0.086	-0.124	-0.063	0.023	0.095	0.088	0.099	0.097	-0.191	-0.061	-0.105	1.000											
Services for Companies	0.083	-0.038	-0.106	0.050	-0.096	-0.133	-0.012	0.046	0.075	0.033	0.020	-0.126	-0.040	-0.069	-0.105	1.000										
Services for Private	-0.040	-0.098	-0.144	-0.087	-0.011	-0.083	-0.064	0.026	0.182	0.049	0.014	-0.080	-0.025	-0.044	-0.066	-0.044	1.000									
Healthcare	-0.019	0.079	0.101	0.077	0.006	0.092	-0.006	-0.033	-0.008	-0.061	-0.062	-0.060	-0.019	0.033	-0.050	-0.033	-0.021	1.000								
Construction-Housebuilding	-0.007	-0.104	-0.057	0.023	-0.003	-0.118	0.040	0.133	0.074	0.087	0.064	-0.145	-0.046	-0.080	-0.121	-0.080	-0.050	-0.038	1.000							
Real Estate	-0.060	-0.110	-0.184	-0.161	-0.106	-0.105	0.297	0.358	0.036	0.453	0.431	-0.100	-0.032	-0.055	-0.084	-0.055	-0.035	-0.026	-0.063	1.000						
Research & Consulting	0.000	-0.072	-0.073	-0.117	0.030	0.015	-0.075	-0.204	-0.082	-0.175	-0.125	-0.179	-0.057	-0.098	-0.150	-0.098	-0.062	-0.046	-0.113	-0.078	1.000					
Information & Communication	0.088	-0.100	-0.059	0.014	0.197	-0.156	0.045	0.132	0.140	0.100	0.045	-0.149	-0.048	-0.082	-0.124	-0.082	-0.051	-0.039	-0.094	-0.065	-0.116	1.000				
Events	-0.027	0.034	0.079	0.110	-0.060	0.138	0.076	0.017	-0.089	0.048	0.010	-0.067	-0.021	-0.037	-0.056	-0.037	-0.023	-0.017	-0.042	-0.029	-0.052	-0.043	1.000			
Education	-0.019	-0.008	-0.005	0.042	-0.003	0.015	-0.054	-0.037	0.069	-0.049	-0.055	-0.060	-0.019	-0.033	-0.050	-0.033	-0.021	-0.016	-0.038	-0.026	-0.046	-0.039	-0.017	1.000		
Free Time	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hotel & Restaurant	0.003	0.158	0.266	0.057	0.023	0.125	-0.047	-0.179	-0.282	-0.156	-0.136	-0.169	-0.054	-0.093	-0.141	-0.093	-0.059	-0.044	-0.107	-0.074	-0.132	-0.109	-0.049	-0.044	-	1.000

Figure 5.1 Correlation Matrix
Source: Elaboration by Stata Software

In order to perform a preliminary analysis of our success measures with the aim to see if there were differences in terms of averages of these variables in relation the rating category associated to the project, we developed a t-test. A t-test is a statistical hypothesis test aiming at understanding if exist differences between the average values of two sample of observations or if the averages are equal. Considering the average of the first sample as μ_1 and the average of the second sample as μ_2, the hypotheses to be tested are the following ones:

$$H_0: \mu_1 = \mu_2 \quad \text{Eq. 5.10}$$

$$H_1: \mu_1 \neq \mu_2 \quad \text{Eq. 5.11}$$

The choice to accept or to refuse the null hypothesis H_0 is driven by the probability that the value of the statistical test belongs to the critical region or to the acceptance one. Fixing a confidence interval equal to 95%, the discriminant value is represented by α, equal to the 5%. In formulas, if the following relation holds:

$$P(T \leq t) \leq \alpha \quad \text{Eq. 5.12}$$

The null hypothesis is refused in the case of a one-tail t-test, otherwise for value of probabilities higher than α the null hypothesis is accepted. In the case of a two-tails test, the discriminant value is $\alpha/2$. We run the test through Excel for the four success variables described in the previous pages and three rating categories: A, B, C[162]. The presence of three samples led us to perform the analysis comparing firstly A vs. B samples and, secondly, B vs. C samples. As it is possible to see in the following tables, for all the four variables of success defined, the comparison between A and B rating samples led us to conclude that the null hypothesis H_0 must be refused, for both cases of one-tail of two-tails test.

[162] A+ projects were included in A category, as B+ were included in B category.

AmPvt/Exp. AmPvt	A	B
Average	0.44898	0.67439
Variance	0.12961	0.11055
Observations	31	177
Expected averages difference	0	
Freedom degrees	39	
Stat t	-3.25164	
P(T<=t) one tail	0.00118	
Critical t	1.68488	
P(T<=t) two tails	0.00237	
Critical t	2.02269	

Table 5.1 Results t-test, First Variable, A vs. B.
Source: Elaboration by Excel Software

ln(AmPvt/h)	A	B
Average	6.54040	7.99793
Variance	1.45933	4.00136
Observations	31	177
Expected averages difference	0	
Freedom degrees	63	
Stat t	-5.52149	
P(T<=t) one tail	3.393E-07	
Critical t	1.66940	
P(T<=t) two tails	0.00000	
Critical t	1.99834	

Table 5.2 Results t-test, Second Variable, A vs. B.
Source: Elaboration by Excel Software

Y	A	B
Average	0.53738	0.69750
Variance	0.01202	0.05044
Observations	31	177
Expected averages difference	0	
Freedom degrees	83	
Stat t	-6.17418	
P(T<=t) one tail	1.172E-08	
Critical t	1.66342	
P(T<=t) two tails	2.343E-08	
Critical t	1.98896	

Table 5.3 Results t-test, Third Variable, A vs. B.
Source: Elaboration by Excel Software

TOPh	A	B
Average	143.22581	100.55652
Variance	10546.78065	15164.94909
Observations	31	177
Expected averages difference	0	
Freedom degrees	47	
Stat t	2.06759	
P(T<=t) one tail	0.02210	
Critical t	1.67793	
P(T<=t) two tails	0.04421	
Critical t	2.01174	

Table 5.4 Results t-test, Fourth Variable, A vs. B.
Source: Elaboration by Excel Software

The results of the comparison between B and C rating samples show that also in this case the H_0 must be refused for all the four success variables. In order to summarize the results coming from these tests, it is possible to say that the average values of the variables representing the success measures are different among the different rating categories. It is the aim of our work, to investigates which are the potential factors describing and driving these differences and, how they impact on the success measures proposed by us in the model developed.

AmPvt/Exp. AmPvt	B	C
Average	0.67439	0.91095
Variance	0.11055	0.04533
Observations	177	77
Expected averages difference	0	
Freedom degrees	217	
Stat t	-6.79124	
P(T<=t) one tail	5.254E-11	
Critical t	1.65191	
P(T<=t) two tails	1.051E-10	
Critical t	1.97096	

Table 5.5 Results t-test, First Variable, B vs. C.
Source: Elaboration by Excel Software

ln(AmPvt/h)	B	C
Average	7.99793	9.60367
Variance	4.00136	3.53913
Observations	177	77
Expected averages difference	0	
Freedom degrees	153	
Stat t	-6.13213	
P(T<=t) one tail	3.536E-09	
Critical t	1.65487	
P(T<=t) two tails	7.072E-09	
Critical t	1.97559	

Table 5.6 Results t-test, Second Variable, B vs. C.
Source: Elaboration by Excel Software

Y	B	C
Average	0.69750	0.87661
Variance	0.05044	0.04586
Observations	177	77
Expected averages difference	0	
Freedom degrees	151	
Stat t	-6.03622	
P(T<=t) one tail	5.857E-09	
Critical t	1.65501	
P(T<=t) two tails	1.171E-08	
Critical t	1.97580	

Table 5.7 Results t-test, Third Variables, B vs. C.
Source: Elaboration by Excel Software

TOPh	B	C
Average	100.55652	31.31745
Variance	15164.94909	4520.40816
Observations	177	77
Expected averages difference	0	
Freedom degrees	239	
Stat t	5.76224	
P(T<=t) one tail	1.273E-08	
Critical t	1.65125	
P(T<=t) two tails	2.546E-08	
Critical t	1.96994	

Table 5.8 Results t-test, Fourth Variable, B vs. C.
Source: Elaboration by Excel Software

5.2 Dataset

This section provides information about the set of data taken by Lendix website and used in the regression model developed in this work and explained in the following sections. From the total number of project financed (359) from February 2015 to December 2017, we excluded the 25 leasing solutions, for a total amount of 334 projects. For each project we recorded the following information, available on the Lendix website: the online date, i.e. the date on which the specific project was uploaded on the platform, the period of time the project remained available on the platform measured in days, the country, the sector, the name of the company asking the financing, the main projects characteristics, such as the amount, interest rate maturity, the rating for the three categories measured in order to assess the final one, the final rating and some information on financials. Financials information recorded were the Revenues level (of the last three years if it was available, otherwise for two years or for the last one), the values of Total Assets and Shareholders Equity, the ratio between the Net Debt and Equity and the FCCR, that was a measure provided by Lendix. For the last three ratios, we recorded also the expected value for the following year, from the section dedicated to the analyst opinion. Not always financials were available for the specific project, in particular for the first 33 projects financed by Lendix, for which financial information were not available. The size of the sample decreases to 301 projects; taking into account the percentage of the total amount financed by private investors and the one financed by institutional ones for each project, the 15 projects totally financed by institutional investors (i.e. the percentage was 100%) were deleted from the sample.

Considering that one project[163] was not addressed for private investors but it was available just for institutional ones, the final size of the sample used was equal to 285 projects, all financed partially by private and partially by institutional investors; for 152 of them, the portion of institutional investors was the 51% of the total amount asked, while for the remaining 133 this percentage was higher.

[163] Les Planards, ww.lendix.com

6 Results

This section reports the main results obtained by different regression testing the hypotheses developed and previously explained. In order to test our hypotheses, we firstly conducted separately all the tests with the related variables, and then we mixed some variables in order to the analyse the conjoint impact of variables belonging to different tests' samples. The first test is related the H1, stating that the success of the projects depends on projects specific factors. This test was conducted on a sample with a size of 285 projects. In particular, we analysed three different test variables: the *ln(A)*, the *IR* and the *M*. Those three variables were included in a sample containing other 16 control variables, i.e. the 15 sectors and the variable called *Simultaneously*. All the four variables related to measuring the success of the projects were tested the relation to the sample of variable described. All the variables were initially tested with a confidence interval of 95%; sometimes, it is possible that this value changes according to results, showing that a relationship between dependent and independent variable is true for a lower confidence level. For what concerns the test variable analysed, let's analyse the main results coming from the literature in order to describe our expectations. Several studies showed a positive relationship between the size of the loan amount and the probability of funding (Freedman & Jin 2008; Pope & Sydnor, 2008; Barasinska & Schäfer, 2010), while other studies demonstrate that the lower the amount requested the higher the success rate of the projects (Puro et al., 2010; Wang & Greiner 2011). For these reasons, testing the loan amount in this case could be interesting also considering these divergences in literature. As showed by a huge number of papers and researches, there is a strong evidence related to interest rates, that typically are positively related to the success of online projects (Feng et. al.; Freedman & Jin 2008; Pope & Sydnor, 2008; Barasinska & Schäfer, 2010). This led us to expect a positive impact on the success measures. Focusing on the maturity, usually lenders prefer shorter maturities because of the effect of liquidity preference issue (Feng et al.; Puro et al., 2010; Freedman & Jin 2008; Pope & Sydnor, 2008; Barasinska & Schäfer, 2010), so we expected that the higher the maturity the lower the success of the project. Table 6.1 shows the results of the four dependent variables, reporting the value and the sing of the coefficients, the p-value and the confidence level just for the test variables; the Figure 6.1, Figure 6.2, Figure 6.3 and Figure 6.4 show the complete results of the regression of the four measures under analysis. Results showed are consistent among all the four variables. As it is possible to see by Table 6.1, interest rates and maturities respected our expectations, meaning that the higher the interest rate the

higher the values of the first three dependent variables, while for the TOPh, the higher the interest rate the lower the value. This suggests a strong propensity to invest in projects with high expected return. Preferences are also addressed to those projects with low maturities, highlighting a liquidity preference as expected. It is important to say that, for the TOPh that was used by us as robustness analysis with respect to the other variables, the maturity is significant for confidence level lower than the 90%, but not significant for the confidence levels adopted in this work. However, the sign of the coefficients in all four cases shows how the relationship between the success of the projects and the maturity is negative correlated, i.e. the higher the maturity the lower the success of the projects. According to our results, the amount has a negative impact on the success of the projects, suggesting that investors seems to be more attracted by small loans.

