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A "crowd" of "peer" agents in lending market: the disruptive impact of P2P lending

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Aknowledgements

I would like to thanks my lecturer and supervisor, professor Previtali Daniele, for his precious guidelines to my thesis drafting and his urging teachings of life about the approach towards financial and real world which led me to develop my thesis issues in a discriminating way: this message must be applied in everyday-life situations.

Preface

A great crisis has always been a moment of changes and searching for new solutions: technological progress brought by the globalization, however, caused a sense of “euphoria” especially in financial market and a progressive leaving from the real economy.
However, this gap did not prevent real consequences of the last credit and liquidity crisis and the recovery of real economy is still a tough path.
The research for a “bridge” between ‘financial’ and ‘real’ led me to analyse P2P lending, trying to answer to the question about its nature: is it a disintermediation solution or, better, a new form of ‘ soft’ intermediation made by an online platforms among “peers”? And which could be its role in banking industry?
These are the questions which drove me to approach with a double point of view to P2P lending issue.

INTRODUCTION
Are financial intermediaries actually fundamental in nowadays financial system?

Diamond's Model (1984) explains the outstanding and fundamental role played by Financial Intermediaries (FIs) in lenders-borrowers' market. The latter was characterized by different kinds of business model, from specialized banks to universal model, coming back to the difference between investment bank and commercial one after 07's crisis.

Why are FIs so important in financial market?

They have three main functions: credit function (ensuring effective transfer of financial resources from "in surplus" units to "in deficit" units), strictly monetary function (guarateeing the effectiveness of payment services) and broadly monetary function (as channels of monetary policy transmission).

They can be characterized by three activities which FIs conduct, exploiting scope economy: screening (i.e. measuring and analysis of credit scoring of counterparts), signaling of eventual risky conditions and delegated monitoring in order to ensure that the borrowed capital in properly invested.

Single investors could conduct monitoring in an autonomous direct transaction but monitoring costs are huge especially if investors are copious and a stipulation of a contract with the borrower is inefficient. Thus, as Diamond demonstrates, costs of delegated monitoring are negatively linked to the number of investment projects according to the "big numbers" theory, thus transactions through FIs, either helped direct transactions (FIs just search, select and control) or indirect ones (FIs place their balance before the counterparts).

Furthermore a FI can enslave scope economies to decrease every kind of transactional costs (such as research costs) and to reduce the negative impact due to informative asymmetry in terms of hidden information (adverse selection) and hidden action (moral hazard). Since market is imperfect and characterized by a semi-strong informative efficiency, all these negative externalities can be only minimized, and not annulled.

An outstanding task of a FI is assets' and deadline's transforming: it means that a FI places itself along the yield curve. It gains spread from the difference between the interest rates at the end of the curve granted by investments on assets (gainful interest rates) and the ones at the beginning of the curve for funding collection (loss interest rates), gaining also by the debt. Moreover, a FI collects at short term and invests at long term (managing duration's mismatching) and, in this way, it transforms risks.

The actual base of financial stability and, generally speaking, the economic world is *trust* among operators.

The betrayal of this trust caused by subprime crisis and the IT revolution brought about the transformation of financial services offered by FIs in order to face the electronic credit marketplaces.

Particularly, banks are the most important FIs in financial world, in fact they are considered "special", from regulatory viewpoint, too. Their "speciality" derives from their liabilities, which are mainly deposits from savers, and from their assets (whose 60% is credit to real economic sector). These are commercial banks, different from the investment ones which are specialized in trading more than in hedging activities. The central role of bank system grew especially because of the adoption of universal business model: despecialization brought about the possibility for banks to sell differenciated financial products. However, core business is essentially made by revenues from intermediation margin, whose higher share is owned by interest margin. The latter is decreasing because of credit constraints and the consequent credit crunch, bringing about the research for new revenues' sources. Banks are approaching more and more towards service fees business model in order to compensate the lack of fruitful interests by non-performing loans (NPLs). Banks' practices such as carry trade and business model's changes are causing financial instability, researching for new alternative financial sources. For this reason, banks are particularly focussing on "online banking" services considered as "balance sheet disintermediation", challenging nowadays the so-called "origination disintermediation" by nonbank lending platforms.

Thus, are really fundamental Financial Intermediaries since they could not prevent crisis and new online financial tools is growing in lending markets? This phenomenon of "moving away" from financial intermediaries is bringing about the proliferation of online nonbank platforms and the growth of P2P lending marketplace, as if the birth of online bank platforms was not sufficient to maintain especially retail customers.

Finally, P2P lending platform could be mean through which financial education could become reality in order to decrease negative Asymmetric Information's externalities.

Is this an alternative to bank system or could it be complementary as driver of bank business model's change?

After analyzed the impact of credit crunch on lenders (particularly banks) and borrowers (especially SMEs, consumers and householders) and the effects of IT revolution on financial tools, an overview about P2P lending marketplace phenomenon will be functional to understand what P2P lending is. How it works and its importance for borrowers as SMEs, householders and consumers will be dealt in order to compare P2P platforms' business model and banks' one and justify banks in changing their business models. P2P lending will be presented also in terms of crowdfunding (especially equity-based one) and social lending, since they are the most important kinds of P2P lending platforms which, respectively, small business and consumers mostly exploit to obtain funding. A practical example is provided by the case of Prosper, through which showing business models' comparison and eventual solutions that P2P lending system can provide for solving banks' and, generally speaking, financial market's problems.

CHAPTER 1.
Business model, credit crunch and IT in banking: an introduction

1. Introduction

The '07 "Great Recession" was one of the first biggest financial and credit crisis in the financial world. All begun in USA where real estate market was developing thanks to broader bank mortgage lendings, given also to those retailers who were judged to have a low credit rating, too.
For these reasons, American banks decided to securitize mortgages in ABS in order to get rid of risks: in fact these were called NINJA bonds defined "junk" by credit rating agencies.
Since trading was (and still today is) a global phenomenon of financial world thanks to the globalization and IT revolution, junk bonds soon reached the majority of FIs (Financial Intermediaries), especially those which worked in trading segment more than in hedging one.
Real-estate market prices grew up until they slumped down because of a "speculative bubble" which highlighted the huge distance between reality and financial world: in fact high prices do not necessarily represent a positive market efficiency since price is not the value of the asset which measures.
Asymmetric information mirrored a great inefficiency of financial market getting to trouble those FIs which did not know American families' insolvency and trust in financial growth thanks to new innovative financial tools such as derivates, options, etc. This was due to a long-lasting low interest rates policy and an exagerate leveraging by banks which could benefit from low monetary interest rates paying less the debt from the market and neglecting deposits' demand.
Moreover, the outline bonds were deregulated and this led also commercial banks to exploit with maybe too much enthusiasm these new devices for hedging, ignoring the underlying assets were hit by a "whirling" trading.
When the financial bubble blew up, credit crisis was accompanied by a liquidity crisis, beyond impacts on real economy. This crisis caused high costs for financial and real economy: assets were not repaid provoking decreasing profits which brought and still is bringing about low interest margins. In the meanwhile, a more difficult respect for capital requirements especially by banks was added to be compliant with Basel Committee requirements.
Mistrust hit the whole financial world and, on a side, deposits significantly decreased and, on the other side, banks were compelled to "freeze" credit to real economy for more profitable solutions, contrained unbanked subjects to find other sources of funding.
All these events caused te so-called "credit crunch": banks seemed to be "blocked" for both the sides, assets and liabilities.
There is not a shared definition of credit crunch: Udell (1994) defines it as "a significant contraction in the supply of credit reflected in a tightening of credit conditions". This phenomenon has already been identified in 1991 by Ben Bernanke who considered it from a macroeconomic viewpoint as "a significant leftward shoft in the supply curve for banks loans, holding constant both the safe real interest rate and the quality of the potential borrowers".

As for the current crisis, there is evidence that the effects may vary across firms and economies but, generally speaking, policy support seems to attenuate the risk of a more severe credit crunch.
Basically, the increasing banking globalization tends to weaken the domestic lending channel, thus importance of international transmission of domestic shocks is growing.

2. Credit crunch and the cyclical turmoil of Banks, States and Corporates

Credit crunch involved State, corporates and banks in a cyclical turmoil caused by mistrust and uncertainty especially in financial system:

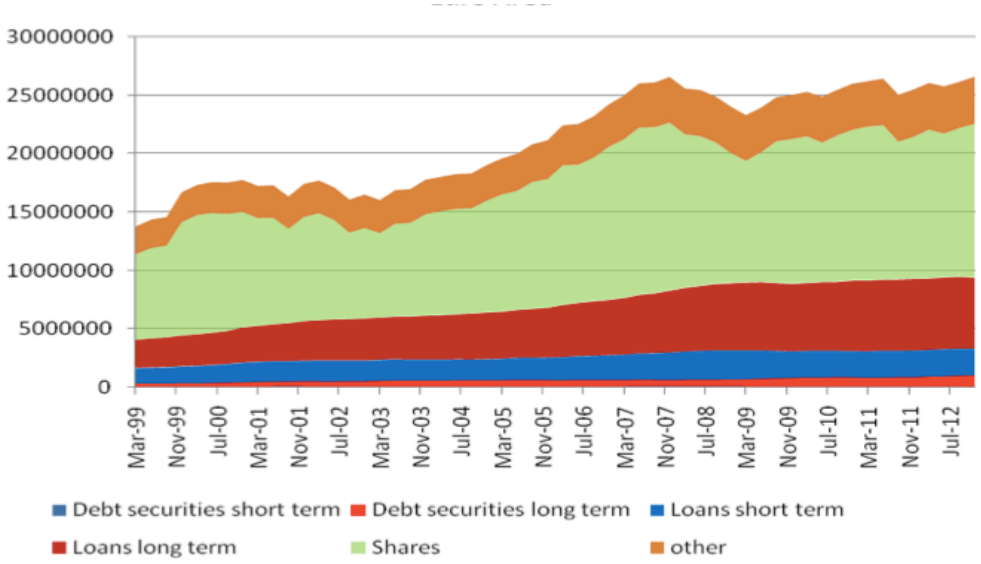
1) State had to challenge a weak economic growth and high levels of indebtness which contributed to worsen economic conditions.

2) Corporates base their liabilities on equity and debts which are commercial and financial especially from banks. According to the pecking-order theory, external financing (such as bank lendings) are preferred to stock issues but not to self-financing (figure 1). A decrease of earnings and high costs for insolvency during crisis brought about a drop of profits which did not allow them for self-financing. Thus, bank lendings percentage increased among liabilities, since it would be difficult to find equity in a fragile financial market. The cost of business credit from banks is composed by two elements: the cost of wholesale funding and the loan margin for the loan itself (determined by the bank's risk aversion, credit risk conditions and bank willigness to lend) which have absorbed all market swings for previous eight years. Enterprises's rating was low as credit risk was high for weak profits: this caused excessive constraints for lendings and higher interest rates on loans.