Dependent Variable	Test Variables	Coefficient	P value	Confidence level
Amount Private/Amount Private Exp.	IR	5.435551	0.000	***
	M	-0.0026938	0.001	***
	ln(A)	-0.2081291	0.000	***
ln(Amount Private/ TOPh)	IR	32.16661	0.000	***
	M	-0.032555	0.000	***
	ln(A)	-0.8311133	0.000	***
Y	IR	2.537389	0.002	***
	M	-0.0029817	0.000	***
	ln(A)	-0.1370808	0.000	***
TOPh	IR	-1098.463	0.033	**
	M	0.6307958	0.107	
	ln(A)	46.61872	0.000	***

Table 6.1 Results of the Four Regression Considering Only Test Variables, H1
Source: Elaboration by Stata Software
Note that * p<0.10, ** p<0.05, *** p<0.01

Source	SS	df	MS
Model	22.356692	18	1.24203844
Residual	9.8752231	266	.037124899
Total	32.2319151	284	.113492659

Number of obs	= 285
F(18, 266)	= 33.46
Prob > F	= 0.0000
R-squared	= 0.6936
Adj R-squared	= 0.6729
Root MSE	= .19268

AmountPrivateAmountPriv~x	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	5.435551	1.030611	5.27	0.000	3.406358	7.464745
M	-.0026938	.0007848	-3.43	0.001	-.0042389	-.0011487
lnA	-.2081291	.0116449	-17.87	0.000	-.2310571	-.1852011
Simultaneously	-.0270757	.0097043	-2.79	0.006	-.0461827	-.0079687
Commercial	.0135313	.0906244	0.15	0.881	-.1649011	.1919637
Transportation	.1289482	.1169785	1.10	0.271	-.1013734	.3592697
Finance	.0895044	.0981952	0.91	0.363	-.1038344	.2828432
Industrial	.0515629	.092883	0.56	0.579	-.1313165	.2344423
ServicesforCompanies	.1095132	.0981016	1.12	0.265	-.0836413	.3026677
ServicesforPrivate	.1579792	.1132391	1.40	0.164	-.0649798	.3809382
Healthcare	.1669383	.1225816	1.36	0.174	-.0744154	.408292
ConstructionHousebuilding	.0418528	.0952169	0.44	0.661	-.1456219	.2293274
RealEstate	.0091747	.1066047	0.09	0.931	-.2007216	.219071
ResearchConsulting	.0846131	.0925609	0.91	0.361	-.0976321	.2668582
InformationCommunication	-.0061881	.09394	-0.07	0.948	-.1911487	.1787725
Events	-.1897952	.12303	-1.54	0.124	-.4320317	.0524413
Education	0	(omitted)				
FreeTime	-.316996	.2128979	-1.49	0.138	-.7361755	.1021835
HotelRestaurant	-.0377022	.0935283	-0.40	0.687	-.2218522	.1464478
_cons	3.081272	.1820611	16.92	0.000	2.722808	3.439736

Figure 6.1 Complete Regression, First Variable, H1
Source: Elaboration by Stata Software

Source	SS	df	MS
Model	538.714807	18	29.9286004
Residual	721.072644	266	2.71079941
Total	1259.78745	284	4.43587131

Number of obs	= 285
F(18, 266)	= 11.04
Prob > F	= 0.0000
R-squared	= 0.4276
Adj R-squared	= 0.3889
Root MSE	= 1.6465

lnAmountPrivateTOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	32.16661	8.806653	3.65	0.000	14.82699	49.50622
M	-.032555	.0067058	-4.85	0.000	-.0457582	-.0193517
lnA	-.8311133	.0995069	-8.35	0.000	-1.027035	-.6351919
Simultaneously	-.1528222	.082924	-1.84	0.066	-.3160931	.0104486
Commercial	.2057495	.7743925	0.27	0.791	-1.318969	1.730468
Transportation	1.379325	.9995903	1.38	0.169	-.5887906	3.347441
Finance	1.123686	.839086	1.34	0.182	-.5284088	2.775782
Industrial	.5466322	.7936923	0.69	0.492	-1.016086	2.109351
ServicesforCompanies	.802077	.8382862	0.96	0.340	-.8484434	2.452597
ServicesforPrivate	.7898578	.9676369	0.82	0.415	-1.115344	2.69506
Healthcare	.4981401	1.04747	0.48	0.635	-1.564246	2.560526
ConstructionHousebuilding	.8031115	.8136358	0.99	0.325	-.7988742	2.405097
RealEstate	-.062557	.9109453	-0.07	0.945	-1.856138	1.731024
ResearchConsulting	.5475563	.79094	0.69	0.489	-1.009743	2.104856
InformationCommunication	-.5565109	.8027249	-0.69	0.489	-2.137014	1.023992
Events	.3147013	1.051301	0.30	0.765	-1.755229	2.384631
Education	0	(omitted)				
FreeTime	-1.524578	1.81923	-0.84	0.403	-5.1065	2.057343
HotelRestaurant	.2830589	.7992067	0.35	0.723	-1.290517	1.856635
_cons	17.95753	1.555726	11.54	0.000	14.89443	21.02063

Figure 6.2 Complete Regression, Second Variable, H1
Source: Elaboration by Stata Software

Source	SS	df	MS		
Model	9.7158183	18	.539767683	Number of obs =	285
Residual	5.99875543	266	.022551712	F(18, 266) =	23.93
				Prob > F =	0.0000
				R-squared =	0.6183
				Adj R-squared =	0.5924
Total	15.7145737	284	.055333006	Root MSE =	.15017

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	2.537389	.8032522	3.16	0.002	.9558477	4.11893
M	-.0029817	.0006116	-4.88	0.000	-.004186	-.0017775
lnA	-.1370808	.009076	-15.10	0.000	-.1549507	-.1192109
Simultaneously	-.0118284	.0075635	-1.56	0.119	-.0267203	.0030635
Commercial	.0068779	.0706321	0.10	0.923	-.1321912	.145947
Transportation	.1129238	.0911723	1.24	0.217	-.0665874	.2924351
Finance	.0929996	.0765328	1.22	0.225	-.0576876	.2436867
Industrial	.0399359	.0723924	0.55	0.582	-.1025992	.182471
ServicesforCompanies	.0580372	.0764598	0.76	0.448	-.0925062	.2085807
ServicesforPrivate	.0469229	.0882579	0.53	0.595	-.12685	.2206958
Healthcare	.0302244	.0955394	0.32	0.752	-.1578852	.2183341
ConstructionHousebuilding	.0645037	.0742115	0.87	0.386	-.081613	.2106203
RealEstate	-.0015245	.0830871	-0.02	0.985	-.1651164	.1620675
ResearchConsulting	.0386728	.0721414	0.54	0.592	-.103368	.1807136
InformationCommunication	-.0599678	.0732163	-0.82	0.413	-.204125	.0841894
Events	.0304922	.0958889	0.32	0.751	-.1583056	.2192899
Education	0	(omitted)				
FreeTime	-.1415883	.1659314	-0.85	0.394	-.4682943	.1851178
HotelRestaurant	.0128219	.0728954	0.18	0.861	-.1307035	.1563473
_cons	2.400141	.1418973	16.91	0.000	2.120756	2.679525

Figure 6.3 Complete Regression, Third Variable, H1
Source: Elaboration by Stata Software

Source	SS	df	MS		
Model	1264896.72	18	70272.0401	Number of obs =	285
Residual	2433287.52	266	9147.69746	F(18, 266) =	7.68
				Prob > F =	0.0000
				R-squared =	0.3420
				Adj R-squared =	0.2975
Total	3698184.24	284	13021.7755	Root MSE =	95.644

TOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	-1098.463	511.5853	-2.15	0.033	-2105.735	-91.19139
M	.6307958	.3895463	1.62	0.107	-.1361906	1.397782
lnA	46.61872	5.780433	8.06	0.000	35.2375	57.99994
Simultaneously	-2.187162	4.817117	-0.45	0.650	-11.67169	7.297368
Commercial	-103.2095	44.98506	-2.29	0.023	-191.7816	-14.63737
Transportation	-142.7251	58.06698	-2.46	0.015	-257.0544	-28.39569
Finance	-153.9065	48.74316	-3.16	0.002	-249.878	-57.93498
Industrial	-101.2407	46.10621	-2.20	0.029	-192.0202	-10.46116
ServicesforCompanies	-127.1507	48.6967	-2.61	0.010	-223.0307	-31.27066
ServicesforPrivate	-134.0558	56.21078	-2.38	0.018	-244.7304	-23.3811
Healthcare	-60.8517	60.84832	-1.00	0.318	-180.6573	58.95392
ConstructionHousebuilding	-115.0775	47.26474	-2.43	0.016	-208.1381	-22.01691
RealEstate	-59.00278	52.91752	-1.11	0.266	-163.1933	45.18772
ResearchConsulting	-95.18648	45.94632	-2.07	0.039	-185.6512	-4.721746
InformationCommunication	-75.46998	46.63091	-1.62	0.107	-167.2826	16.34266
Events	-144.0732	61.0709	-2.36	0.019	-264.317	-23.82932
Education	0	(omitted)				
FreeTime	-75.87279	105.6805	-0.72	0.473	-283.9494	132.2038
HotelRestaurant	-114.7983	46.42654	-2.47	0.014	-206.2085	-23.38803
_cons	-337.1642	90.37336	-3.73	0.000	-515.1023	-159.226

Figure 6.4 Complete Regression, Fourth Variable, H1
Source: Elaboration by Stata Software

The second hypotheses tested linked the success to financial measures related to the characteristics of the company, such as the *expected* values of the *NFP/Equity* and of the *FCCR*, the Revenues level and the years of establishment of the firm. Considering that, for 17 projects the values of their NFP/Equity were not available, this time the sample size was of 268 projects. The first two measures, i.e. the ratios, are variables directly linked to the riskiness of the specific firm. According to Emekter et al. (2014), there is a positive relationship between the level of indebtedness and the probability of default, meaning that the probability of success decreases (in terms of capability to repay the capital received and the interests on it). The level of indebtedness was considered also by Cinca et al. (2015), showing. A positive relationship between the level of debt and the default probability, meaning that the higher the debt the higher this probability. For these evidences, we expected that the level of indebtedness impact negatively on our success measures. Moreover, the FCCR is a synthetic indicator directly provided by Lendix measuring the capability of the firm to cover the financial reimbursement flows; the higher the value, the higher the repayment capability of the firm. We expected that companies presenting higher values of this indicator were considered more attractive from the success measures taken into consideration, because those companies appear as more solid and able to manage effectively the repayment flows. In addition, we included in the sample of test variables two additional specific measures, i.e. the Revenues Level and the Number of Years of Establishment since the company is active; there were not researches taking into account those variables, but we were interested in understanding if the behaviour of investors were different towards older or younger companies and if size is a relevant variable in driving the success of the financing. Results regarding the test variables are reported in Table 6.2, while the complete table of the 4 regression tests are available in Figure 6.5, Figure 6.6, Figure 6.7 and in Figure 6.8. Results are consistent among all the four success variables. It is very interesting to underline that the first test variable, the *NFP/Equity*, is not significant in all the four cases as a variable impacting on the success of the project. Contrary on what we expected, the debt level, apparently, is not considered as a determinant of the success of the projects. What it is possible to comment about this test variable is that the sign of the coefficient is positive. In the case of *TOPh*, of course, the sign of the coefficient is negative. Regarding the *expected FCCR*, the relationship resulting from the analysis is negative, meaning that a higher FCCR reduces the success value, according to the specific variable considered. This test suggested that riskier projects, i.e. the ones with lower capability to effectively manage the repayment flows

of the financing[164], are more successful than less risky ones. The Revenues level negatively impacts on the success of the project; apparently, companies that are small, less structured and robust in terms of turnover are more successful in obtaining financing through Lendix platform. This result is significant in all the four cases, also in the robustness case (i.e. *TOPh*), with a confidence level of 99%. The age of the firm is not significant in all four cases; this means that we cannot say the age of the firm can be directly related to the success or the failure of the projects on the platform.

Dependent Variable	Test Variables	Coefficient	P value	Confidence level
Amount Private/Amount Private Exp.	Exp. NFP/E	0.0004677	0.984	
	Exp. FCCR	-0.0807391	0.025	**
	ln(RevenuesAvg)	-0.108975	0.000	***
	ln(Years)	0.009957	0.626	
ln(Amount Private/ TOPh)	Exp. NFP/E	0.1495336	0.340	
	Exp. FCCR	-0.843763	0.001	***
	ln(RevenuesAvg)	-0.4053426	0.000	***
	ln(Years)	0.0444641	0.753	
Y	Exp. NFP/E	0.007406	0.657	
	Exp. FCCR	-0.0734281	0.006	***
	ln(RevenuesAvg)	-0.0707661	0.000	***
	ln(Years)	0.0174148	0.247	
TOPh	Exp. NFP/E	-5.845405	0.496	
	Exp. FCCR	20.38665	0.134	
	ln(RevenuesAvg)	22.33014	0.000	***
	ln(Years)	-5.006542	0.517	

Table 6.2 Results of the Four Regression Considering Only Test Variables, H2.
Source: Elaboration by Stata Software.