3) Banks, as we have disclosed, had thin buffers since they increased their risk exposure in an apparent financial "enthusiasm" easily accessing to wholesale funding for lower interest rates: universal-bank model allowed banks to become multifunctional in order to compete with the new financial intermediaries which offered new financial tools from the innovative and creative finance. Outline bonds made riskiness to raise up since those derivative tools were for trading but used for hedging, but they were profitable before 2007. New risks such as market risk and operative risk are taken in consideration in order to calculate the new patrimonial requirements by Basel II, increasing equity percentage. Leverage, however, remains too high. Moreover, banks' sources of revenues became services fees thus intermediation margin's major percentage is composed by net commissions rather than interest margin which is more and more decreasing especially after 2008 when crisis blew up and the access wholesale funding reduce, starting from 2009 (figure 2). From Bank Lending Survey (2009), however, balance sheet constraints are not visible whereas loan demand for corporates such as SMEs, householders and consumers slightly increased in 2009, probably because the crisis consequences had not yet hit Europe which was late in starting Quantitative Easing operations as in US. Also in 2010, the net tigheting credit standards decreased but the increasing demand by enterprises was less the expected one. Starting

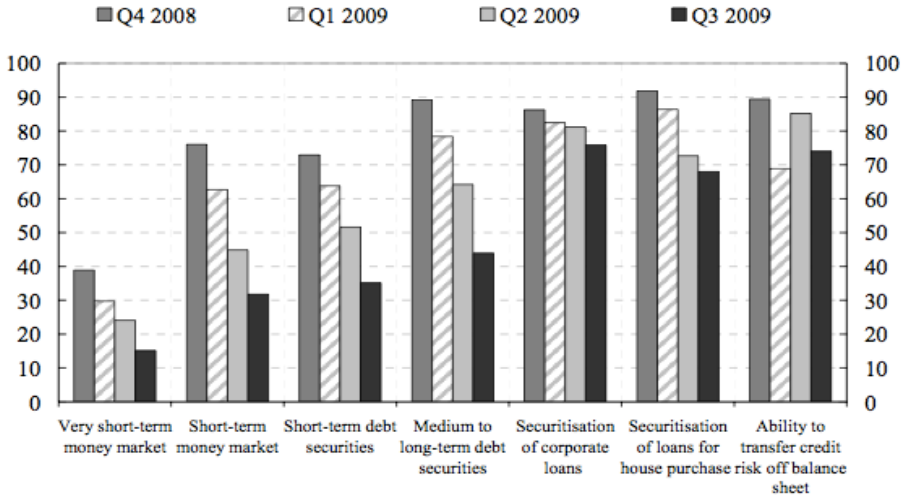
from the third quarter of 2010, we can notice about the credit standards applied to householders' loan that, among the factors contributing to tightening credit standars, cost of funds and balance sheet constraints has an increasing trend (figure 3): the less access to wholesale funding started to give its effects. Deterioration of world economy begun when EU Sovereign crisis added to US financial crisis in 2011: comparing factors contributing to tightening credit standards in 2010 and 2011, we can notice from figure 4 that all factors (excluding the industry or firm-specific outlook which is not considered in 2011 analysis) had gained a weight more and more notable in credit constraints (figure 4). The higher costs of debts and equity and the higher riskiness contributed to increase the interest rates and the required collaterals for customers who became "unbanked". From a global overview, however, world net tightening is decreasing upholding a higher loan demand, still weak in Europe (figure 5).

FIGURE 1. Non- financial corporations: main liabilities Euro Area. source: ECB.



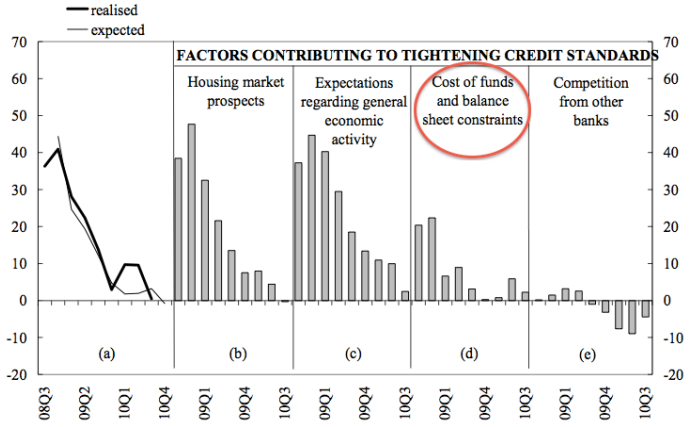
source: ECB Data Warehouse

FIGURE 2. Access to wholesale funding.



source: Bank Lending Survey, October 2009, p. 9.

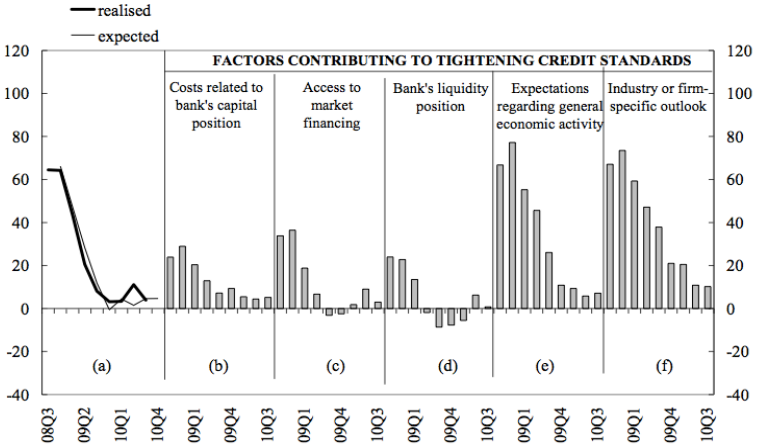
FIGURE 3. Changes in credit standards applied to the approval of loans to households for house purchase: the role of the cost of funds and balance sheet constraints



Source: BLS, 2010, pp. 7

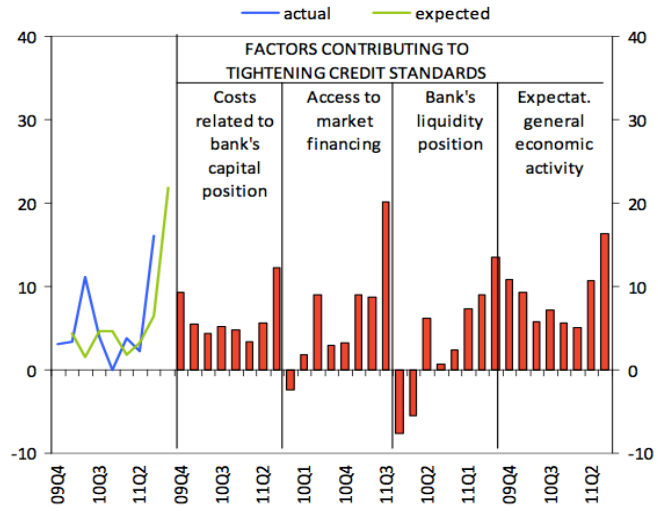
FIGURE 4. Changes in credit standars in 2010 (A) and 2011 (B) and in terms for approving loans

A)

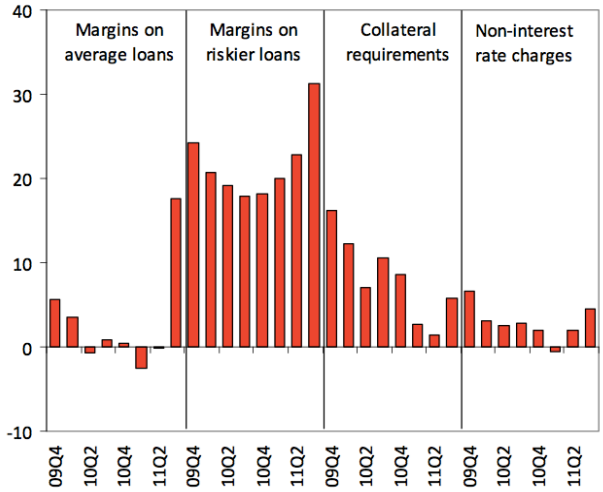


source: BLS, 2010, p. 4

B)

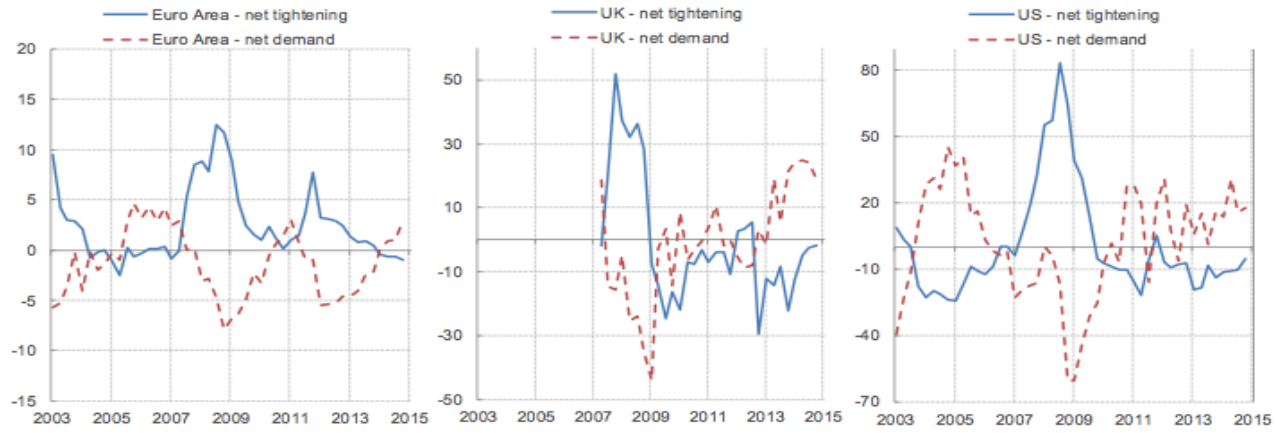


C) (2011)



source: BLS, 2011, pp. 4, 5.

FIGURE 5. Net tightening of credit standards and net demand for loans to the surveys in the euro area, UK and US.



source: BLS by ECB Data Warehouse

3. Which was borrowers and lenders' reaction to credit constraints?

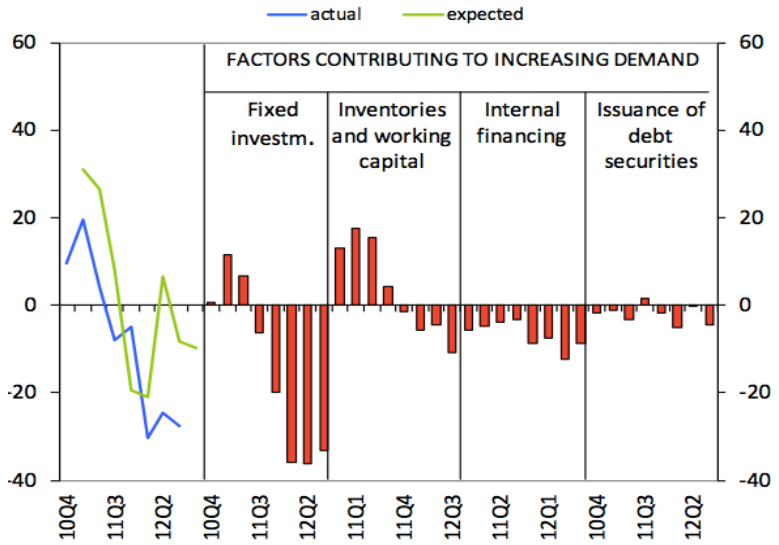
Considering corporates and consumers' side as the borrowers and the banks' one as the lenders, the analysis of credit crunch effects on the both sides can be useful to understand why peer-to-peer lending and its particular forms of crowdfunding (especially equity one) and social lending, in spite of its birth in 2004/05 (thus before crisis), spread up just after the speculative bubble blowing up.
The analysis starts with the study of borrowers' reaction to credit crunch, considering borrowers as particular segment of private sector, i.e. SMEs, householders and consumers of EU and USA.
A deeper study on P2P lending functioning and its forms' features in the following chapters will help us to understand why and how banks are changing their business model.