[164] Measured by the FCCR.

Source	SS	df	MS	Number of obs =	268
				F(18, 249) =	6.50
Model	9.46190944	18	.525661635	Prob > F =	0.0000
Residual	20.1277889	249	.080834494	R-squared =	0.3198
				Adj R-squared =	0.2706
Total	29.5896983	267	.11082284	Root MSE =	.28431

AmountPrivateAmountPriv~x	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ExpNFPE	.0004677	.022688	0.02	0.984	-.0442171	.0451526
ExpFCCR	-.0807391	.0358794	-2.25	0.025	-.1514048	-.0100734
lnRevenuesAvg	-.108975	.0138821	-7.85	0.000	-.1363163	-.0816337
lnYears	.009957	.0204269	0.49	0.626	-.0302744	.0501885
Simultaneously	-.0267937	.0145296	-1.84	0.066	-.0554103	.001823
Commercial	-.0460282	.1487777	-0.31	0.757	-.3390513	.246995
Transportation	.0644313	.183734	0.35	0.726	-.2974395	.4263022
Finance	-.096298	.1598169	-0.60	0.547	-.4110633	.2184673
Industrial	.0191855	.1508192	0.13	0.899	-.2778585	.3162295
ServicesforCompanies	.054247	.1580876	0.34	0.732	-.2571124	.3656065
ServicesforPrivate	.1849763	.1791643	1.03	0.303	-.1678943	.537847
Healthcare	.0094622	.1912826	0.05	0.961	-.3672759	.3862004
ConstructionHousebuilding	-.0051231	.1558438	-0.03	0.974	-.3120633	.3018171
RealEstate	-.1164335	.1742615	-0.67	0.505	-.459648	.226781
ResearchConsulting	-.0409784	.1520417	-0.27	0.788	-.3404302	.2584734
InformationCommunication	-.0440454	.1551531	-0.28	0.777	-.3496251	.2615343
Events	-.3984708	.1931386	-2.06	0.040	-.7788644	-.0180772
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-.1602774	.154	-1.04	0.299	-.4635862	.1430313
_cons	2.517004	.2440103	10.32	0.000	2.036417	2.997591

Figure 6.5 Complete Regression, First Variable, H2.
Source: Elaboration by Stata Software.

Source	SS	df	MS	Number of obs =	268
				F(18, 249) =	3.49
Model	241.571091	18	13.4206161	Prob > F =	0.0000
Residual	957.086566	249	3.84372115	R-squared =	0.2015
				Adj R-squared =	0.1438
Total	1198.65766	267	4.48935452	Root MSE =	1.9605

lnAmountPrivateTOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ExpNFPE	.1495336	.1564493	0.96	0.340	-.1585992	.4576663
ExpFCCR	-.843763	.2474128	-3.41	0.001	-1.331052	-.3564744
lnRevenuesAvg	-.4053426	.0957267	-4.23	0.000	-.5938798	-.2168055
lnYears	.0444641	.1408572	0.32	0.753	-.2329594	.3218875
Simultaneously	-.1381344	.1001918	-1.38	0.169	-.3354658	.059197
Commercial	.2295702	1.025925	0.22	0.823	-1.791026	2.250166
Transportation	1.301637	1.266972	1.03	0.305	-1.193711	3.796986
Finance	.3869754	1.102047	0.35	0.726	-1.783548	2.557498
Industrial	.6987006	1.040002	0.67	0.502	-1.349622	2.747023
ServicesforCompanies	.8167687	1.090123	0.75	0.454	-1.330269	2.963806
ServicesforPrivate	1.414975	1.235461	1.15	0.253	-1.018311	3.84826
Healthcare	-.1728456	1.319025	-0.13	0.896	-2.770714	2.425023
ConstructionHousebuilding	.9520507	1.07465	0.89	0.377	-1.164513	3.068614
RealEstate	-.2283104	1.201653	-0.19	0.849	-2.59501	2.138389
ResearchConsulting	.3852162	1.048432	0.37	0.714	-1.67971	2.450142
InformationCommunication	-.3944682	1.069887	-0.37	0.713	-2.50165	1.712714
Events	-.6857189	1.331823	-0.51	0.607	-3.308794	1.937356
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-.2457427	1.061936	-0.23	0.817	-2.337265	1.84578
_cons	15.22223	1.682619	9.05	0.000	11.90825	18.53621

Figure 6.6 Complete Regression, Second Variable, H2.
Source: Elaboration by Stata Software.

Source	SS	df	MS		
Model	3.95060987	18	.219478326	Number of obs	= 268
Residual	10.8818631	249	.043702261	F(18, 249)	= 5.02
				Prob > F	= 0.0000
Total	14.8324729	267	.055552333	R-squared	= 0.2663
				Adj R-squared	= 0.2133
				Root MSE	= .20905

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ExpNFPE	.007406	.0166821	0.44	0.657	-.02545	.0402619
ExpFCCR	-.0734281	.0263814	-2.78	0.006	-.1253873	-.0214689
lnRevenuesAvg	-.0707661	.0102073	-6.93	0.000	-.0908697	-.0506626
lnYears	.0174148	.0150195	1.16	0.247	-.0121667	.0469962
Simultaneously	-.0083494	.0106834	-0.78	0.435	-.0293906	.0126919
Commercial	.0010242	.1093935	0.01	0.993	-.2144302	.2164787
Transportation	.0922193	.1350962	0.68	0.495	-.1738576	.3582962
Finance	-.0001465	.1175104	-0.00	0.999	-.2315876	.2312946
Industrial	.048463	.1108946	0.44	0.662	-.1699479	.266874
ServicesforCompanies	.0587596	.1162389	0.51	0.614	-.1701772	.2876964
ServicesforPrivate	.115412	.1317362	0.88	0.382	-.1440473	.3748712
Healthcare	-.0602094	.1406466	-0.43	0.669	-.3372179	.2167992
ConstructionHousebuilding	.0789183	.1145891	0.69	0.492	-.1467691	.3046058
RealEstate	-.0377084	.1281313	-0.29	0.769	-.2900676	.2146509
ResearchConsulting	-.0003567	.1117934	-0.00	0.997	-.220538	.2198246
InformationCommunication	-.0536307	.1140812	-0.47	0.639	-.2783178	.1710564
Events	-.0901226	.1420112	-0.63	0.526	-.3698189	.1895738
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-.0545912	.1132334	-0.48	0.630	-.2776085	.168426
_cons	1.83945	.1794162	10.25	0.000	1.486083	2.192817

Figure 6.7 Complete Regression, Third Variable, H2.
Source: Elaboration by Stata Software

Source	SS	df	MS		
Model	599666.298	18	33314.7943	Number of obs	= 268
Residual	2867996.38	249	11518.0578	F(18, 249)	= 2.89
				Prob > F	= 0.0001
Total	3467662.68	267	12987.5007	R-squared	= 0.1729
				Adj R-squared	= 0.1131
				Root MSE	= 107.32

TOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
ExpNFPE	-5.845405	8.564212	-0.68	0.496	-22.71294	11.02213
ExpFCCR	20.38665	13.54365	1.51	0.134	-6.288081	47.06137
lnRevenuesAvg	22.33014	5.240185	4.26	0.000	12.00941	32.65088
lnYears	-5.006542	7.710681	-0.65	0.517	-20.19301	10.17993
Simultaneously	-2.415988	5.484609	-0.44	0.660	-13.21813	8.386152
Commercial	-135.375	56.16026	-2.41	0.017	-245.9847	-24.7653
Transportation	-165.3716	69.35548	-2.38	0.018	-301.9698	-28.77342
Finance	-158.0081	60.32731	-2.62	0.009	-276.8249	-39.19119
Industrial	-132.2641	56.93088	-2.32	0.021	-244.3915	-20.1366
ServicesforCompanies	-154.4034	59.67455	-2.59	0.010	-271.9346	-36.87215
ServicesforPrivate	-182.1729	67.63052	-2.69	0.008	-315.3737	-48.97213
Healthcare	-65.05629	72.20492	-0.90	0.368	-207.2665	77.15396
ConstructionHousebuilding	-147.8252	58.82757	-2.51	0.013	-263.6883	-31.96216
RealEstate	-65.59438	65.77983	-1.00	0.320	-195.1502	63.96143
ResearchConsulting	-112.7067	57.39235	-1.96	0.051	-225.7431	.329657
InformationCommunication	-113.3723	58.56682	-1.94	0.054	-228.7218	1.977198
Events	-135.9262	72.90551	-1.86	0.063	-279.5163	7.663919
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-124.6613	58.13157	-2.14	0.033	-239.1536	-10.16903
_cons	-119.0663	92.10843	-1.29	0.197	-300.4772	62.3447

Figure 6.8 Complete Regression, Fourth Variable, H2.
Source: Elaboration by Stata Software.

The third test aimed at investigating the impact and the relationship between the success of the projects and the purpose of the loan, in terms of *Acquisition* or not. The sample size in this case is equal to 285 projects. Findings from the research of Feng et al. show that the loan purpose has an impact on lenders' bidding strategies. Moreover, Cinca et al. (2015) highlights how the loan purpose has an impact on the default rate of the projects. This led us to consider the loan purpose as a test a variable and, considering the main loan purposes of Lendix projects and considering what has been explained in the section related to the methodology adopted, we expected that companies requesting money in order to finance an Acquisition are less successful with respect to companies with different loan purposes. Results are provided in Table 6.3, while the complete regressions table are provided in Figure 6.9, Figure 6.10, Figure 6.11 and Figure 6.12. Results confirm our expectations, although just one dependent variable is significant at the 95% (*Amount Private/Amount Private Expected*) with a p-value equal to 0.047. The variables *ln(Amount Private/TOPh)* and *Y* have a confidence level of 90%. The relationship arising from this analysis suggested that the Acquisition purpose' projects have less attractiveness with respect to the others, and this is translated in a lower participation of the crowd in the financing with respect to the expectations, a lower amount collected per unit of time and also a lower relative measure weighted on the total amount expected from the crowd (variable *Y*).

Dependent Variable	Test Variables	Coefficient	P value	Confidence level
Amount Private/Amount Private Exp.	Acquisition	-0.0664237	0.047	**
ln(Amount Private/ TOPh)	Acquisition	-0.4739134	0.096	*
Y	Acquisition	-0.0439426	0.090	*
TOPh	Acquisition	9.232274	0.563	

Table 6.3 Results of the Four Regression Considering Only Test Variables, H3.
Source: Elaboration by Stata Software.

Source	SS	df	MS		
Model	21.4005713	17	1.25885713	Number of obs	= 285
Residual	10.8313438	267	.040566831	F(17, 267)	= 31.03
				Prob > F	= 0.0000
				R-squared	= 0.6640
				Adj R-squared	= 0.6426
Total	32.2319151	284	.113492659	Root MSE	= .20141

AmountPrivateAmountPriv~x	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Acquisition	-.0664237	.0333055	-1.99	0.047	-.1319986	-.0008489
lnA	-.2274289	.0114258	-19.90	0.000	-.2499251	-.2049326
Commercial	.1736683	.0952433	1.82	0.069	-.0138552	.3611918
Transportation	.2834475	.1236548	2.29	0.023	.0399849	.5269101
Finance	.2484419	.1021427	2.43	0.016	.0473343	.4495496
Industrial	.2473028	.0972586	2.54	0.012	.0558113	.4387942
ServicesforCompanies	.2628614	.1039733	2.53	0.012	.0581495	.4675733
ServicesforPrivate	.2971929	.1198774	2.48	0.014	.0611676	.5332182
Healthcare	.33868	.1277002	2.65	0.008	.0872525	.5901074
ConstructionHousebuilding	.1810633	.1007006	1.80	0.073	-.017205	.3793316
RealEstate	.1892007	.1100033	1.72	0.087	-.0273835	.4057849
ResearchConsulting	.2439382	.097426	2.50	0.013	.0521173	.4357591
InformationCommunication	.1285365	.0991025	1.30	0.196	-.0665853	.3236583
Events	0	(omitted)				
Education	.1400863	.1286556	1.09	0.277	-.1132222	.3933948
FreeTime	-.0882892	.2216264	-0.40	0.691	-.5246469	.3480684
HotelRestaurant	.1275787	.0974735	1.31	0.192	-.0643357	.3194932
Simultaneously	-.031578	.010118	-3.12	0.002	-.0514992	-.0116568
_cons	3.41284	.1731553	19.71	0.000	3.071916	3.753763

Figure 6.9 Complete Regression, First Variable, H3.
Source: Elaboration by Stata Software.