3.1. SMEs after 07-08 crisis

SMEs are a really important engigne for European economy, since they ensure more than a half of GDP but, because of their fragile collaterals they can offer, they were hit more than large firms in term of access to credit. For many years after crisis, banks' risk tolerance was really low bringing banks to prefer better assets where they can invest such as State bonds (provoking the so-called "carry trade" phenomenon) and other financial tools whose advantages had not got positive impacts on real economy.
Refearing once again to Bank Lending Survey and continuing the previous analysis but this time from borrowers' point of view, the results starting from 2011 are more interesting to be analysed, as for European situation: the decline of net demand starts from 2010 but it assumes negative values from 2011 (Sovereign crisis), as figure 6 shows. However, demand on loans is slowly increasing since banks are stressing the point on easing terms and conditions for lending when in 2012 the net tightening on credit standards worsened from 6% to 11% (today, there are reduction in margin on leverage loans and decreasing rejection rates for loan applications). Moreover, since 2013 those factors, which toughly contributed to increase the credit standards required and its consequent tightening, have decreased their weights for the approval of loans or credit lines to enterprises (figure 7A). However, demand for loans

remains stable, thus it does not increase at the same level of credit standards easing by banks (figure 7B).

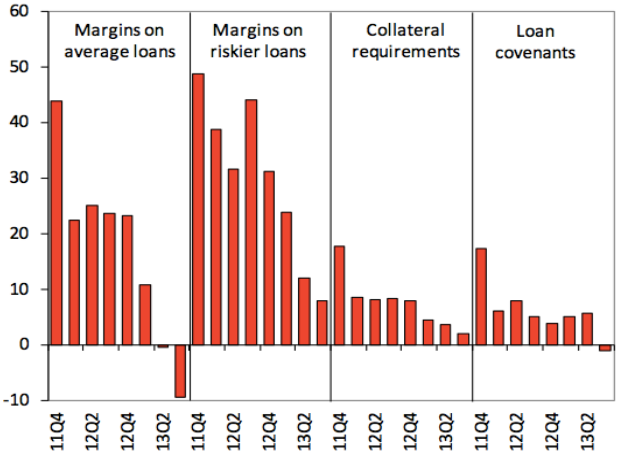
FIGURE 6. Changes in demand for loans or credit lines to enterprises



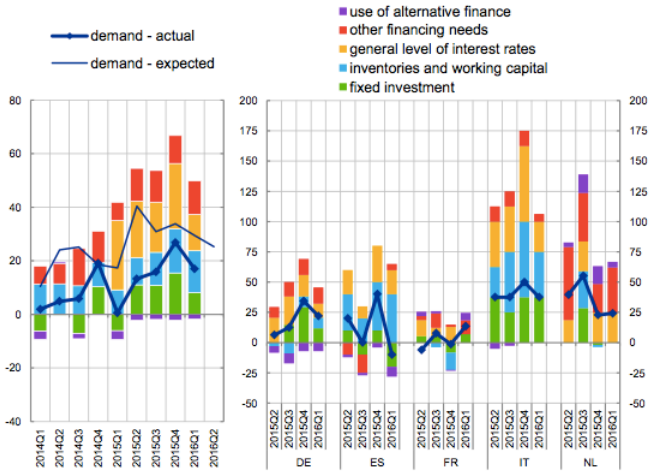
source: Bank Lending Survey, 2012, ECB, p. 8

FIGURE 7. Factors for the approval of loans or credit lines to enterprises (A) and a stable demand for loans or credit lines to enterprises (B).

A)



B)

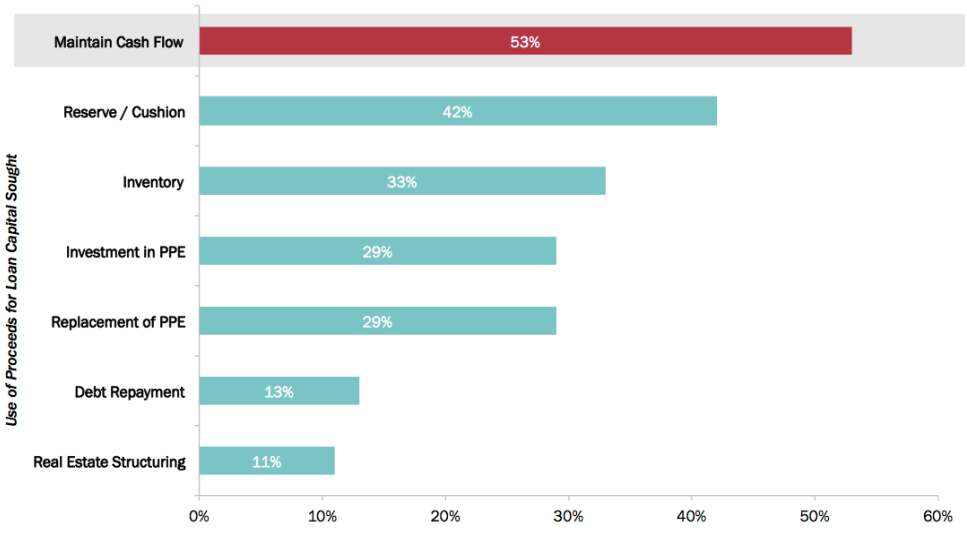


source: Bank Lending Survey, 2013, ECB, p. 6 (A) and Bank Lending Survey, 2016, ECB, p. 12 (B).

As for USA "forth quarter of 2015" bank lending market, according to a FED BoG survey, banks applied tightening standards on commercial and industrial loans whose demand slightly decreased whereas loans for commercial real estate grew up on net and SMEs credit standards remained unchanged on avarage.

In fact a report of the National Federation of Independent Businesses shows that Small Businesses search for loan capital especially to maintain cash flow and to increase reserves and buffers, in order to uphold characteristic activities and to face an eventual following crisis (figure 8).

FIGURE 8. Small business' use of proceeds for loan capital sought.

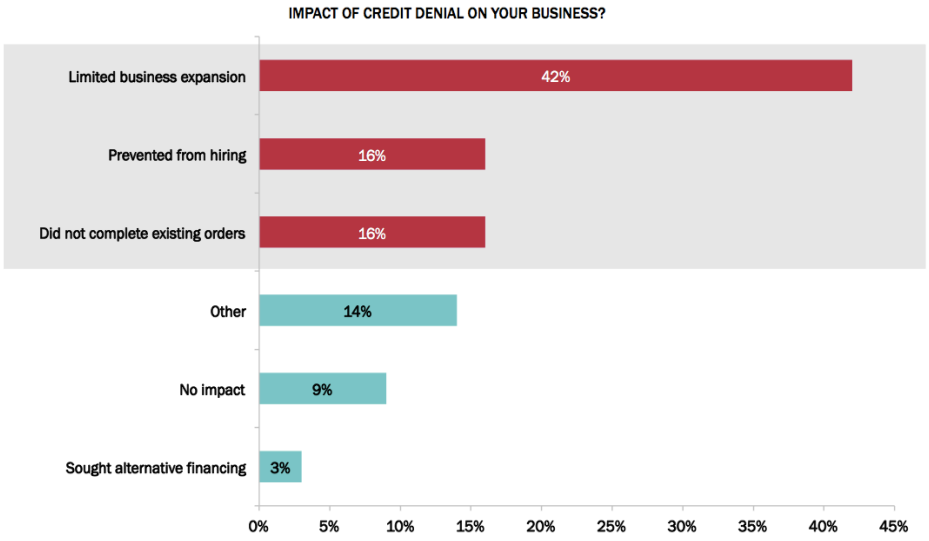


Source: National Federation of Independent Businesses, "Small Business, Credit Access, and a Lingering Recession", (January 2012).

Moreover, bank loans are a major source of capital (63% of the possible sources of capital especially from large banks – 48%), since the greater variability of small firm profits makes self-financing through earnings to become a much less reliable source of capital.

During the crisis, on one hand, small business owners' perception that credit access became harder increased and, on the other hand, loan officers think demand from small firms remains weak. In fact competition among banks to service small business is falling starting from 2007 and the toughest impact of credit denial on small business and economy, generally speaking, was a limited business expansion (figure 9).

FIGURE 9. The impact of credit denial on small businesses and economy



Source: Federal Reserve (New York), "Small Business Credit Survey", Fall 2013.

The sought of alternative financing is, however, a consequence of denial still a little considered and measured. Less creditworthiness of small businesses, weak collaterals because of housing crisis (real estate is two-third of the assets of SMEs) and more banks' risk aversion clogged credit chain.

3.2. Crisis effects on Householders and Consumer credit in EU and USA after the Great Recession

As for householders and consumer credit, the situation seems to be slightly different: easing regards margins on average loans, too, whereas margins on riskier loans and non-price terms and conditions remain basically unchanged, without effects of banks' risk tolerance and ambiguous impact of funding costs and balance sheet constraints. Decrease of rejection rates (from -4% to 3%), a higher consumer confidence and improved housing market prospects contributed to raise householders demand up.
According to the HFCS (Household Finance and Consumption Survey), about 23% of Euro Area householders had applied for a loan and about 17% of them were turned down because of the enlargement of credit constraints that only today seems to be smoothing. This led householders to discourage and not to apply for credit at all. Consumer credit slightly increased (from 19% to 21%) but is expected to grow more thanks to such as collateral requirements, loan size and non-interest charges, did not change.
Moreover, the breakdown by age mirrors the low proportion of credit-constrained retirees: according to the survey, in fact, the largest fraction of householders is more likely to be credit constrained in the age brackets of 16-34 and 35-44.
Thus, today generation is hit more by crisis which compelled to renounce to long-term projects in order to recover short-term financial situations.
According to "EBA consumer trends report 2015", the impact of crisis highlights the key consumer protection concerns, such as excessive fees, interest rates evolution and effects, high indebtedness, responsible lending and poor treatment of consumer in mortgage arrears and foreclosure.
An analysis about 2007-2014 lending for house purchasers by ECB Datawarehouse reports a decrease of lending just in 2008 when crisis spread up and the recent increase suggests that mortgages lending in EU may revert back to the annual growth rates seen before 2008.
Indeed, bank interest rates with a maturity over 5 years decreased from 5% to 3,1% allowing outstanding amounts of lending for house purchases to grow (figure 10). After a period of decreasing demand for loans by householders and consumers (figure 11A), may it be considered as the return of trust in banking world?
The answer can be negative and positive, since easing standards at first might not be sufficient to recover trust until 2014 when the recorded actual demand started to increase more than the expectation for householders (figure 11B) but not for consumer credit: what's true is that interest rates are decreasing but there is still a complex path to obtain a mortgage and benefit of less financial obligations. More counterparts are "not bankable" since collaterals which banks request must be more liquid: houses or business estates are less accepted as real estate market seems to be "numb" and freezy. Moreover, bank business model is difficult to be changed whereas social "wave" is faster and ready to greet new trends of lending markets.

In fact, there is important evidence of consumers' 'moving away' from banking market for loans starting from the decrease of payment account opening: the latter is crucial for the development of financial markets but, in this context, the Commission found that some prospective customers do not open payment accounts, either because they refuse this or because adequate products are not offered.

FIGURE 10. Evolution of lending for house purchases and bank interest rates, 2007-2014.