Source	SS	df	MS		
Model	472.988063	17	27.8228272	Number of obs	= 285
Residual	786.799388	267	2.94681419	F(17, 267)	= 9.44
				Prob > F	= 0.0000
				R-squared	= 0.3755
				Adj R-squared	= 0.3357
Total	1259.78745	284	4.43587131	Root MSE	= 1.7166

lnAmountPrivateTOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Acquisition	-.4739134	.2838618	-1.67	0.096	-1.032806	.0849788
lnA	-.9969818	.0973821	-10.24	0.000	-1.188716	-.8052472
Commercial	-.2610275	.8117558	-0.32	0.748	-1.859284	1.337229
Transportation	.9610521	1.053906	0.91	0.363	-1.113972	3.036076
Finance	.5572249	.8705591	0.64	0.523	-1.156809	2.271259
Industrial	.4471123	.8289322	0.54	0.590	-1.184963	2.079187
ServicesforCompanies	.4835737	.8861613	0.55	0.586	-1.261179	2.228327
ServicesforPrivate	.4941602	1.021711	0.48	0.629	-1.517476	2.505796
Healthcare	.0111115	1.088385	0.01	0.992	-2.131797	2.154019
ConstructionHousebuilding	.3303346	.858268	0.38	0.701	-1.359499	2.020169
RealEstate	-.0286483	.9375543	-0.03	0.976	-1.874588	1.817292
ResearchConsulting	.1981344	.8303585	0.24	0.812	-1.436749	1.833018
InformationCommunication	-1.053942	.8446474	-1.25	0.213	-2.716958	.6090749
Events	0	(omitted)				
Education	-.488809	1.096527	-0.45	0.656	-2.647749	1.670131
FreeTime	-1.69148	1.888914	-0.90	0.371	-5.410542	2.027582
HotelRestaurant	-.2601558	.8307634	-0.31	0.754	-1.895837	1.375525
Simultaneously	-.1724126	.0862354	-2.00	0.047	-.3422005	-.0026247
_cons	21.08149	1.475797	14.28	0.000	18.17581	23.98717

Figure 6.10 Complete Regression, Second Variable, H3.
Source: Elaboration by Stata Software.

Source	SS	df	MS	Number of obs =	285
				F(17, 267) =	22.22
Model	9.20741821	17	.541612836	Prob > F =	0.0000
Residual	6.50715553	267	.024371369	R-squared =	0.5859
				Adj R-squared =	0.5596
Total	15.7145737	284	.055333006	Root MSE =	.15611

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Acquisition	-.0439426	.0258149	-1.70	0.090	-.0947692	.0068841
lnA	-.1511706	.0088561	-17.07	0.000	-.1686073	-.1337339
Commercial	-.0362774	.0738225	-0.49	0.624	-.1816258	.1090709
Transportation	.0743948	.0958441	0.78	0.438	-.1143116	.2631012
Finance	.0413825	.0791702	0.52	0.602	-.1144948	.1972599
Industrial	.0289688	.0753846	0.38	0.701	-.119455	.1773927
ServicesforCompanies	.0300385	.0805891	0.37	0.710	-.1286325	.1887095
ServicesforPrivate	.0234245	.0929163	0.25	0.801	-.1595173	.2063663
Healthcare	-.0162478	.0989797	-0.16	0.870	-.2111277	.1786321
ConstructionHousebuilding	.0226584	.0780524	0.29	0.772	-.1310181	.176335
RealEstate	.0025937	.0852629	0.03	0.976	-.1652794	.1704668
ResearchConsulting	.0076359	.0755143	0.10	0.920	-.1410434	.1563151
InformationCommunication	-.1035993	.0768138	-1.35	0.179	-.254837	.0476384
Events	0	(omitted)				
Education	-.0426915	.0997202	-0.43	0.669	-.2390294	.1536464
FreeTime	-.1651024	.1717813	-0.96	0.337	-.5033206	.1731158
HotelRestaurant	-.0387169	.0755511	-0.51	0.609	-.1874687	.1100348
Simultaneously	-.0132669	.0078424	-1.69	0.092	-.0287077	.002174
_cons	2.64461	.1342117	19.70	0.000	2.380362	2.908858

Figure 6.11 Complete Regression, Third Variable, H3.
Source: Elaboration by Stata Software.

Source	SS	df	MS	Number of obs =	285
				F(17, 267) =	7.72
Model	1219139.65	17	71714.0973	Prob > F =	0.0000
Residual	2479044.59	267	9284.8112	R-squared =	0.3297
				Adj R-squared =	0.2870
Total	3698184.24	284	13021.7755	Root MSE =	96.358

TOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
Acquisition	9.232274	15.93372	0.58	0.563	-22.13944	40.60399
lnA	51.07238	5.466249	9.34	0.000	40.30994	61.83481
Commercial	45.46682	45.56544	1.00	0.319	-44.24645	135.1801
Transportation	5.408439	59.15782	0.09	0.927	-111.0667	121.8836
Finance	-2.774496	48.86618	-0.06	0.955	-98.98657	93.43757
Industrial	38.73581	46.52959	0.83	0.406	-52.87576	130.3474
ServicesforCompanies	20.66731	49.74197	0.42	0.678	-77.26908	118.6037
ServicesforPrivate	16.11633	57.35066	0.28	0.779	-96.80073	129.0334
Healthcare	86.444	61.09315	1.41	0.158	-33.84161	206.7296
ConstructionHousebuilding	36.0473	48.17626	0.75	0.455	-58.80638	130.901
RealEstate	81.87799	52.62675	1.56	0.121	-21.73823	185.4942
ResearchConsulting	52.83505	46.60965	1.13	0.258	-38.93415	144.6043
InformationCommunication	76.66448	47.41171	1.62	0.107	-16.68389	170.0128
Events	0	(omitted)				
Education	152.0185	61.55022	2.47	0.014	30.83296	273.204
FreeTime	58.10084	106.0285	0.55	0.584	-150.6574	266.8591
HotelRestaurant	33.70629	46.63238	0.72	0.470	-58.10767	125.5202
Simultaneously	-1.383724	4.840562	-0.29	0.775	-10.91425	8.146803
_cons	-585.9237	82.83939	-7.07	0.000	-749.0252	-422.8222

Figure 6.12 Complete Regression, Fourth Variable, H3.
Source: Elaboration by Stata Software

The last step of the model proposed was to test the effect of the test variables used in the three regression tests as part of the same variable sample. This test is considered as more interesting and structured than the other ones, because it takes into account independent variables related to the projects' specific determinants, the characteristics of the companies and the loan purpose. The success is again measured through the four dependent variables adopted in the three previous tests. As explained in the beginning of this paragraph, the high correlation between the *M* and *Acquisition* and between *Acquisition* and *ln(Years)* did not allow us to consider these variables together in the same regression sample. This is the reason why we developed a final regression omitting variables that were too correlated and developing two additional regression tests. The sample comprises the following test variables: *IR*, *ln(RevenuesAvg)*, *Exp. NFP/E*, *Exp. FCCR*, and *Acquisition.* Results are provided in Results of the Four Regression Considering Only Test Variables, Mixed Model.Table 6.4, while the complete regression of all 4 success measure are available in Figure 6.13, Figure 6.14, Figure 6.15 and Figure 6.16. As it is possible to observe, results coming from this mixed analysis are consistent with the results obtained in the tests separately conducted. Moreover, for what concerns the variable *IR*, the test shows that the impact on success measures is positive and, despite that the variable results as not significant for the second and the third variables in Table 4, the sign of the coefficients remain consistent for all the measures. In addition, the P-values are respectively 0.159 and 0.172, showing level of non-significance not very high. The second test variable was the *ln(RevenuesAvg)*, and this variable is always significant at 99% of confidence level. These results support preliminary discussion proposed in the separate test; apparently, small companies asking money on Lendix platform seems to be more successful on all the four success measures proposed with the respect to larger firms. The *Expected NFP/Equity* is not significant as it was in the regression investigating H2, and we have sufficient findings to consider this variable as not directly linked to the success of the projects on Lendix. The *Expected FCCR* is significant for two measures, with a significance level of 95% for the first variable and of 90% for the following. However, considering the variables *Amount Private/Amount Private Exp.* and the *TOPh*, the ratio loses significance, but the signs of its coefficients remain consistent in both cases. The last variable, the *Acquisition*, appears very significant in all the four measures of success proposed, particularly for a confidence level of 99% for the first and the fourth, and at the 90% for the second and the third ones, showing that,

in general, the loans with an acquisition purpose are less successful than loans with different purposes.

Dependent Variable	Test Variables	Coefficient	P value	Confidence level
Amount Private/Amount Private Exp.	IR	6.146588	0.000	***
	ln(RevenuesAvg)	-0.10711	0.000	***
	Exp. NFP/E	-0.0105647	0.639	
	Exp. FCCR	-0.0117876	0.742	
	Acquisition	-0.2684896	0.000	***
ln(Amount Private/ TOPh)	IR	16.02794	0.159	
	ln(RevenuesAvg)	-0.4290941	0.000	***
	Exp. NFP/E	0.1754959	0.282	*
	Exp. FCCR	-0.6183974	0.018	***
	Acquisition	-1.349124	0.000	*
Y	IR	1.636299	0.172	
	ln(RevenuesAvg)	-0.0721171	0.000	***
	Exp. NFP/E	0.0108727	0.526	
	Exp. FCCR	-0.0488433	0.074	*
	Acquisition	-0.1752224	0.091	*
TOPh	IR	-1165.935	0.065	*
	ln(RevenuesAvg)	21.21949	0.000	***
	Exp. NFP/E	-3.126102	0.730	
	Exp. FCCR	7.57237	0.599	
	Acquisition	50.80184	0.006	***

Table 6.4 Results of the Four Regression Considering Only Test Variables, Mixed Model.
Source: Elaboration by Stata Software.

Source	SS	df	MS
Model	305.45468	19	16.0765621
Residual	895.206956	249	3.59520866
Total	1200.66164	268	4.48008073

Number of obs	= 269
F(19, 249)	= 9.71
Number of obs	= 269
F(19, 249)	= 4.47
Prob > F	= 0.0000
R-squared	= 0.2544
Adj R-squared	= 0.1975
Root MSE	= 1.8961

lnAmountPrivateTOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	16.02794	11.3393	1.41	0.159	-6.305228	38.36111
lnRevenuesAvg	-.4290941	.0912113	-4.70	0.000	-.6087381	-.2494501
ExpNFPE	.1754959	.1626198	1.08	0.282	-.1447898	.4957817
ExpFCCR	-.6183974	.2586617	-2.39	0.018	-1.127841	-.1089536
Acquisition	-1.349124	.3329916	-4.05	0.000	-2.004963	-.6932848
Commercial	.461621	.907833	0.51	0.612	-1.32639	2.249632
Transportation	1.241141	1.167654	1.06	0.289	-1.058597	3.540879
Finance	1.143261	.9703263	1.18	0.240	-.7678326	3.054354
Industrial	.7947291	.9203512	0.86	0.389	-1.017936	2.607395
ServicesforCompanies	.8396133	.9808496	0.86	0.393	-1.092206	2.771433
ServicesforPrivate	1.529945	1.135251	1.35	0.179	-.7059741	3.765864
Healthcare	.1752805	1.205627	0.15	0.885	-2.199246	2.549807
ConstructionHousebuilding	1.030984	.959239	1.07	0.284	-.8582724	2.920241
RealEstate	-.0570675	1.066962	-0.05	0.957	-2.158489	2.044354
ResearchConsulting	.5992551	.9307082	0.64	0.520	-1.233809	2.432319
InformationCommunication	-.3787127	.9618793	-0.39	0.694	-2.27317	1.515744
Events	0	(omitted)				
Education	.2802535	1.281088	0.22	0.827	-2.242896	2.803403
FreeTime	0	(omitted)				
HotelRestaurant	-.0429512	.9327684	-0.05	0.963	-1.880073	1.79417
Simultaneously	-.1426303	.0971965	-1.47	0.144	-.3340623	.0488018
_cons	14.33878	2.022786	7.09	0.000	10.35482	18.32273

Source: Elaboration by Stata Software

Figure 6.14 Complete Regression, Second Variable, Mixed Model.
Source: Elaboration by Stata Software.

Source	SS	df	MS	Number of obs =	269
				F(19, 249) =	3.38
Model	712063.602	19	37477.0317	Prob > F =	0.0000
Residual	2762607.68	249	11094.81	R-squared =	0.2049
				Adj R-squared =	0.1443
Total	3474671.28	268	12965.1914	Root MSE =	105.33

TOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	-1165.935	629.9181	-1.85	0.065	-2406.582	74.71231
lnRevenuesAvg	21.21949	5.066949	4.19	0.000	11.23995	31.19903
ExpNFPE	-3.126102	9.033818	-0.35	0.730	-20.91854	14.66634
ExpFCCR	7.57237	14.36912	0.53	0.599	-20.72813	35.87288
Acquisition	50.80184	18.49827	2.75	0.006	14.36881	87.23487
Commercial	17.80331	50.43173	0.35	0.724	-81.52384	117.1305
Transportation	-6.844289	64.86526	-0.11	0.916	-134.5988	120.9102
Finance	-24.28386	53.90334	-0.45	0.653	-130.4485	81.88075
Industrial	25.7571	51.12714	0.50	0.615	-74.93968	126.4539
ServicesforCompanies	1.751728	54.48793	0.03	0.974	-105.5643	109.0677
ServicesforPrivate	-31.87825	63.06521	-0.51	0.614	-156.0875	92.331
Healthcare	82.30722	66.97471	1.23	0.220	-49.60194	214.2164
ConstructionHousebuilding	7.81862	53.28742	0.15	0.883	-97.13292	112.7702
RealEstate	90.81498	59.27165	1.53	0.127	-25.92271	207.5527
ResearchConsulting	39.617	51.70249	0.77	0.444	-62.21295	141.447
InformationCommunication	45.90975	53.4341	0.86	0.391	-59.33067	151.1502
Events	0	(omitted)				
Education	145.8297	71.1667	2.05	0.041	5.664223	285.9951
FreeTime	0	(omitted)				
HotelRestaurant	32.80853	51.81693	0.63	0.527	-69.24683	134.8639
Simultaneously	-2.567336	5.399436	-0.48	0.635	-13.20172	8.067053
_cons	-184.6095	112.3693	-1.64	0.102	-405.9251	36.70599

Source: Elaboration by Stata Software

Figure 6.16 Complete Regression, Fourth Variable, Mixed Model.
Source: Elaboration by Stata Software.

6.1 Robustness

In this section we developed a robustness analysis in order to check if the main results obtained change modifying the set of test variables adopted. This analysis was performed just on the last regression, i.e. the one comprising the full set of test variables. Considering that some variable could not be used together in the same sample for correlation issues, the set of test variables adopted in this case excludes the *Acquisition* and includes the maturity *M*. Considering that *Acquisition* is highly correlated with the *ln(Years)*, also the last variable mentioned was included. The sample includes the following variables: *IR*, *M*, *ln(RevenuesAvg)*, *Exp. NFP/E*, *Exp. FCCR* and the *ln(Years)*. Results of this test are provided in Table 6.5, while the complete results of the regression including all the variables adopted considering the all set of success measure are provided in Figure 6.17, Figure 6.18, Figure 6.19 and Figure 6.20. The results confirm that the *IR* has a strong impact, specifically positive, on the success measures used. Moreover, it is significant at the 99% for the first three variables in table 5 and at the 95% for the variable *TOPh*. This result led us to consider this variable as a determinant of the projects'

success. The *M* is significant for all the four cases at the 99% of confidence level; these results are aligned with the ones attained in the separate regression test, and they are conformed with our expectations. The impact is negative on the success the higher the value of the maturity. For what concerns the variable *ln(RevenuesAvg)*, robustness analysis confirms the results obtained during the previous tests, leading us to think that smaller companies are faster than larger firms in collecting money per unit of time, both in absolute and relative terms, and they are faster in terms of time needed to collect the amount of capital asked. Furthermore, the stake of private investors, on average, is closer to 1 with respect to larger firms; this means that the Lendix Fund intervenes less in the completion of the financing for smaller firms compared to larger ones. The *Exp. NFP/E* continue to be not significant in our model, while the *Exp. FCCR* is significant in two cases, with signs of coefficients are consistent with all the results previously highlighted. The final test variable, *ln(Years)*, results to have not particular incidence on the success measures defined by us, as was discovered in the second test conducted.

Dependent Variable	Test Variables	Coefficient	P value	Confidence level
Amount Private/Amount Private Exp.	IR	8.02348	0.000	***
	M	-0.0085449	0.000	***
	ln(RevenuesAvg)	-0.0968083	0.000	***
	Exp. NFP/E	-0.0106122	0.620	
	Exp. FCCR	-0.0199744	0.555	*
	ln(Years)	-0.0233255	0.212	***
ln(Amount Private/ TOPh)	IR	29.1216	0.008	***
	M	-0.0558861	0.000	***
	ln(RevenuesAvg)	-0.3708001	0.000	***
	Exp. NFP/E	0.1966362	0.199	
	Exp. FCCR	-0.6420842	0.008	***
	ln(Years)	-0.2050129	0.126	
Y	IR	3.240431	0.005	***
	M	-0.0065953	0.000	***
	ln(RevenuesAvg)	-0.0670682	0.000	***
	Exp. NFP/E	0.0139698	0.379	
	Exp. FCCR	-0.0512726	0.042	**
	ln(Years)	-0.0122942	0.376	
TOPh	IR	-1566.601	0.015	**
	M	1.66987	0.000	***
	ln(RevenuesAvg)	19.95515	0.000	***
	Exp. NFP/E	-3.687171	0.681	
	Exp. FCCR	8.523314	0.548	
	ln(Years)	1.499518	0.848	

Table 6.5 Results of the Four Regression Considering Only Test Variables, Mixed Model, Robustness Analysis
Source: Elaboration by Stata Software.

Source	SS	df	MS	Number of obs =	268
				F(20, 247) =	11.60
Model	14.3316434	20	.716582169	Prob > F =	0.0000
Residual	15.2580549	247	.061773502	R-squared =	0.4843
				Adj R-squared =	0.4426
Total	29.5896983	267	.11082284	Root MSE =	.24854

AmountPrivateAmountPriv~x	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	8.02348	1.522923	5.27	0.000	5.023908	11.02305
M	-.0085449	.0010556	-8.09	0.000	-.010624	-.0064657
lnRevenuesAvg	-.0968083	.0124722	-7.76	0.000	-.1213738	-.0722429
ExpNFPE	-.0106122	.0213481	-0.50	0.620	-.0526598	.0314354
ExpFCCR	-.0199744	.0338088	-0.59	0.555	-.0865648	.046616
lnYears	-.0233255	.0186609	-1.25	0.212	-.0600803	.0134292
Commercial	-.0597296	.1302743	-0.46	0.647	-.3163197	.1968604
Transportation	.0519353	.1606326	0.32	0.747	-.2644492	.3683197
Finance	-.0369829	.1399246	-0.26	0.792	-.3125804	.2386145
Industrial	-.0722796	.1323084	-0.55	0.585	-.3328761	.188317
ServicesforCompanies	.0017206	.1384551	0.01	0.990	-.2709826	.2744237
ServicesforPrivate	.1180184	.1569005	0.75	0.453	-.1910151	.4270519
Healthcare	.0476981	.1673978	0.28	0.776	-.2820112	.3774074
ConstructionHousebuilding	-.0262365	.136269	-0.19	0.847	-.2946339	.2421609
RealEstate	-.2411887	.1530128	-1.58	0.116	-.5425649	.0601875
ResearchConsulting	-.0784569	.1329891	-0.59	0.556	-.3403942	.1834803
InformationCommunication	-.0799087	.1357462	-0.59	0.557	-.3472765	.1874591
Events	-.3703131	.1688737	-2.19	0.029	-.7029293	-.0376968
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-.1379837	.1350326	-1.02	0.308	-.4039458	.1279784
Simultaneously	-.025941	.0127871	-2.03	0.044	-.0511268	-.0007553
_cons	2.248798	.2663614	8.44	0.000	1.724169	2.773427

Figure 6.17 Complete Regression, First Variable, Mixed Model, Robustness Analysis. Source: Elaboration by Stata Software.

Source	SS	df	MS		
Model	6.4048083	20	.320240415	Number of obs	= 268
Residual	8.42766465	247	.0341201	F(20, 247)	= 9.39
Total	14.8324729	267	.055552333	Prob > F	= 0.0000
				R-squared	= 0.4318
				Adj R-squared	= 0.3858
				Root MSE	= .18472

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	3.240431	1.131832	2.86	0.005	1.011157	5.469705
M	-.0065953	.0007845	-8.41	0.000	-.0081406	-.0050501
lnRevenuesAvg	-.0670682	.0092693	-7.24	0.000	-.0853251	-.0488112
ExpNFPE	.0139698	.0158659	0.88	0.379	-.0172798	.0452195
ExpFCCR	-.0512726	.0251266	-2.04	0.042	-.1007624	-.0017828
lnYears	-.0122942	.0138687	-0.89	0.376	-.0396103	.0150218
Commercial	.0049475	.0968195	0.05	0.959	-.1857495	.1956445
Transportation	.086831	.1193817	0.73	0.468	-.1483051	.321967
Finance	.0473212	.1039915	0.46	0.649	-.1575021	.2521444
Industrial	-.0063708	.0983312	-0.06	0.948	-.2000453	.1873038
ServicesforCompanies	.0121574	.1028994	0.12	0.906	-.1905147	.2148296
ServicesforPrivate	.0599271	.116608	0.51	0.608	-.1697458	.2895999
Healthcare	-.0224548	.1244096	-0.18	0.857	-.2674938	.2225842
ConstructionHousebuilding	.0612804	.1012747	0.61	0.546	-.1381917	.2607526
RealEstate	-.1279863	.1137186	-1.13	0.261	-.3519682	.0959957
ResearchConsulting	-.0287426	.0988371	-0.29	0.771	-.2234136	.1659284
InformationCommunication	-.0711117	.1008862	-0.70	0.482	-.2698187	.1275953
Events	-.0685476	.1255065	-0.55	0.585	-.315747	.1786519
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-.0210126	.1003558	-0.21	0.834	-.2186748	.1766497
Simultaneously	-.010434	.0095034	-1.10	0.273	-.0291519	.008284
_cons	1.940229	.197959	9.80	0.000	1.550326	2.330132

Figure 6.19 Complete Regression, Third Variable, Mixed Model, Robustness Analysis
Source: Elaboration by Stata Software.

Model	418.837963	20	20.9418982	F(20, 247)	= 6.63
Residual	779.819694	247	3.15716475	Prob > F	= 0.0000
				R-squared	= 0.3494
				Adj R-squared	= 0.2967
Total	1198.65766	267	4.48935452	Root MSE	= 1.7768

lnAmountPrivateTOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	29.1216	10.88743	2.67	0.008	7.677545	50.56565
M	-.0558861	.0075466	-7.41	0.000	-.0707501	-.0410222
lnRevenuesAvg	-.3708001	.0891642	-4.16	0.000	-.5464193	-.1951809
ExpNFPE	.1966362	.1526185	1.29	0.199	-.1039635	.4972359
ExpFCCR	-.6420842	.2417007	-2.66	0.008	-1.118141	-.1660269
lnYears	-.2050129	.1334074	-1.54	0.126	-.4677741	.0577484
Commercial	.2546452	.9313354	0.27	0.785	-1.579727	2.089017
Transportation	1.25358	1.148369	1.09	0.276	-1.008264	3.515424
Finance	.7882476	1.000326	0.79	0.431	-1.182009	2.758504
Industrial	.2251799	.9458773	0.24	0.812	-1.637834	2.088194
ServicesforCompanies	.4252957	.9898203	0.43	0.668	-1.524269	2.37486
ServicesforPrivate	.9469612	1.121687	0.84	0.399	-1.262331	3.156253
Healthcare	.1424269	1.196733	0.12	0.905	-2.214677	2.49953
ConstructionHousebuilding	.8033502	.974192	0.82	0.410	-1.115433	2.722133
RealEstate	-.9966769	1.093894	-0.91	0.363	-3.151226	1.157872
ResearchConsulting	.1443806	.9507437	0.15	0.879	-1.728218	2.016979
InformationCommunication	-.548342	.9704547	-0.57	0.573	-2.459764	1.36308
Events	-.5028118	1.207285	-0.42	0.677	-2.880697	1.875074
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	.0295653	.9653526	0.03	0.976	-1.871808	1.930938
Simultaneously	-.1542532	.0914157	-1.69	0.093	-.334307	.0258006
_cons	15.90278	1.904227	8.35	0.000	12.15218	19.65337

Figure 6.18 Complete Regression, Second Variable, Mixed Model, Robustness Analysis
Source: Elaboration by Stata Software.