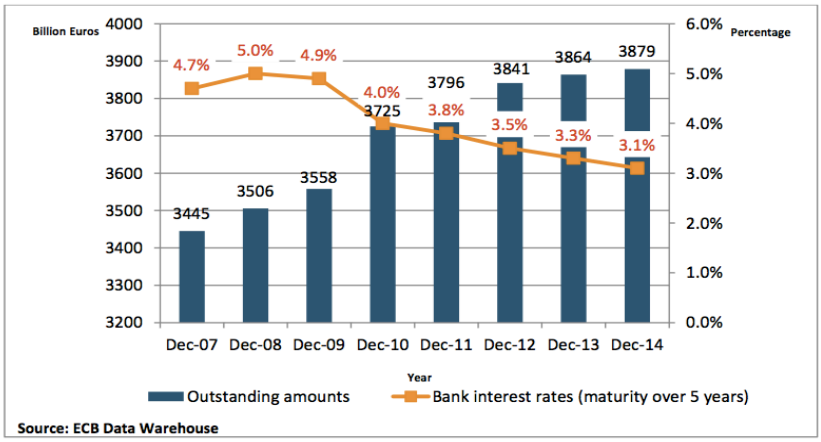
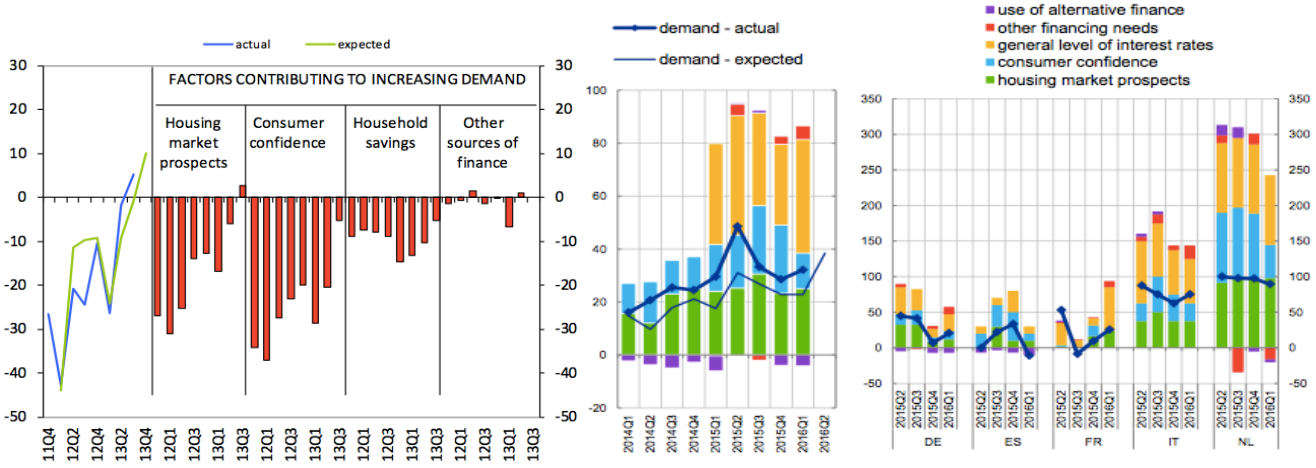


FIGURE 11. Changes in factors contributing to increasing demand for householders (A) and consumer credit (B) until 2013

A) *B)*



source: BLS 2013, ECB, p. 10 (A) and BLS 2016, ECB, p. 17 (B)

Trasparency and comparability of fees are major reasons for consumer complaints about bank accounts: the lack of information is an additional constraints disadvantaging consumers.

Harmonization is still at minimum and European banks seem to reject this new financial wave: online banking is spreading up, allowing more "Generation X and Y" people to be involved in their personal financial activities from a little deposit to large investments.

Finally, political and economic problems probably slowed a process of financial innovation: countries have really different financial histories and difficulties in operating in actual competitive markets and a regulation aimed to these new figures in financial market could be the right path to be walked in order to face harder crisis or completely avoid them.

4. IT and its contribution to non-bank financing sources

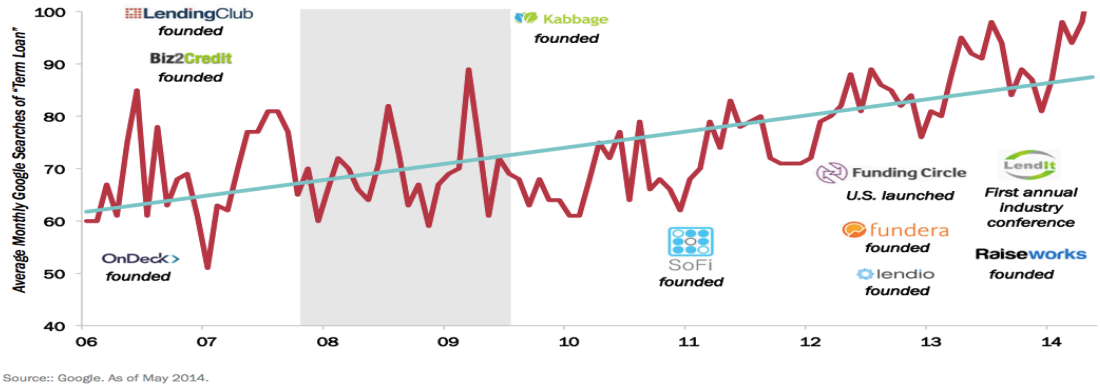
As already claimed, before analysing in details the impact of credit crunch from banks's viewpoint (business model changes), we need to study the causes of trend changes as for lending market which lead to the spread of nonbank financial sources such as the marketplace lending platforms. The latter are growing paralelly with online banking in order to keep faith and trust in lending world by consumers.
Nowadays, in fact, competition is based also on the capability to reach as more consumers as possible: this is valid for companies, on a hands, which have to increase their own exporting markets and for banks, on the other hand, which are improving services and adding new ones in order to enter and face the digital market. The latter deals with the majority of world consumers who, before crisis, surely greeted in a positive way the "revolution" of online banking but it might not be sufficient to struggle against the lack of trust due to credit crunch.
On financial side, IT revolution sawed the seeds for nonbank financial sources completely digitized. Online markets are growing, thus a good digital payment and lending platform are perfect in terms of costs, time and efficiency. This is a difficult path to walk for banks because of patrimonial and regulatory requirements by Basel III which are slowing the process of digitization in bank world.
McKinsey (2015), analysing the impact of globalization on goods, services and financial flows, highlights that since 2007 flows are growing up again but services and financial ones remained still less than goods flows.
According to the report, digitalization is playing an outstanding role in order to semplify supply chains and coordinate better than before all economies, from advanced to emerging countries. Digitization, moreover, allows corporates to access, in an easier way, global markets at low costs, making them robuster to face competition. Finally, cheaper computing power and ITs are becoming fundamental through efficient digital platforms since they increase the global participation of otherwise excluded SMEs, families and Generation Y. Particularly for SMEs, digitization and globalization let them be "micromultinational" units expanding their working area. From a financial viewpoint, Internet platforms allows them to reach funding by global investors, being able to diversify their financial sources and the consequent risk of refinancing.
What appears is that many SMEs are reluctant to rely on banks as much as before the crisis, suggesting the emergence of alternative sources of SME funding in recent years. There are two types of disintermediation from bank finance: *balance sheet disintermediation* (banks are still involved in origination and underwrite debt issues) and *origination disintermediation* (banks are not involved at all in the lending process).
However, bank loans remain a significant financial source: in the first half of 2015, P2P lending to SMEs was less than 20% of the flow of net banking lending to SMEs but this alternative seems to expnantially grow.

5. New financial phenomena of "origination disintermediation": an overview peer-to-peer finance

The "big family" of nonbank financial sources dates its birth before the last financial crisis, but

recession's impact on loans and lendings accelerates the growth of phenomenon of P2P lending, which includes both social lending and crowdfunding.
Etymology suggests the existence of new relationships and new levels of financing which are the perfect synthesis of crisis effects: less loans from banks, IT revolution and more sensitivity to financial problems by a broader crowd of funders and funds takers bring about new systems through which "giving and taking funds" seems to be easier, safer, quicker, more efficient, less expensive and especially it is a system where participants feel all ones at the same level.
Key-words are, in fact, peer, crowd and social: being a big investor is not a necessary condition to enter financial world and gain profits or obtain loans (according to the position of the participant- in surplus or in deficit). Indeed, if somebody needs funds, for example a student who would like to make a project up for his research, and he is able to make a financial plan with CF analysis or to "sell" his idea as profitable, he can access to an online P2P lending platforms, particularly crowdfunding one, through which he can achieve investors all over the world.
Those who would be interested in his project propose themeselves as funders, investing moderate amounts of capital in change of rewards of different nature. There is not a traditional financial intermediary between funder and funds taker, but just a platform through which they directly manage funds and tangible or intangible rewards transfer. The relationship is creditor-debtor but they are put at the same level just using Internet and improving the business plan by both the sides.
Start-ups active in peer-to-peer lending are another potentially disruptive segment in finance. Technology seems to change the game: Peter Sands (Standard Chartered CEO) affirms that "Banking is very digitizable […] Lending Club's peer-to-peer model is changing personal lending." referring to an online loan market which is very small but growing really fast.
According to a Google research in 2014 reported into a "Harvard Business School" paper on SMEs' loans conditions, SMEs clearly want online loan options whose three are considered promising online models (figure 12).

FIGURE 12: Small businesses tend towards online loan options

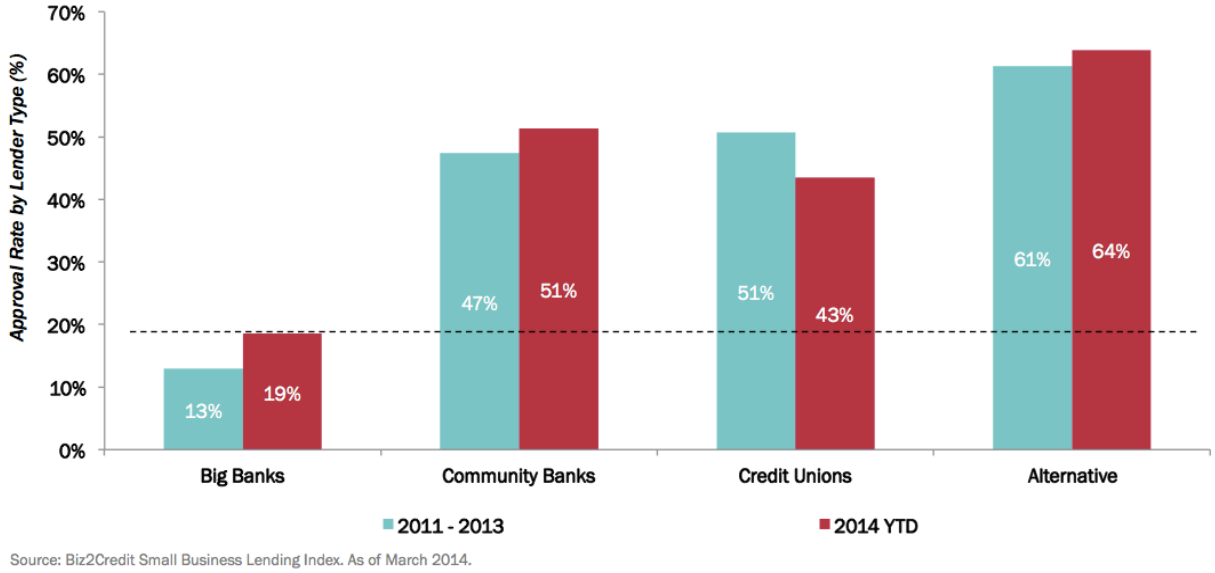


Source:: Google. As of May 2014.

First one is Online Balance Sheet Lenders, which use balance sheet capital from institutional investors and proprietary risk scoring algorithms for loans decisions through cash flow data, credit scores, social data, industry, geographic and other firmographic information (for example OnDeck, Kabbage, Can Capital and Raiseworks).