Source	SS	df	MS
Model	785561.353	20	39278.0677
Residual	2682101.33	247	10858.7098
Total	3467662.68	267	12987.5007

Number of obs	= 268
F(20, 247)	= 3.62
Prob > F	= 0.0000
R-squared	= 0.2265
Adj R-squared	= 0.1639
Root MSE	= 104.21

TOPh	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
IR	-1566.601	638.5076	-2.45	0.015	-2824.215	-308.9868
M	1.66987	.4425823	3.77	0.000	.7981537	2.541587
lnRevenuesAvg	19.95515	5.229151	3.82	0.000	9.655735	30.25456
ExpNFPE	-3.687171	8.95051	-0.41	0.681	-21.31623	13.94189
ExpFCCR	8.523314	14.17485	0.60	0.548	-19.39568	36.4423
lnYears	1.499518	7.82385	0.19	0.848	-13.91045	16.90949
Commercial	-132.7042	54.61936	-2.43	0.016	-240.2833	-25.12506
Transportation	-162.9315	67.34755	-2.42	0.016	-295.5803	-30.2828
Finance	-169.6004	58.66539	-2.89	0.004	-285.1486	-54.05218
Industrial	-114.397	55.47219	-2.06	0.040	-223.6559	-5.138175
ServicesforCompanies	-144.1357	58.04928	-2.48	0.014	-258.4704	-29.80095
ServicesforPrivate	-169.086	65.78279	-2.57	0.011	-298.6528	-39.51927
Healthcare	-72.5323	70.18396	-1.03	0.302	-210.7677	65.70306
ConstructionHousebuilding	-143.6986	57.13274	-2.52	0.013	-256.228	-31.16908
RealEstate	-41.2171	64.1528	-0.64	0.521	-167.5734	85.13921
ResearchConsulting	-105.3828	55.75759	-1.89	0.060	-215.2037	4.438194
InformationCommunication	-106.3685	56.91356	-1.87	0.063	-218.4663	5.729264
Events	-141.4288	70.80275	-2.00	0.047	-280.8829	-1.974627
Education	0	(omitted)				
FreeTime	0	(omitted)				
HotelRestaurant	-129.0256	56.61434	-2.28	0.024	-240.5341	-17.51719
Simultaneously	-2.581336	5.361194	-0.48	0.631	-13.14082	7.97815
_cons	-66.79583	111.6758	-0.60	0.550	-286.7542	153.1626

Figure 6.20 Complete Regression, Fourth Variable, Mixed Model, Robustness Analysis. Source: Elaboration by Stata Software.

7 Conclusions

This master thesis represents the very first attempt to evaluate the success of SMEs to access the alternative credit channel of P2P Lending taking into account a European player (UK excluded). In particular, the analysis can be considered unedited and innovative because success measures were strictly based on the peculiarities of the business model of Lendix.

We investigate the success of a projects published on the platform considering 4 different measures: *Time on Platform* measured in hours, *The Amount Financed by Private Investors divided by the Time on Platform, Amount financed by Private Investors divided by the Expected Amount available for Private, The Amount Financed by Private Investors divided by the Time on Platform divided by the Expected Amount available for Private*.

The aim of the research was to find if exist some relevant factors related to the loan specific characteristics, to the characteristics of the company requesting the loan or to the purpose of the loan that are able to explain the differences in success (as defined by our measures) and how they affect it. Is important to explain some relevant differences between the past literature and this research. The first issue is the definition of success. Most of the literature aimed at investigating the success factors of a loan in P2P Lending environment consider the relation between some variables and the default rate of the loans among a dataset of thousands of loans provided by some of the most important platform in the world as Prosper.com or LendingClub (Cinca et. al, 2015; Polena & Regner, 2016). These are consumer lending platform, meaning that loans are unsecured personal loans to private (of course opportunely screened and selected by the platform) that range from few thousands dollars to maximum $ 40,000 in case of LendingCLub and $ 25,000 for Prosper. Instead in our research, the platform under analysis was a quite young business platform, that recognized an incredible and immediate success in the home country (France) and in the other two operative countries, Spain and Italy. The loans are requested by business with amounts within a range from € 30,000 to € 5,000,000 with a duration between 3-84 months. As a consequence, the platform presents some differences related to the major past research. Lendix is a business P2P platform and the clients are on one side the community of lenders as in any P2P platform, and on the other side businesses and not private single individuals asking some thousands of euro to buy a new vehicle or for debt consolidation reasons. Other researches in the literature investigate the success in term of capability to complete the financing as most of them are based on Prosper.com platform that structured the loan financing and the interest rate definition through an auction process.

The results were positive in some case and show that exist some factors that affect more than other the success of a project published on Lendix while considering other variables there were not particular evidence to conclude the existence of a real relationship.

Considering the set of variables related to the projects characteristics, i.e. interest rate, duration and the total amount to be funded, the results of the single regression tested the H1 (Table 6.1) combined with the results of the regression testing the variables in a more complete scenario (Table 6.4 Table 6.5) led us to some important conclusions. Firstly, we can easily conclude that there is a quite clear preference for projects that present a larger interest rate (*IR*), a lower maturity (in term of duration of the loan) and a lower total amount to be financed. The results concerning the relationship with the amount could be considered as quite obvious, as confirmed by past research (Freedman & Jin 2008; Puro et al. 2010) the impact is negative on the measure of success as defined in our model. A larger loan need more time to be financed and at the same time attracts less private investors, both in terms of velocity of funding and in relation with the expected participation by the community, but this can be easily seen as a matter of limit of the capability of the community of Lendix that is still in its growing phase, but consider the success as the number of bid received, Feng et. al find a positive relationship with the numbers of bid a loan receives and the size of the loan. The results of our regression model confirm that lower maturities impact positively on the success of a project on Lendix, this is confirmed by the general liquidity preferences theory according to which investors prefer cash or other highly liquid securities rather than long-term investments for which they associated a larger risk and so also a larger remuneration. Similar findings can be associated to the research conducted by Feng et al. that confirm how a lower duration of the loan can positively impact on success of loan in term of number of bids received and funding time analysed by the authors. Additional confirm comes from Chen et. al 2016 in "Are investors rational or perceptual in P2P Lending?" that stated how investors in P2P are rational in their decision evaluation and consider as valuable invest in loan with shorter maturity.

The most interesting results of our model concerns the evaluation of the impact of the interest rate on the success variable considered. In a complete efficient market, on average, we should observe a quite equal distribution of investments among the different projects opportunity in term of risk-reward ratio according to the risk profile of each investors. So, with this premise, and under the hypothesis that projects on Lendix are priced efficiently according to their expected risk, should be easy to expect any impact of the interest rate on the project success

variables as in the community of lenders we should observe a quite neutral distribution of the investments according to the risk/reward preference of the single investor (qualitative explanation of this concept in Figure 7.1). In general terms, the interest rate should not be considered as a discriminant variable among the projects as it simply reflects the risk of the project itself. The results show instead how the interest rate is one of the main factors affecting the success, having a great significance in the single regression model testing H1 (in all the 4 measures under analysis present a p-value<0.01) and with considerable significance also in the final model and its robustness test. The interesting point is the coefficient of the *IR* variable in all tests that is positive meaning that a larger interest rate increases the value of the success measure considered and as reflection the interest rate can be considered as a real attractive factor for the investors community leading to a larger participation and a lower time on the platform. According to these results we can conclude that H1 is accepted and the variable related to the projects characteristics affect the success of the projects on the platform.

The second hypothesis H2 is partially accepted, according to the literature exists borrower's characteristics able to affect the probability of success of a loan in a Peer-to-Peer system, most related to financial factors as debt-income ratio, FICO scores, credit grade or open credit lines (Cinca et. al 2015; Polena & Regner 2016, Iyer et al. 2009); but exist a pool of researches that affirm how the "soft" information can have a relevant impact (Freedman e Jin, 2008, 2010, 2014; Herrero Lopez, 2009; Lin, 2011; Greiner & Wang 2009). The aim of our model was to find if some financial performances of the borrowers (in Lendix business and not consumer) can impact on its success on the Lendix platform. Surprisingly one of the most relevant factors of the literature, a measure of the indebtedness of the borrower as the NFP/E (expected value considering the additional debt raise through the platform) does not have particular incidence on the projects' success in contrast with the related literature. One of the reasons that could support these diverging results could be explained by the difference between the sample used by the past scholars (mainly consumer lending platform) and the definition itself of success that in our model is more related to a measure of attractiveness rather than non-default probability. The only variables that seem to impact the success of the projects are the ones related to the average revenues of the company and the FCCR calculated by Lendix, while the age of the company and the indebtedness level does not have any impact. Both FCCR and Revenues level results to have a negative impact on the success (as well explained in the Section 6). Regarding the revenues level, there are no evidences in literature that can lead us to justify this result.

Taking into account the measures of success proposed in this work, it is possible to conclude that smaller companies in terms of turnover size are more successful than bigger ones mainly because the amount asked is lower. This result is supported by the high correlation level between the amount asked and the Revenues level.

It is interesting to note that a synthetic measure of the financial stability of a company as the FCCR, that determine the capability of repayment of the financial liabilities through operational activities, negatively impact on the success variables. This means that in general terms companies with a larger value of FCCR (more stable and secure from a financial point of view) seem to attract less interest by the community of lenders and stay more time on the platform. Combining this result with the size of the company and the variable related to the *IR*, riskier projects of smaller companies (remember that the interest rate represents also a measure of the risk associated to the project) are more successful. These results seem to be counter-intuitive from a rational point of view, in general terms we can suppose that the investors' community in Lendix seems to be more risk-propense. Exists pool of researches and studies that show how the investor (or decision-maker in general), under risk choice, does not follow the general utility theory according to which the decision-maker should take his decision in order to maximize its expected utility. According to the prospect theory people tend to be more risk-propense or risk-adverse in different conditions according to the prospect (lottery) they are analysing, this involve also the psychological aspect of a valuation that differ from the simplistic way of the maximization of the expected utility (Daniel Kahneman & Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk", 1979). The two authors developed some arguments around the behaviour of an individual according to different situations involving risks, one of them is called *reflection effect.* According to the two authors an individual tends to be risk-averse in a positive domain (the domain involving decision between probable vs. certain gains with the same expected utility) and risk seeking in the negative domain (situation involving a decision between probable vs. certain losses with the same expected utility, or in this case losses). Additionally, they state that the certainty effect, or overestimation of certainty, according to which in positive domains risk-aversion leads preferring sure gains over a larger gain that is merely probable while the same effect brings to prefer losses merely probable rather than smaller losses that are certain. Bringing this consideration in the P2P paradigm we can assume the investors act towards the investment opportunity as they are in a negative domain considering the high possibility to incur in losses stated the high level of risk for non-secured

loan in Peer-to-Peer investments opportunity. This brings investors to increase their risk propensity towards the set of projects riskier from a financial point of view (FCCR lower) and with a larger return (IR larger, considered as a proxy of the risk).

Another important study that gives results that go towards similar conclusions is the one conducted by Tereza Hudcovà "Analysis of Czech P2P Lending investor's behaviour drivers", 2017. The main objective of the research was to detect, whether there exists correlation between lenders' real behaviours on platform Zonky (Czech P2P platform), in terms of expected return and duration of their portfolio (inferred by the data collected by the platform) and responses that they state in a survey measuring their risk and duration preferences (those are further transformed into particular risk and time preference degrees). More specifically, an emphasis is put on risk behaviours captured by investors' expected return and time preferences characterized by duration of funded loans, compared with the degree of risk and time preferences gained from the survey. The higher the value of the variable *RiskDegree* derived by the survey, the more risk-seeking an investor is expected to be (lender that are more risk averse should be experiencing lower expected return of their portfolio and vice-versa for risk-seeking investors). Focusing the attention only on the results regarding the risk preferences, the opposite is further proven by depiction of scatterplot, showing that there is indeed no linear relationship between RiskDegree inferred from a survey and the expected return of particular investor. For instance, the individual with strongly risk-averse degree (equal to 2) is in fact experiencing the expected return of his/her portfolio amounting almost to 14%, which can be described as very risky one. The author concludes "Results of the thesis indicate, that lenders in online environment behave way riskier than they, from the theoretical point of view, should, based on their risk degree".

Other supports to our conclusions comes from the paper developed by Collier et al. (2016), analysing risks preferences of households in the context of insurance contracts decisions. They tested the households' behaviours with respect to the deductible, referred to low stakes, and their limit coverage, linked to high stakes. households' preferences are inconsistent across their deductible and coverage limit decisions. Households' deductible selections demonstrate much greater diminishing sensitivity to losses and overweighting of small probabilities when compared to their coverage limit choices (Collier et al., 2016). These findings suggest a higher risk-aversion of decision-maker for what concerns losses on high stakes outcomes rather than losses on low stakes. Linking these findings to Peer-to-Peer Lending environment, it is possible

to underline how in this context there is the possibility to invest low stakes amount, such as happened on Lendix platform, where the minimum investment amount is only € 20. This means investors behave in a low stakes context, leading lenders to increase their risk-propension, allocating their money towards riskier projects, i.e. projects with higher interest rates (that is a measure of expected return but also of the risk of the project) and with lower FCCRs.