There are also Lenders Agnostic Marketplaces which connect small business borrowers to a series of lenders that are part of their online marketplaces: most work with conventional lenders like big and small banks or SBA lenders (for example Fundera, Lendio and Biz2Credit).
At last but not least, P2P platforms are lagerly focused on consumers (except for Funding Circle) and on prime and super-prime quality borrowers (for example Lending Club, Funding Circle, Prosper and SoFi).
Alternative lenders are more likely to extend credit to small business, householders and consumers largely because they use alternative data sources (cash flow and business fundamentals from social networks too) to better analyse the creditworthiness of borrowers (figure 13). For these reasons traditional players are eyeing the new marketplace through joint ventures (community banks start to buy loans via Lending Club), M&A (Lending Club acquired Springstone Financial in 2014) and organic entry (range of companies may also decide to enter this new marketplace on their own).

FIGURE 13: Alternative lenders taking more risk



Source: Biz2Credit Small Business Lending Index. As of March 2014.

There are many other forms of these alternative financial sources: unsecured personal lending platforms (e.g. Zopa, Ratesetter) which offer personal borrowers fixed-terms repayment loans with rates varying by term and value; business lending platforms (e.g. Funding Circle, ThinCats), where lenders bid on secured or unsecured loan proposals and the borrower can benefit from the cheapest funding tender; and P2P invoice discounting (e.g. MerketInvoice), where businesses can borrow against sales invoice before customers have paid.
Supply Chain Finance (SCF) let small suppliers secure short-terms credit quickly, by relying in the creditworthiness of a large buyer, whose invoices becomes a collateral for a loan extension.
US upheld these new platforms through regulation, such as the Recovery Act to strengthen SBA lending programs (2009), Small Business Jobs Act providing Small Business Lending Fund (2010) and Jobs Act to rule Mini-IPO and Crowdfunding (considering a framework for securities-based crowdfunding via regulated online platforms).

The latter is studied by EBA, too, conducting a thorough analysis of the risks and benefits of crowdfunding, focusing on the lending-based variant: there was an increase in activities of lending-based crowdfunding platforms. In February 2015, EBA issued an Opinion in lending-based crowdfunding: it was addressed to the Commission and the European Parliament and Council in order to take in consideration crowdfunding from a regulatory viewpoint. In the Opinion, EBA concluded that convergence of supervisory activities in crowdfunding across the EU is desirable in order to avoid regulatory arbitrage and to ensure an harmonized area for EU players.

Outside US, other countries which uphold P2P lending growth are Chine, UK and Australia. Asian market led by China is increasing together with IT market, producing more than $8.9 billion in 2014. In EU beyond UK social lending phenomenon is less spread since regulation is considered the only solution to struggle the recent crisis but it imposes tough limits to nonbank lending markets.

Furthermore, Chinese P2P lending platforms are pure, if we consider "pure" a total online systems of lending, whereas UK and US still maintain both online and offline channels in order to continue in risk management activities and borrower and lender acquisition. In fact, in these countries outstanding financial businesses contribute to uphold and develop online P2P platforms owning the majority of shares, thus providing equity. It is not consider a pure disintermediate channel.

In Europe, UK has got an important role in marketplace lending, leading the recovery of small business and consumer lending, more hit by crisis because of the copious obstacles to access to credit.

Regulation and institutional capital for this market are considered as important actors who can manage the growth avoiding turmoil from shadow banking's negative effects: the previous crisis has stressed the accent on the importance of an efficient regulation which could struggle adverse selection and moral hazard.

Issues rearding non-bank SME finance are currently being studied by OECD, including the role of mezanine finance and new alternatives such as exactly crowdfunding and, deriving from the latter, peer-to-peer lending, raising some issues related to financial consumer protection. Revitalising securitisation is among the most important elements in the effort to strengthen non-bank finance, and it can tailored to fit the needs of SME finance in particular. However, banks cannot deny also the fast growing of online payments thanks to IT revolution.

Mobile devices have become the "digital container" of our daily lives (communications, planning, shopping, health, transportation) making "in-app" the new battleground for both online and instore shopping. Key words of mobile payments world are *convenience* for the personalization of services, *control* of the expenditures thanks to smart tools and *value* for the supplier who acquires information by customers.

Moreover, an online relationship between funders and funds takers brings about a collection of data useful not only for both the involved parts of the transaction but also to the whole system of online lendings which are able in this way to compare information about the creditworthiness of funds takers, investors' funds availability, successful or unsuccessful experience, etc. This allows to improve mobile and online payments services through the big data available during the transactions. For example, some researches poited out the spread of mobile using to buy or sell goods and services through online platforms, including financial services: this let operators reach customers in every part of the world through their mobile or PC applications.

Online banking is a spread phenomenon in bank market but it seems to be more known than adopted, especially when crisis blew up and there was not sufficient capital for IT investments. This brought about the spread of non-banking solutions, such as P2P lending and crowdfunding, based on the positive trend of mobile and online approach of people in their daily life.

Peer-to-peer (P2P) payments remain a stronghold for cash in most markets, as many incumbent banks, being risk-adverse or unprepared to cannibalize traditional sources of income, have yet to make an airtight business case for P2P solutions. By contrast, digital innovators, including PayPal, Alipay, TransferWise and Venmo, have realised benefits from P2P payments far beyond authorization, clearing and settlement and threaten to displace traditional banks from this important category of payments.

The main sources of value in P2P include cross-sell opportunities with related services (e.g., through booking, ordering, shopping, gifting, donating), marketing insights derived from payments and browser data, high margins among small and medium-sized merchants with consumer-like behaviors and attractive currency exchange margins on cross-border payments.

Digital-native banks, such as Atom Bank (the first to receive a full banking license in the UK) challenge the deeply rooted assumption that physical branches are necessary to generate trust. In this new age, these new lending platforms teach that through online services customers' arena can be amplified especially among young people of Generation Y and Millenials (16-34 aged): the receipe is composed by segments-oriented programs, personalized offers, geotargeting and multimerchant conditions. Regardless of the type of innovator, payments remain the strategic enabler of new commerce offerings and changed economics: they are considered the epicenter of fintech innovations.

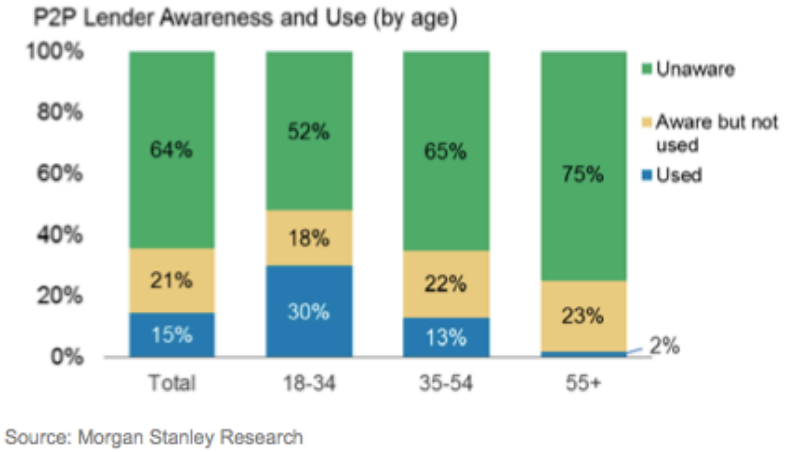
In financial market there is an important match "banks vs non-banks": crisis and credit crunch led to a tough challenge for banks in their universal-bank model since they had to face a decreasing value of assets due to increasing nonperforming loans, junk bonds offered at high credit ratings by probably bribed rating agencies, lower interest rates for the quantitative easings and a massive monetary expansion, mistrust especially towards those commercial banks which intensified trading activities and procyclical impacts in the whole systems.

While they were busy to re-build the basis of customers' relationship and trust and recovery lending system, new non-bank sources introduced their new business model fit for an increasing online world considering that Generation Y will be the future customers whose needs are satisfied online. Their success consisted and still today consists of high incomes since they have not to endure conversion costs as banks must do to have an online system.

Moreover, as they stress the point on their new and innovative and revolutionary side in lending and payments generally speaking, they are not only a trustworthy alternative to financial intermediaries (still based on physical branches still considered as a necessary but not sufficient condition for trust) but also an efficient and complementary way for banks to practise bank and other financial activities getting their influence area broader and recovering trust among consumers, especially Millenials and this new "online" Generation.

Morgan Stanley (2015), through its AlphaWise survey, investigated on the awareness of P2P lending by the Millenials: this survey shows they are highly aware of this phenomenon, considering it fast and convenient for low rate consumer credit solutions (figure 14).

FIGURE 14: P2P lenders' awareness and use



Source: Morgan Stanley Research

This confirms the fact that P2P lending platforms are rightly exploiting online means to spread up, since famous "Millenials" are the majority of users and they could "carry the trail" for more usage and awareness, including middle-aged people considered traditional banking services consumers. What is curious is that the latter, in spite of their really restrained usage of P2P lending platforms, seem to be the most satisfied users: it means that Millenials' work of influence will be easier than they think, just IT confidence would have to be improved.

An other important effect is that new generation, including Millenials, are paying the negative consequences of crisis, thus they understand the importance which a transparent and correct system of information has got, especially in a financial contest hilighting an increasing willing to study and face financial systems.

Since IT-natives obviously use more digital services using online platforms and mobile applications, intangible means are both a key for success and an element will be more ruled and supervised for clear financial systems.

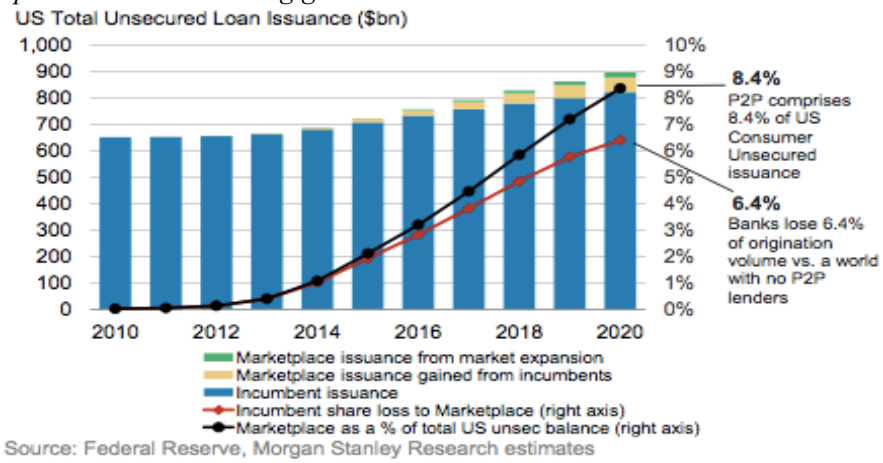
Trust is moving from bank financial system to a nonbank one since consumer credit solutions seem to be more convenient in term of speed secured by digital tools and aknowledgement due to the requested disclosure and the possibility of sharing information.

There is some evidence that speed, leveraging social media and broader decision-making are elements which lead customers to prefer online platforms' financial solutions. Thus, Millenials are really important to guide the marketplace lending platforms in its development: their online approach towards the majority of their everyday life aspects helps researchers and scholars to understand which will be the trend of banking market and online nonbanking financial platforms in terms of growth, impacts on payment services and especially on banking activities and business models. Since crisis hightlighted a trust betrayed by banks and accompanied by an exagerate risk's tolerance putting savings and lendings to real economy in danger, new generation prefers contactless financial solutions helping fintech trend to blow up.

Generally speaking, the growth of marketplace lending is caused by consumer unsecured and financially weak SMEs, especially in US, because of the global crisis and the entrenched bank world. The 80% of

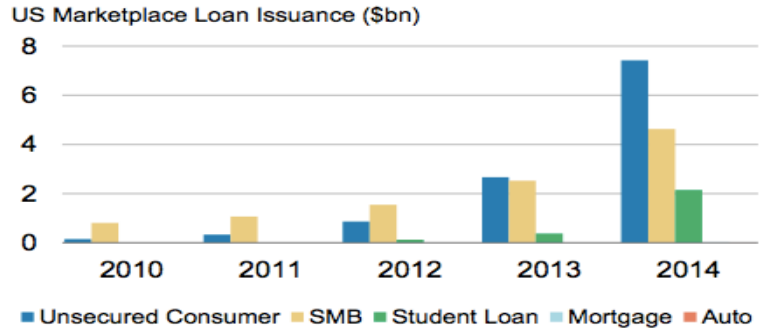
market share belongs to LendingClub and Prosper but new marketplace lenders are entering, more specialised in different credit segments.
An important role is played by OnDeck and Kabbage in the SME segment, exploiting non-traditional data, thus measuring SMEs' creditworthiness through those aspects (often soft data) which banks do not consider for the access to credit.
Consumer credit segment, too, is growing fast, especially students loan refinancing, education and healthcare financing, auto loans, mortagages. Marketplace consumer lending is considered to be growing at the rate of 2% and marketplace SMEs lending at the rate of 14% until 2020, bringing banks to lose 6,4% of share in loans market (figure 15).
The most important actors who led this grow especially in 2014 was the unsecured consumers and SMEs: the latter were and still today are strictly constrained but they may trust on a real economy which will not completely stop its movement allowing them to swing along supply chain recovering precarious financial situations. What is worth to focus on is the fact that the leader of marketplace lending's growth are consumers who are unsecured, that is those who are seemed to completely lose trust in banks' system (figure 16). Since crisis brought about a deep remodelling of financial plans of families and consumers, generally speaking, only these ones could be the engine of online financial system which were adopted by banks (online and mobile banking) but people wanted something new to finance their needs, something really different from a bank which betrayed them.

FIGURE 15: Marketplace consumer lending growth



Source: Federal Reserve, Morgan Stanley Research estimates

FIGURE 16: Marketplace growth is led by unsecured consumers and SMEs' lendings



Source: Company data, Morgan Stanley Research estimates

Moreover, what was wrong was exactly the betrayed personal relationship between consumer and bank officers, thus, through an applications of an online platforms, consumer feels more involved since he is not the only one who surfs on it, he feels safer because more data are available for everyone (sharing information transparency) and he feels more responsible for the financial operations improving his financial knowledge and avoiding every disadvantaging situations, for example, because of deep asymmetric information.

Ingredients of receipe for marketplace lending success are the lower existing penetration of unsecured credit, limited credit information, mobile/online banking penetration which nonbank sources must compete with. Moreover, emerging markets online lending platforms, such as in China, highlight that credit scoring is a useful mean in order to obtain as more information as possible to make access to credit safer, but it is not a sufficient condition for efficient underwriting processes since there are those soft information and data that sometimes are more precise in giving an accurate profile for creditworthiness.

It does not obviously mean that banks are disappearing and this is an unreal future scenario since banks, being financial intermediaries and dealing with different kinds of saving, remain really important in financial systems, but their actual tasks are avoiding any form of moral hazard, abandoning a spread conservatorism and completely accepting fintech trend in order to work at the cost-curve minimum and involving and reinvolving more groups of consumers (from SMEs to Millenials).

For these reasons, P2P lending is a really important factor which is leading this change and which is bringing about evidence that kinds of disintermediate finance are possible in term of sustainability and vialabity (that is, capability to maintain financial structure stable and the capability to be a revenue-generating system both in short and long period): consider that structure costs are almost nul.

These last principles are new elements of competition, such as lower rates and higher revenues from services fees: since crowdfunding platforms and, generally speaking, marketplace lending platforms benefit from low operative costs, they are more convenient since these costs are not be discharged in interest rates and fees, thus they are more competitive than banks, in spite of a general decreasing of rates in global financial world as an expasive monetarian policies' solution to the last financial crisis.

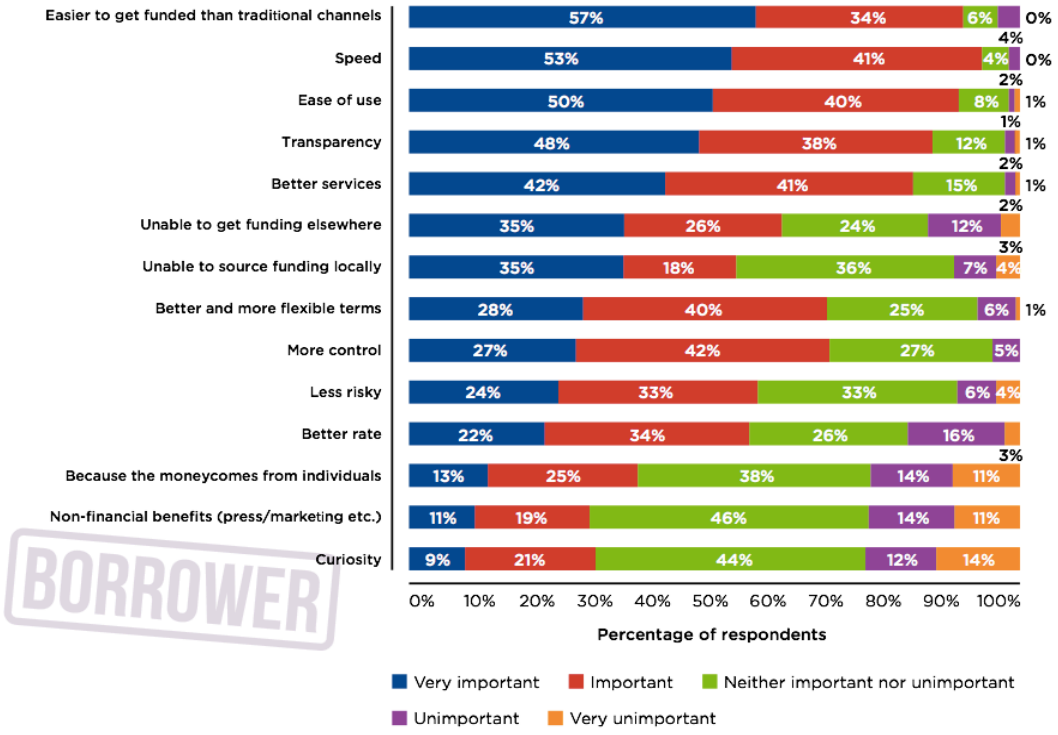
From investors' viewpoint, since yields from P2P lending systems are more attractive, equity suppliers are especially larger institutions (such as hedge funds) while loans are given more to consumers and SMEs (especially start-ups): thus, is this system real "peer-to-peer"?

This is an important doubt since the essence of this phenomenon is called into question. In fact, P2P lending was born with the aim to be different from bank system which became more asymmetric, that is to base on peer level between investors and consumers in their role of loan demand just through a transparent platform. The presence of larger investors may undermine equality purposes but they may be shareholders who transmit trust in term of financial sustainability and viability of these new platforms against any form of scepticism towards them. Thus, the expanding distribution of P2P lending is due to copious partnerships (also with smaller banks) whose advantages derive from lower costs of customer acquisistion.

Since many people look at better rates and fees when they ask for a lender, online platforms seem to satisfy these research's motivations better than banks (which have still credit constraints). Attention for rates and fees derives not only from pure economic issues of saving, but also from the particular usage

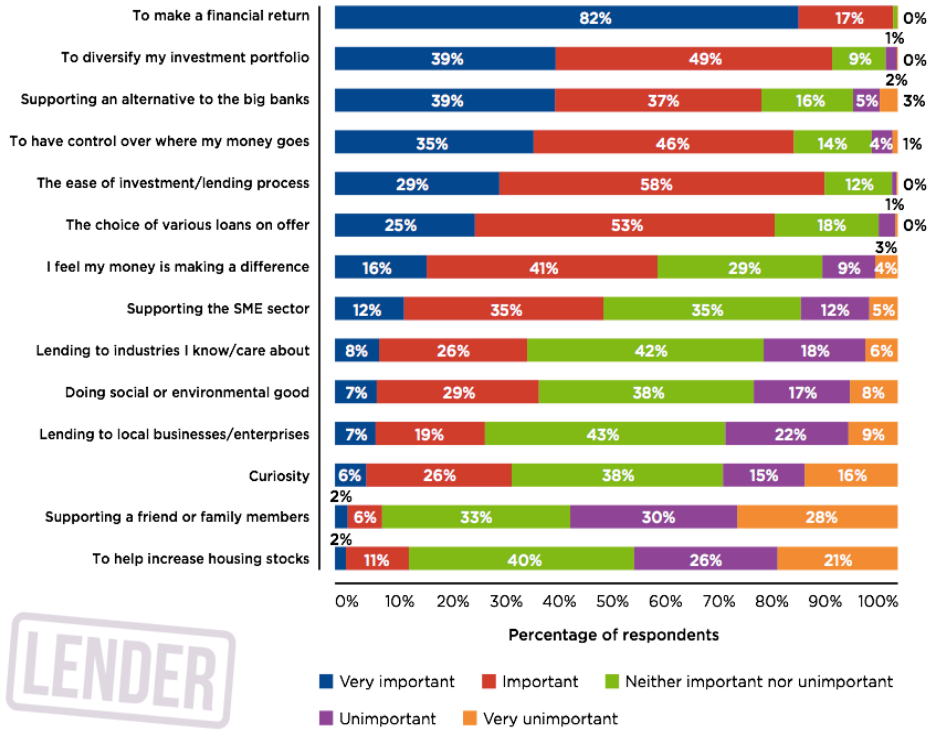
of the loans (everyday-life and business needs are increasing reasons of growing lending demand, thus above all short-terms needs) (figure 17).
From the lender's viewpoint, instead, why should he decide to invest in P2P business rather than in activities similar to those of his own portfolio whose risk and returns could be estimated in a better way? Many investors look at P2P lending as an opportunity for economic growth, thus it will ensure great returns if we opt for a long-term perspective.
So they seem to abandon the typical short-term viewpoint of bank management since they know that long-period results are better (Figure 18).
Basically, the reasons why P2P lending and crowdfunding platforms are strongly financially uphold by a "crowd" of "peer" investors (from larger institutions to small investors) for a "crowd" of "peer" consumers (from older borrowers to Millenials) may led back to mistrust towards banks accompanied by an online approach also in financial hambit, fintech growth, advantages in term of costs, rates and fees, digitization, new needs (especially intangible ones, such as the need to have financial systems which we can trust) and more transparency and disclosure against arbitrage and speculation.
Banks cannot ignore P2P lending's impact: for example the fact that consumer debt's consolidation derives from 80%-85% of LendingClub and Prosper's loans must be a driver for banks which can think about new kinds of business model improving their consolidation especially on the online banking side. Moreover, an important feature of these platforms is a price and fees' reduction in spite of the increasing demand by borrowers: this leads to a positive selection, lower credit losses and decreasing costs of customers' acquisition, other points of deep competition among platforms.

FIGURE 17: What lending pickers analyse before choosing a lender



source: pwc survey

FIGURE 18: why would investors prefer to invest in P2P lending rather than in traditional markets?



source: pwc survey

The suitable tool platforms use is the broad quantity of data which is possible to grasp and save through internet and this is an other success key of LendingClub, SoFi and OnDeck in their respective segments (personal, SMEs and medical loans; lendings for students, mortgages and individuals; business loans and small business loans).