Additional possible explanation for this apparently higher risk propensity of Lendix investors can be identified within the business model of Lendix, particularly for what concerns the financing process. Indeed, the fact that Lendix's institutional investors and its management team finance all the projects could be seen as a signalling effect regarding the "quality" of them, assuring that the screening phase conducted by the company on the different borrowers is very robust and structured is assessing the capability of the target firm to manage the financing. The presence of the Fund and the signalling effect produced by it increase the confidence degree of investors also towards those projects that are, theoretically, riskier than other projects. This behaviour conducted by Lendix can lead investors in directing their attention towards those projects that can guarantee larger returns, despite that those projects are the ones associated, theoretically to a higher risk level. In other words, the presence of the fund lead investors to consider risky projects not so risky as they really should be, on a theoretical basis; this means that their risk-return profile is higher than their theoretical one, attracting investors preferences. In fact, as it is possible to see on the Lendix' statistics section, C class of projects is not the worst rate, with default rates equal to 1.4% and 3.3% calculated of the amount and on the number of projects financed. B class projects are worse than C class ones, with default rates values equal to 2% on the amount lent and 3.9% on the number of projects financed. Table 7.1 reports the default values for the three main rating categories.

Rating Category	Default Rate (Amount)	Default Rate (# Loans)
A	0.30%	2.70%
B	2.00%	3.90%
C	1.40%	3.30%

Table 7.1 Default Rate by Rating Category, Data Updated to 28 February 2018.
Source: Lendix Platform.

The third hypothesis developed was related to the impact on the loan purpose on the success measures defined. In particular, the focus was addressed to understanding if projects receiving money in order to finance an acquisition were less successful than the ones asking money for different purposes, such as renovation or equipment purchase. From the regression analysis, it is possible to see that exists a relationship between success and loan purpose, and that projects that ask money for an acquisition are, in general, less successful than projects with different purposes. The impact of the acquisition remains consistent in both the single regression test and in the mixed model. In literature, there are several researches and studies related to the negative impact of M&A process on operative performances of the acquirers, particularly in the first year after the transaction. This result was supported by the findings of Geoffrey Meeks (1977), that underline a decrease in the ROA for the acquirers following the transaction and general lower performances compared with the industry standards. Moreover, Mueller (1980) found that profitability of acquirers typically worse with respect to comparable firms that did not experience M&A transaction. Also Natta, Pinches & Narayanan (1992) provided robust evidence about the fact that acquiring firms' shareholders do not realize significant returns from the transaction. The issue about the impact on performances of an M&A process was discussed more recently by Di Sabatino (2015), highlighting a worsening of performances between the year before the transaction and the following one. Moreover, we assumed that the complexity of this kind of activities added to the evidences provided by the literature concerning the worsening of performances after acquisition lead investors to perceived projects with acquisition purpose as less attractive with respect to projects with different purposes.

In order to summarize the main results obtained, let's consider what represented in Figure 7.1. The chart shows that, theoretically, projects should be distributed along the efficient frontier according to their risk-return profile. Investors should not express any preference among the different projects, but they should select projects according to their personal risk attitude. For instance, an investor with a low propensity to risk should choose A class projects, while an investor with a higher risk propensity should invest in riskier projects, such as B or C.

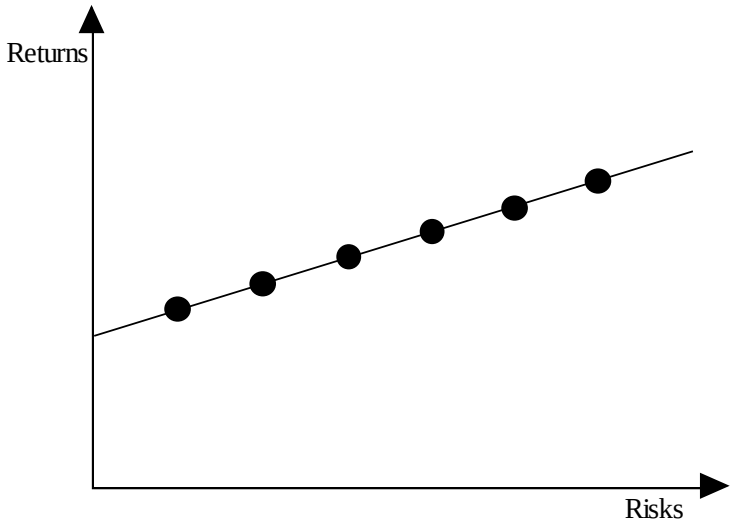

Figure 7.1 Theoretical Distribution of Projects according to their Risk-Return Profile.
Source: Personal Elaboration.

The analyses conducted on the sample of projects financed by Lendix showed the existence of some discriminant factors and variables driving the choices of private investors in financing the different projects available on the platform. In other words, the success of the different projects in terms of attractiveness by private investors point of view is led by specific projects determinants (Amount, Interest Rate, Maturity), company's specific factors (FCCR and Revenues Level) and by the loan purpose. It is interesting to deduce that some of these variables, especially the Interest Rate and the FCCR, are strictly linked to the risk of the project, and they positively affect the success of it. These evidences lead to assume a strong polarization of the investors' preferences mainly related to the projects categorized as riskier with respect to other projects, reasonably included in class C. This polarization leads to a modification of the risk-reward profile of the various projects; in particular, class C projects are seen as projects with a higher risk-return profile with respect to the situation described in Figure 111. In the same way, class A project seems to be less attractive in terms of risk-reward profile from investors' point of view. The consequences of these modifications are well represented in Figure 7.2.

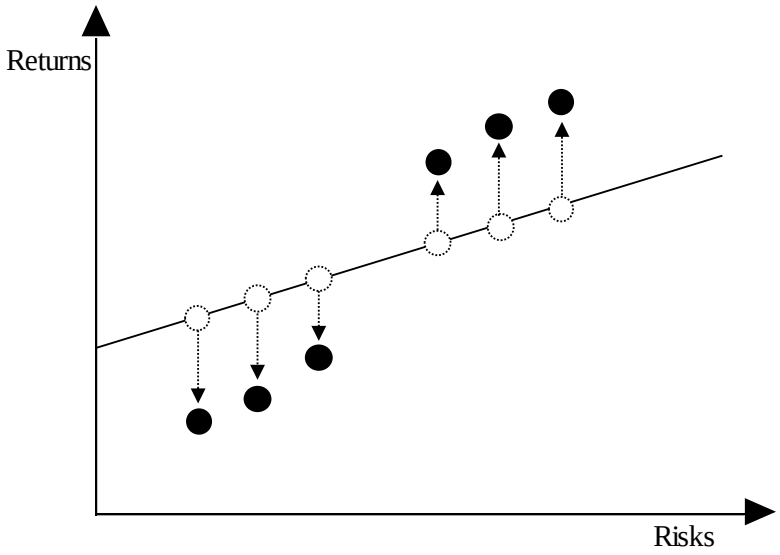

Figure 7.2 Distribution of Projects considering the Polarization of Investors Preferences.
Source: Personal Elaboration.

The main findings emerged from this work can be grouped within the sample of studies and researches aimed at investigating the key success drivers of Peer-to-Peer. It is important to underline how success measures, in this specific case, are quite different with respect to the related literature, especially because of the business model of Lendix, that guarantee the success in terms of financing probability. Moreover, the data needed in order to evaluate the success in terms of default rate were not available, because of the platform is still in the start-up phase[165]. This work can be considered as a starting point for a benchmark between the financing process of Lendix compared to an alternative one, for instance, the auction method, that is very common and used by different platforms. Additionally, it can be used in order to develop a statistical evidence about the impact of the presence of the Fund on the investment behaviour of the community and on the success performances of the different projects financed.

The role of these P2P Lending platforms could become of crucial importance as showed the evolution of the recent years. The market addressed by this form of business is enormous and it is attracting, not only the part of the market left unserved by the traditional banking system, but also because, in some cases, its advantages make it preferable by companies dissatisfied by the traditional financial markets.

[165] Piece of information disclosed by Lendix support team.

"Having already negotiated a loan with a large French bank two years ago, I can say that it is like day and night. On the one hand, a slow and archaic system with unsuitable and ill-disposed interlocutors. On the other hand, a young and dynamic team (even if I have never met him), relevant interactions, a solid process and a job well done. Everything is transparent and communicated clearly." This is a part of the interview done to the CEO of a company that gets financing on Lendix[166]. On Lendix Blog are available a series of interviews conducted both with companies financed, and with investors in order to get relevant information about the motives that bring them to use the P2P Lending as a source of financing and as an alternative to the traditional investments, and feedback about the Lendix business activities. What emerge from these interviews is that most of the companies are aware of this alternative form of financing and decide to use it because they find difficulties to get access to bank loans with actual conditions, and they consider it as a valuable alternative to the traditional credit channel, also with the objective to diversify the form of credit, as in the case of B3, distributor of clothing and accessories for motorcyclists since 2011 with headquarters in Biella (BI). The company gets € 100,000 from the Lendix investor community to finance the creation of a new line of leather products. The CEO Fabrizio Bellese says how these platforms could represent a valid integration of the traditional credit channel and the success of the first financing in Lendix lead the team to possibly use the platform to finance new initiatives[167].
The choice of Lendix as investment platform is driven mainly by the set of advantages promoted by the business model set up by the Lendix management team. The velocity of the process, the professionality of the team, the middle-high range of operation managed, and the international profile of the platform are the main motives that lead the companies interviewed to trust about Lendix for this operation. Most of them try this form of credit for the first time and rely on the possibility to use it again.

It possible to summarize the advantages that make Lendix a suitable choice for companies in:

- The velocity of the process that allows companies to receive an answer about their eligibility to credit in 48h and, after receiving the approval by the selection activities, to get the amount requested in less than a week.

[166] Le Florida that get € 83,000 in order to open two new rooms in the restaurant.
[167] https://it.lendix.com/intervista-unimpresa-lendix-5/

- The simplicity, indeed al informational flows are managed online in a very efficient way.
- The trust, no collateral is requested, but of course, a series of financial requirements are necessary to be financed in Lendix.
- The transparency, conditions of financing are certain and expressed in detail in the financing offer: no uncertainty either on the rate or on the date of disbursement of the funds.
- No uncertainty, a project published on the Lendix platform has the certainty of obtaining funding thanks to the extensive network of private and institutional investors that automatically complete the portion that may not be covered by private individuals.

For the investors is important that they are aware of the set of possible risks related to this form of investment. Considering the nature of the loans object of these platforms (no collateral) and that the default risk is mainly on the shoulders of lenders the total level of risk of this activity is not low. Lendix with its blog activity and the Lendix Academy, and the disclosure about the importance to diversify the investments, works in the way of make the investors (especially the ones with less expertise) more informed about the financial and the P2P system in order to act aware of all implication of their investment decisions.

The set of interviews conducted with private investors of the community of Lendix provide information that allows to better understand what are the motives that lead an investor to enter in the P2P financial system. Olivier, investors in Lendix since September 2016 explain the three elements that lead him to invest in Lendix: “Lendix allows me to invest on international projects in a simple and free way. What's more, it gives me the opportunity to support successful companies in their growth strategy, thus making my contribution to the real economy. Finally, it allows me to get really interesting returns.” The easiness of the process, the possibility to contribute to the real economy and of course the interesting returns related to this form of investment are motives that lead also other investors. Yuri, 49 years old, from Alessandria, highlights how the higher possible returns compared with the traditional ones, i.e. banks or postal savings, the possibility to provide liquidity to real economy with particular interest for SMEs lead him to invest in Lendix. Of relevant importance is the presence of the institutional investors that through the Fund co-invest in all the projects available in Lendix. “The involvement of institutional investors - and of the managers of Lendix itself - gives me an impression of solidity”, “It is a platform that inspires great confidence, above all because the

first 51% of each project is funded by the Fund, in which participate institutional investors and Lendix management", these are extract of the interviews to investors available in the Lendix website. It is possible to summarize the advantages to invest in Lendix in:

- Portfolio personalization, that allows each investor to decide in total autonomy in which project invest according to its preferences.
- Competitive returns with account at zero-costs. The account is totally free, no fees are charged to the investors that can invest and withdraw the money or the interest matured without any cost.
- High level of transparency in order to allow the investor to collect all the relevant information to take its decisions in the most appropriate way aligned with their preferences.
- Alignment of interests granted by the co-investment of the Fund in all the projects published on the platform. Additionally, this allow the investor to not freeze their capital in project that could not be totally financed.
- Sustain to the real economy thanks to the possibility to provide financing to valuable projects of SMEs.

In conclusion, it is easy to expect a continuous growth of this industry in the next future especially in a country as Italy were the micro and small enterprises represent the largest portion of the economic system. This does not mean that all SMEs will have easy access to credit thanks to P2P platforms, because, in order to guarantee a high level of credibility and to increase the confidence of the investors towards this form of investments, the selection and screening activities performed by the platform itself must be continuously improved. The presence of these platforms could also be seen as complementary operators with respect to the traditional intermediaries, increasing cooperation with the banking system and improving the efficiency of the credit market. For example, in UK with the Bank Referral Scheme launched in November 2016, when banks deny the provision of credit to businesses they must transfer all the information collected to designed financial platform that will connect companies with channels of alternative finance such as the P2P Lending platforms with the purpose of financing projects that do not fall within banks' creditworthiness schemes, but that can create value. Furthermore, this study can integrate the sample of researches included in the domain of the behavioural

finance, showing how sometimes decisions and behaviours of economic agents follow move far from the maximization of the expected utility, as the general utility theory suggests. There are different and more complex factors and variables driving the decisions of economic agents, especially in a relatively new context, as the Peer-to-Peer Lending industry is.

8 References

Adler, P. S., Kwon, S. W. (2002). Social Capital: Prospects for a New Concept.

Akerlof, G.A., (1970). The Market for lemons: Quality Uncertainty and Market Mechanism, The Quarterly Journal of Economics.

Bank of Italy (2015). Disposizioni sulla vigilanza, la raccolta del risparmio dei soggetti diversi dalle banche.

Bank of Italy (2015, November). Documento per la consultazione, Disposizioni di vigilanza, Raccolta del risparmio dei soggetti diversi dalle banche.

Barzel, Y. (1987). Knight's "Moral Hazard" Theory of Organization.

Baum, J. A. C., Silverman, B. S. (2004). Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology start-ups. Journal of business venturing.

Becchetti, L. (2008). Il Microcredito. Il Mulino.

Berger, A. N., Miller, N. H., Petersen, M. A., Rajan, R. G., Stein, J. C. (2005). Does function follow organizational form? Evidence from the lending practices of large and small banks. Journal of Financial Economics.

Berger, A. N., Udell, G. F. 1992. Some Evidence on The Empirical Significance Of Credit Rationing. Journal of Political Economy.

Brander, J., Zott, C. (1998). Why do venture capital firms exists? Theory and Canadian evidence.

Bruner, R. F., (2001, October). Does M&A Pay? A Survey of Evidence for the Decision-Maker. University of Virginia.

Chemmanur, T. J., Krishnan, K., Nandy, D. K. (2011, October). How Does Ventures Capital Financing Improve Efficiency in Private Firms? A Look Beneath the Surface.

Chen. X., Jin, F., Zhang, Q., Yang, L. (2016, February), Are investors rational or perceptual in P2P Lending?

Cinca, S. C., Nieto, G. B., Palacios, L. L. (2015). Determinants of Default in P2P Lending.

Coleman, J. S. (1988). Social Capital in the Creation of Human Capital. American Journal of Sociology.

Collier, B. (2016, March). Risk Preference Inconsistencies across Low and High Stakes: Evidence from the Field. Wharton University of Pennsylvania.

Committee on the Global Financial System, Financial Stability Board (2017, May). FinTech credit. Market structure, business models and financial stability implication.

Cooper, A. C., Woo, C. Y., Dunkelberg, W. C. (1988). Entrepreneurs' perceived chances for success.

Datta, D.K., Pinches, G.E., Narayanan V.K., (1992). Factors Influencing Wealth Creation from Mergers and Acquisitions: A Meta-Analysis. Strategic Management Journal.

De Roure, C., Pelizzon, L., Tasca, P. (2016). How does P2P Lending fit into the Consumer Credit Market?. Discussion Paper, Deutsche Bundesbank.

Deer, L., Mi, J., Yuxin, Y., (2015). The rise of Peer-to-Peer Lending in China: An overview and survey case study.

Di Sabatino, M., (2015). Performance post M&A in periodi di crisi: Analisi empirica nell'area Euro. Università LUISS.

Dietrich, A., Wernli, R. (2016). What Drives the Interest Rates in the P2P Consumer Lending Market? Empirical Evidence from Switzerland.

Duarte, J., Young, L., Siegel, S. (2012). Trust and credit: The Role of Appearance in Peer to Peer Lending. Oxford Journals.

Eckbo, E., (1983). Horizontal mergers, collusion, and stockholder wealth. Journal of Financial Economics.

Eckbo, E., K. Thorburn (2000, March). Gains to Bidder Firms Revisited: Domestic and Foreign Acquisitions in Canada. Journal of Financial and Quantitative Analysis.

Emekter, R., Tu, Y., Jirasakuldech, B., Lu, M. (2015). Evaluation Credit Risk and Loan Performance in online peer to peer lending. Applied Economics, pp. 54-70.

Feng, Y., Fan, X., Yoon, Y. (2014). Lenders & Borrowers' Strategies in Online P2P Lending. Lending Market: an Empirical Analysis of PPDAI.com.

Freedman, S. M., & Jin, G. Z. 2011. Learning by Doing with Asymmetric Information: Evidence from Prosper.com. National Bureau of Economic Research Working Paper Series, No. 16855.

Freedman, S., e Jin, G.Z., (2008). Do Social Networks solve information problems for Peer to Peer Lending? Evidence from Prosper.com. Working Paper 08-43, NET Institute.

Freedman, S., e Jin, G.Z., (2014). The signalling Value of Online Social Networks: Lessons from Peer to Peer Lending. Working Paper n. 19820, NBER.

Giudici, G. (2017, July). 2° Report italiano sul CrowdInvesting. Osservatorio Crowdfunding, Politecnico di Milano.

Gollier, C., Koehl, P. F., & Rochet, J. C. 1997. Risk-taking behaviour with limited liability and risk aversion. Journal of Risk and Insurance, 64(2): 347-370.

Gompers, P. A., Lerner, J., (2004). The Venture Capital Cycle. Cambridge and London: MIT Press.

Gompers, P., Lerner, J. (2001). The Venture Capital Revolution.

Gompers, P., Lerner, J., (2001). The venture capital revolution. Journal of Economic Perspectives.

Gorton, G. B., Pennacchi, G. G. (1995). Banks and Loan Sales - Marketing Nonmarketable Assets. Journal of Monetary Economics.

Granovetter, M. (1985). Economic Action and Social Structure: The Problem of Embeddedness. The American Journal of Sociology.

Greenwald, B. C., Stiglitz, J. E., Weiss, A. (1984). Informational Imperfections in the Capital Market and Macro-Economic Fluctuations.

Greenwald, B., Stiglitz, J. E., & Weiss, A. (1984). Informational Imperfections in The Capital-Market and Macroeconomic Fluctuations. American Economic Review.

Greiner, M. E., Wang, H. (2009). The Role of Social Capital in People-to-People Lending Marketplaces.

Greiner, M. E., Wang, H., (2011). Prosper-eBay for Money in Lending 2.0. Communications of the Association for Information Systems: Vol. 29, Article 13.

Greiner, M., Wang, H. (2007). Building Consumer-to-Consumer Trust in e-Finance Marketplaces.

Greiner, M.E., Wang, H. (2009). The Role of Social Capital in People to People Lending Marketplaces. ICIS Proceedings.

Grossman, S. J., Hart, O. D. (1982). The Economics of Information and Uncertainty.

Hermes, N., Lensink, H., Mehrteab, T. (2007). Peer Monitoring, Social Ties and Moral Hazard in Group Lending Programs: Evidence from Eritrea.

Hogarth, R. M., (1978). A note on aggregating opinions. Organizational Behaviour and Human Performance.

Hudcová, T. (2017). Analysis of Czech P2P Lending investors' behaviour driver. Charles University, faculty of Social Science

Iyer, R., Khwaja, A. I., Luttmer, E. F. P., Shue, K. (2009). Screening in New Credit Markets, Can Individual Lenders Infer Borrower Creditworthiness in Peer-to-Peer Lending?.

Iyer, R., Khwaja, A.I., Luttmer, E.F.P., K. Shue (2009). Screening in New Credit Markets Can Individual Lenders Infer Borrower Creditworthiness in Peer-to-Peer Lending?. AFA Denver Meetings Paper.

Jaffe, D. M., Russell, T. (1976). Imperfect Information, Uncertainty, and Credit Rationing.

Jensen, M. C., Meckling, W. H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure.

Kahneman, D., Tversky A. (1979). Prospect Theory: An Analysis of Decision under Risk.

Kirby, E., Worner, E. (2014). Crowdfunding: an infant industry growing fast. International Organization of Security Commission.

Klafft, M. (2008). Online Peer to Peer Lending: A Lenders' Perpective.

Lin, M., Prabhala, N. R., Viswanathan, S. (2013). Judging borrowers by the company they keep: friendship networks and information asymmetry in online Peer-to-Peer Lending.

Lorenz, J., Rauhut, H., Schweitzer, F., & Helbing, D. 2011. How social influence can undermine the wisdom of crowd effect. Proceedings of the National Academy of Sciences of the United States of America, 108(22): 9020-9025.

Makridakis, S., Winkler, R. L., (1983). Averages of Forecasts - Some Empirical Results. Management Science.

Meeks, G., (1977). Disappointing Marriage: A Study of the Gains From Merger. Cambridge University Press.

Miller, S., (2015). Information and default in consumer credit markets: Evidence from a natural experiment. Journal of Financial Intermediation.

Milne, A., Parboteeah, P. (2016, May). The business models and economics of Peer-to-Peer Lending. European Credit Research Institute.

Mohammadi, A., Shafi, K. (2017, February). How Wise Are Crowd? A Comparative Study of Crowd and Institutions in Peer-to-Business Online Lending Markets.

Möllenkamp, N. (2017). Determinants of Loan Performance in P2P Lending. University of Twente.

Mueller, D., (1980). The Determinants and Effects of Mergers: An International Comparison. Cambridge.

Mueller, D., (1985). Mergers and Market Share, Review of Economics and Statistics.

Mueller, D., (1989). Mergers: Causes, Effects, and Policies, International Journal of Industrial Organization.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics.

Myers, S. C., Majluf, N. S. (1984, July). Corporate Financing and Investment Decisions When Firms Have Information the Investors do not Have.

Nahapiet, J., Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. Academy of Management Review.

Oxera.com, (2016). The Economics of Peer-to-Peer Lending.

Polena, M., Regner, T. (2016). Determinants of borrowers' default in P2P Lending under consideration of the loan risk class.

Pope, D. G., Sydnor J. R. (2011). What's in a Picture? Evidence of Discrimination from Prosper.com.

PricewaterhouseCoopers (2015, February). Peer pressure: how Peer-to-Peer Lending platforms are transforming the consumer lending industry.

Puro, L., Teich, J. E., Wallenius, H., Wallenius, J. (2010). Borrower Decision Aid for People-to-People Lending," Decision Support System.

Quaranta, G. (2016). Crowdfunding. Il finanziamento della folla, o dei "folli"?. Diritto ed Economia dell'Impresa, fascicolo n. 5.

Rau, R. (2017). Law, trust, and the development of crowdfunding. University of Cambridge Working Paper.

Rau, R.P., Vermaelen T., (1998). Glamour, value and the post-acquisition performance of acquiring firms. Journal of Financial Economics.

Ravenscraft, D., Scherer F.M., (1987). Mergers, Sell-Offs, & Economic Efficiency. Washington D.C. The Brookings Institute.

Ravina, E. (2012). Love & loans: the effect of beauty and personal characteristics in credit markets.

Shane, S., Cable, D. (2002). Network Ties, Reputation, and Financing of New Ventures.

Shane, S., Stuart, T. (2002). Organizational Endowments and the Performance of University Start-ups.

Silverman, B., Baum, J. A. C. (2004). Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology startups.

Stiglitz, J. E., Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information.

Stiglitz, J.E., Weiss, A. (1981). Credit rationing in markets with imperfect information. The American Economic Review.

Stillman, R., (1983). Examining antitrust policy toward horizontal mergers. Journal of Financial Economics.

Sunstein, C. R., (2006). Infotopia: How Many Minds Produce Knowledge. New York: Oxford University Press.

Wang, H. Chen, K., Zhu, W., Zhanxia, S. (2015). A process model on P2P Lending.

Wang, H., Chen, K., Zhu, W., Zhanxia S. (2015). A process model on P2P Lending. Financial Innovation Springer Open Journal, Department of Financial Mathematics and Engineering, South University of Science and Technology, Shenzhen, Guangdong, China.

Webb, D. C., De Meza, D. (1987). Too Much Investment: A Problem of Asymmetric Information.

Wehinger, G. (2014). SMEs and the Credit Crunch, Current Financing Difficulties, Policy Measure and a review of Literature.

Weidenbaum, M., Vogt S., (1987). Takeovers and Stockholders: Winners and Losers. California Management Review.

Wildau, G. (2016, August). FinTech: Chinese P2Ps plagued by flaky guarantees. Financial Times.

Williamson, S.D., (1986). Costly Monitoring, Financial Intermediation and Equilibrium Credit Rationing. Journal of Monetary Economics.

Yang, S. Y., Mo, S. Y. K., Liu, A. (2015). Twitter financial community sentiment and its predictive relationship to stock market movement.

Zanchetta, J., (2017). Il Peer-to-Peer Business Lending nella crisi d'impresa. Università degli Studi di Padova.

Zanetti, S., (2016). Peer to Peer Lending: Intermediazione Finanziaria Online. Università Ca'Foscari Venezia.