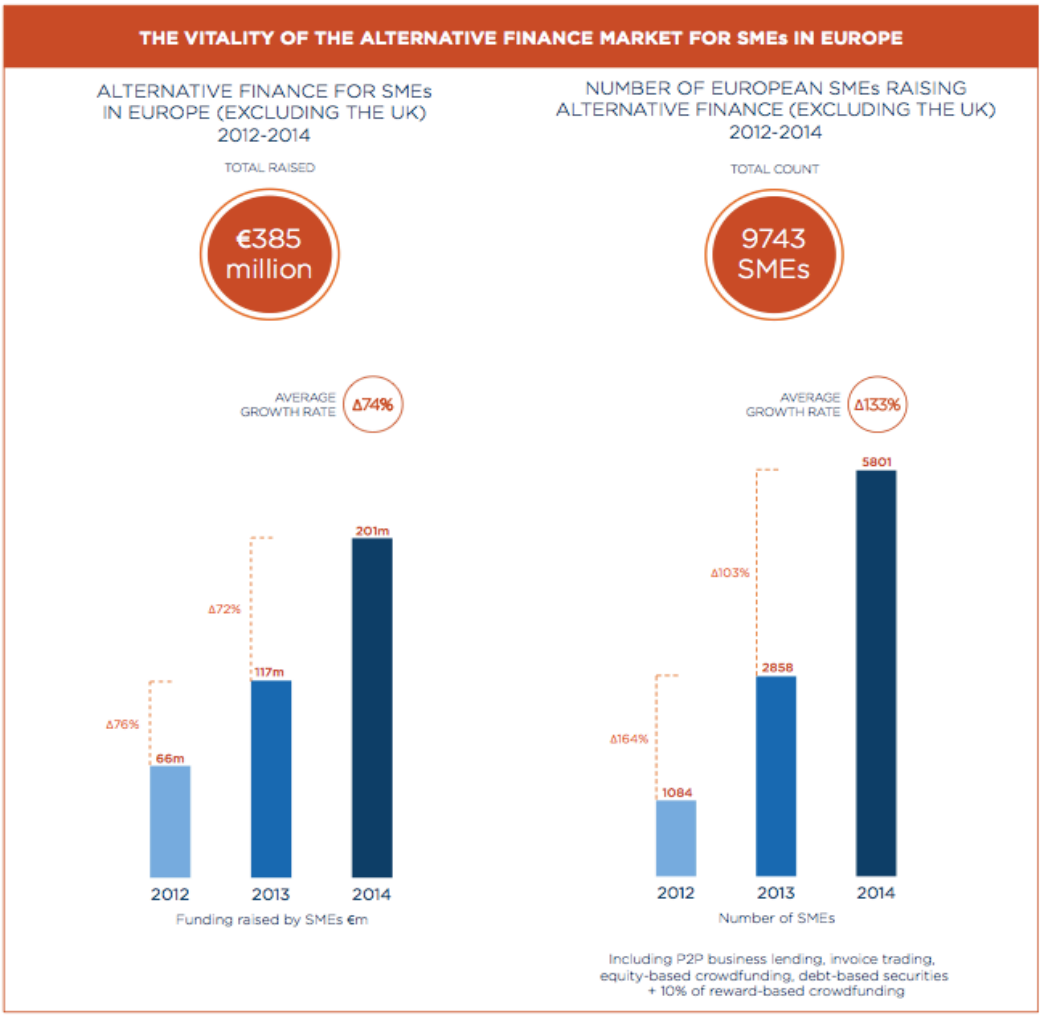
Data are fundamental not only in terms of credit scoring (together with the so-called machine learning) but also in terms of fraud prevention. In fact, the truth is that the passage from bank side to marketplace lending one by consumers is founded on trust since borrowers and lenders look for a "safer harbour", but are marketplace lending platforms and, more precisely, online crowdfunding platforms really safer in terms of underwriting against any kinds of misuse of personal or social media information and data?

There are, obviously, good platforms and bad ones from this viewpoint, but it maybe a reason why many people are still sceptical towards this revolutionary form of lending. Afterall, mistrust for fraud especially is one of the causes of the crisis, beyond all risks and quantitative problems. Through the last recession, online platforms could communicate to before-crisis traditional consumers (who hastened to alternative financial sources either for necessity or for curiosity) that the trust they gave them will not be deceived: protection against fraud through a good system of underwriting can struggle diffidence and fear.

Financial world is really complex but it is closer to us than we can imagine, thus knowing it and facing it are really important, especially today. Thus, could online crowdfunding lendings challenge financial world showing that working together at the same levels or (at last) at levels not so distant is possible and the best way to be "financially" happy?

Since the majority of operators of financial market is made of banks, there is evidence that these particular FIs have an increasing interest in providing funding to the platforms, although marketplace platforms are considered to disintermediate banks. Especially local and small banks are approaching to this new way of giving loans and proving funds but nowadays just in form of cooperation.
For example, Santander bank bought loans in US and gave them to P2P lenders in UK for SME customers, Citi Community manages some of its lendings via LendingClub. These are good businesses for banks and larger insitutions which decide to conclude M&A operations with alternave financial platforms, since the volume of affairs could double (figure 19). This particular issue, however, will be dealt in a specific way in following chapters.

FIGURE 19.



source: CambridgeUniversity survey

There are other deeper reasons why these partnerships are increasing: we cannot forget that larger institutions and, generally speaking, FIs operate in market with the central aim of profit thus cooperation with marketplace platforms has to be revenue-generating. In fact, from a Morgan Stanley research (2015), the advantage in terms of ROE provided by "non-bank institutions" (such as private angels which are similar to crowdfunding lenders) is 45,5% compared to 30,5% by banks (figure 20).

Considering revenues as the sum of interest income and fees and costs as cost of fund, taxes and other specific costs, these two lending systems (bank vs non-bank) are similar but banks have higher percentages: thus the actual success key of non-banks is leverage which is doubled. This is an additional constraint which regulatory framework states disadvantaging banks. While banks are busy to recover their financial structure and their business model, crowdfunding saws the seeds for new lending systems based on fees. Thus, we can affirm that alternative finance platforms are issues of big interest by scholars, investors, borrower, policymakers and regulators, since the volume of fundign providing by them to SMEs and start-ups is growing really quicklier than expected: in 2014 a growth of 75% year on year was recorded together with €201 millions of early-stage, growth and working capital funding provided to European small businesses and about €3 billions of total transactions of the online European alternative finance market.

FIGURE 20: ROA and ROE: Bank vs Non-Bank Institution

	Bank	Non-Bank Institution
Revenue Yield	18.0%	17.0%
Less: Cost of Funds	(1.3%)	(2.5%)
NIM	16.7%	14.5%
Less: Net Charge Offs	(4.0%)	(4.0%)
Risk-adjusted NIM	12.7%	10.5%
Less: Expensive Ratio	50%	50%
Less: Taxes	30%	30%
Return on Assets	3.0%	2.3%
X Leverage	10x	20x
Return on Equity	30.5%	45.5%

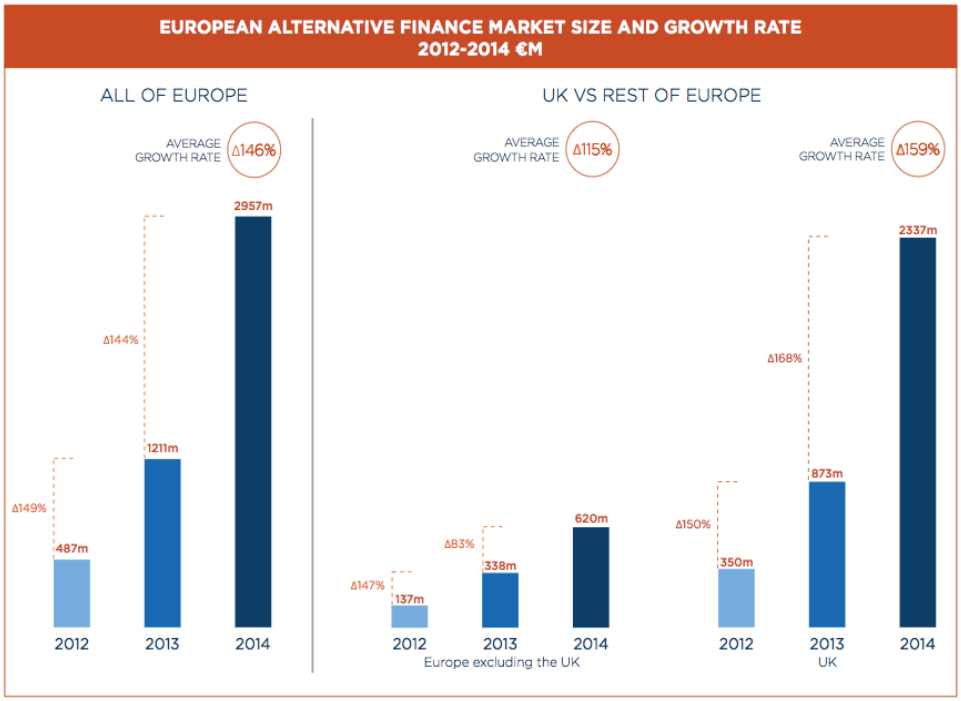
Source: Company Data, Morgan Stanley Research

"These new forms of alternative finance are growing quickly, and this growth is beginning to attract institutional investors. Alternative finance, at least in some European countries, is on the cusp of becoming mainstream.": these are the words of Robert Wardrop, executive director of the Centre for alternatve finance at Cambridge Judge in an interesting report he made together with other scholars for studying nonbank funding platforms.

Researchers highlight the importance of P2P lending platforms especially in UK and US but at European level it cannot be ignored (figure 21).

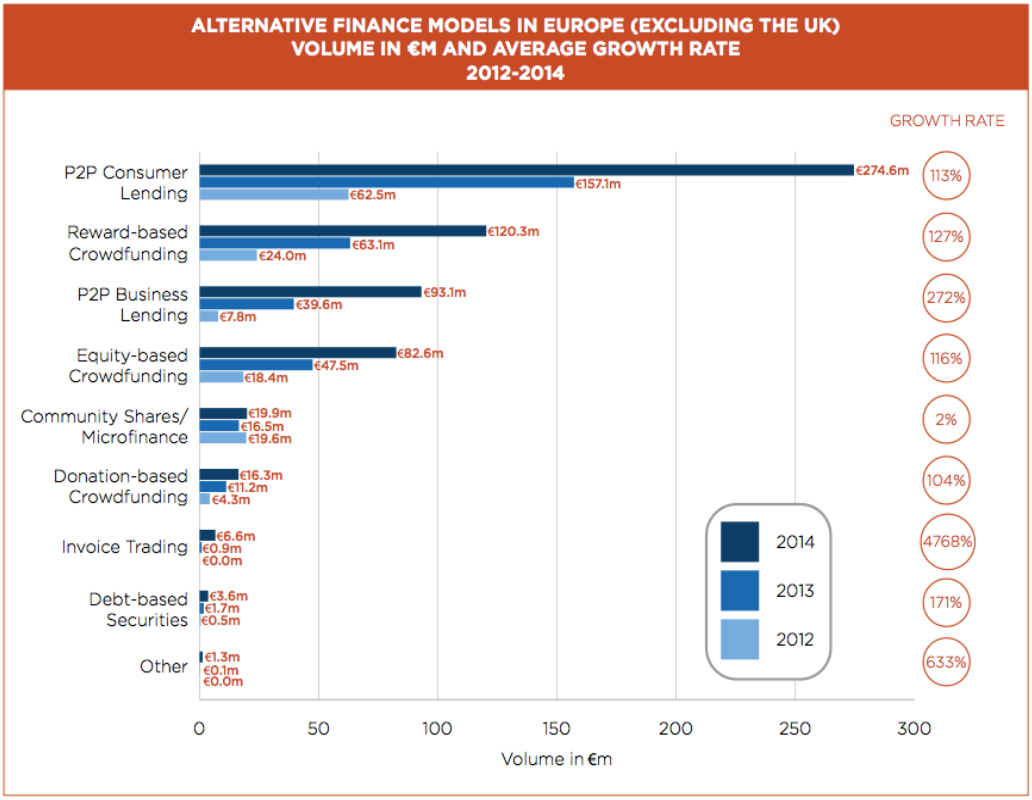
In fact, P2P business lending grew 272% and peer-to-peer consumer lending 113% from 2011 to 2014, whereas crowdfunding increased 127% in its reward-based form and 116% in the form of equity-based. Transforming P2P lending percentages in digits, this market has a business volume of €358 millions distributed as following: €275 milions for P2P CONSUMER lending and €83 milions for P2P BUSINESS lending (figure 22).

FIGURE 21.



source:CambridgeUniversity survey

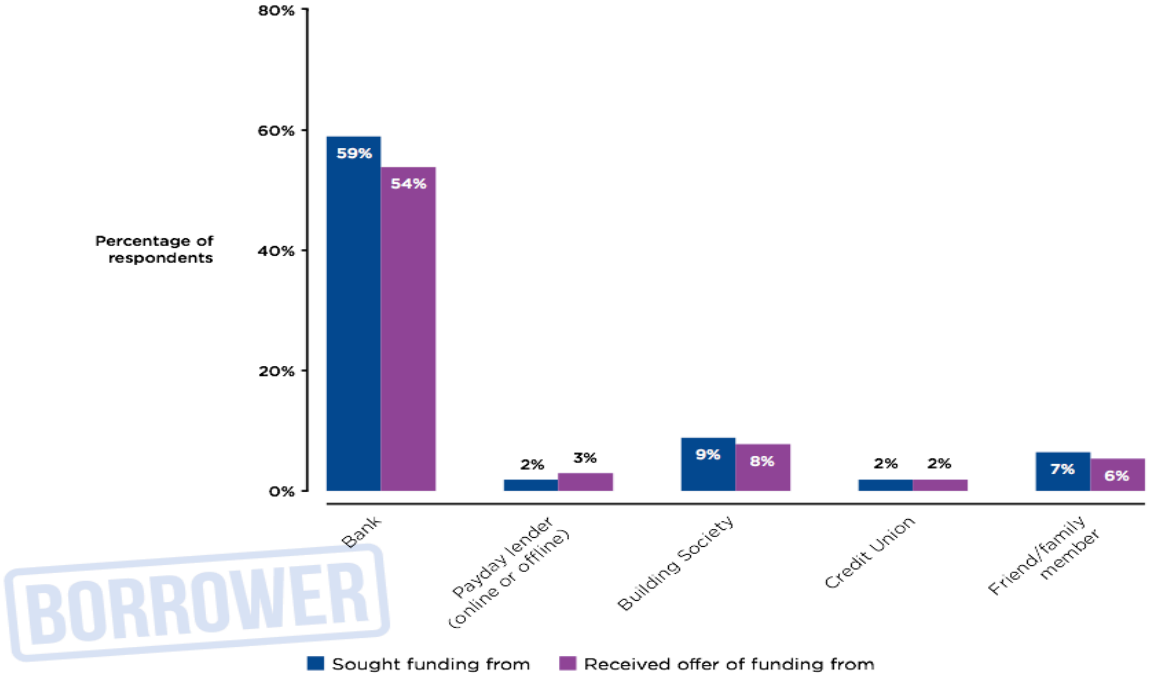
FIGURE 22.



source: CambridgeUniversity survey

We can notice that the broader share of volume is covered by consumer lending and it can be a proof that this crisis had put on knees not only savings but also and especially the consumption: people need money above all for living everyday-life in a respectable way.
The majority of surveys made by scholars through consultancy corporates highlights that many fundraisers who deal with alternative finance opt for this particular funding system, since nowadays traditional channels are really constrained and credit access is really difficult. For example, by the end of 2014, P2P consumer lending platforms have recorded that personal loans were recquired by over 80,000 people and a few of them for business porposes.
Another important percentage is 70%: this number represents the quantity of SME borrowers which through P2P business lending (that they acquired since it became the last solution - figure 23) recorded a growth of turnover and profit increased for 63% of them. Moreover, many of them financed and launched their products especially through reward or equity-based crowdfunding.

FIGURE 23: Whom did borrowers turn to in order to achieve a loan before P2P lending request?



source: pwc survey

From a social viewpoint, donation and reward-based crowdfunding are bringing about a growth of trust among peers, volunteering and philanthtopic giving, which are also the base of crowdfunding birth.

6. Conclusion

From the previous overview on financial markets we can deduce that P2P lending spread up and importance can no more be denied but faced, especially by banks in order to survive in competitive market, in spite of a slight increasing demand for banks loans. SMEs, householders and consumers feel still constrained and, since "time is money", thay must find a quick and sharp funding solution.
In this contest, alternative financing means seem to be slightly less important, but it is useful to remember that alternative finance such as nonbank systems have not yet spread up in Europe, probably because of regulation problems and a state of recession still alive. But they seem to be an appreciated solution for easier loans.
Indeed in Common law countries, such as USA, UK and Australia, there is a weaker regulation which allows the spread up of new ways of lending: crisis was faced as soon as it blew up, economic trends are decreasing but not negative, financial market is more developed and innovative together with IT market. In fact, the birth of P2P lending is in 2005 when ZOPA' s idea was born in UK and it might not be a case.
The following chapters describe and analyse P2P lending and crowdfunding functioning and its shades, particularly equity crowdfunding, from a socio-economic viewpoint, since it can be an innovative alternative and additional financial sources for SMEs, together with social lending platforms used by SMEs, householders and consumers. After this analysis from borrowers' viewpoint, the focus will be on lenders' one, comparing business models of banks and P2P platforms, also through the case of Prosper.com's platform.

CHAPTER 2.
Online P2P lending: a new challenge for banks' business model

1. Introduction: the new economic, social and regulatory challenges for banks

07's crisis and IT innovation have revolutioned business models of market operators, finacial ones and corporates: consumers' satisfaction has another aspect, nowadays, when the majority of needs is satisfied via mobile phone and online devices[1]. Value proposition, too, is really different: consumers are more interested in quality and, especially, another soft features such as trust, efficiency, transparency, prudence.

Trust is the base of the whole economic and financial system: for this reason, especially banks are important to guarantee transparency in order to reduce Informative Asymmetry and risks, since they are characterized by a "semi-public" interest (Capriglione, 2016). Generally speaking, FIs, especially after the Great Recession, must respect the supervision principle of "sound and prudent management". Soundness refers to the efficiency of financial market typical of the perfect competition (informative, allocative and operative efficiency), but financial market cannot be left abandoned and deregulated since perfect competition is an abstract model of market. For this reason, authorities should intervene in order to ensure conditions which help the reaching of perfect competition without forgetting the holes which make the market imperfect and they formulate "receipes" safeguarding prudence against moral hazard risks.

However, banks were toughly hitten by these abrupt revolutionary waves which showed the "black side" of economic system evidently less efficient than we thought. The term "efficiency", in this case, means also the capability to absorb the new social way to consume also financial instruments. Digitization brought about an abrupt break with the traditional business models made by more physical than immaterial architecture. The change in business models is more evident in banking context than in other ones, due to the fact that banks must respect market rules to gain profitability and growth (for instance, the development of online banking since IT spread up and transformed "goods" in "services for goods" through the so-called "FinTech") together with regulatory rules according to Basel III and its new capital requirements. On a side, banks must support costs for disinvestment and for "compliance" with fintech new devices which require sophisticated techical competences. In fact, banks must not only improve but also and especially change and innovate: innovation is a "must" in order to survive and grow in a dynamic competitive market (Shumpeter, 1942).

On the other side, "compliance" means to be fit with the Basel III Committee pillars[2] which, with its new conception of Common Equity (4.5%, that is the main component of Tier 1), new buffers (capital conservation buffer- +2,5%- and a countercyclical on – from 0% to 2,5% until 2019), leverage ratio at

[1] http://www.morganstanley.com/ideas/technology-revolutionizes-insurance-industry/

[2] *source: BIS "Basel III: A global regulatory framework for more resilient banks and banking systems" , Annex 4, p. 69*

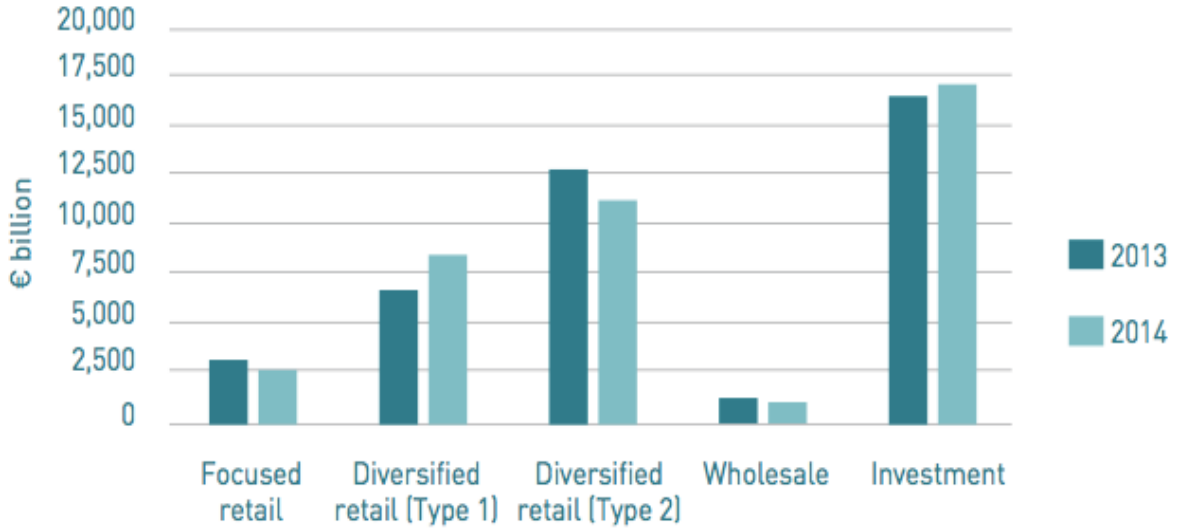
3% and new liquidity ratios (Liquidity Coverage Ratio and Net Stable Funding Ratio superior to 1), compels banks to have more equity increasing profits. This is possible through a decreasing risky assets and structure costs.

2. From traditional business models to customer disintermediation

Let's start from the traditional categorisation of bank business models in order to explain their transformation.
Through banks' balance sheets, different business areas where banks work can be individuated:

1) A focused-retail bank is characterized by customers' deposits for 69.5% of the total liabilities and customer loans for 78.5% of total assets. 11.8% and 7% are the percentages for trading assets and bank loans;
2) A diversified-retail (type 1) bank has more trading assets (30.9%) and bank loans (10.3%) but it is more dependent on customer deposits;
3) There is also diversified-retail model type 2 with 22.6% of total assets as trading assets thus its distinctive element in the funding: 43.3% of total liabilities is composed by debt liabilities;
4) Model 4 is "wholesale" business model adopted by banks whose funding is non-traditional since they are banks' intermediaries. Interbank lending is the majority of assets (52.2%) and 17.1% are trading assets. Thus, leverage ratio is low and tangible common equity ratio is high (14.1%) comparing to the other peer banks. As for liabilities, deposits and interbank debt represent 22.4% of total assets and customer loans 20.7%. other funds derive from trading activities;
5) The latter are mainly present in balance sheets of large investment-oriented banks (60.2% of total assets) and they are characterized by derivative exposures for 5.2% of total assets.

FIGURE 1. Banks business models 2013-2014.

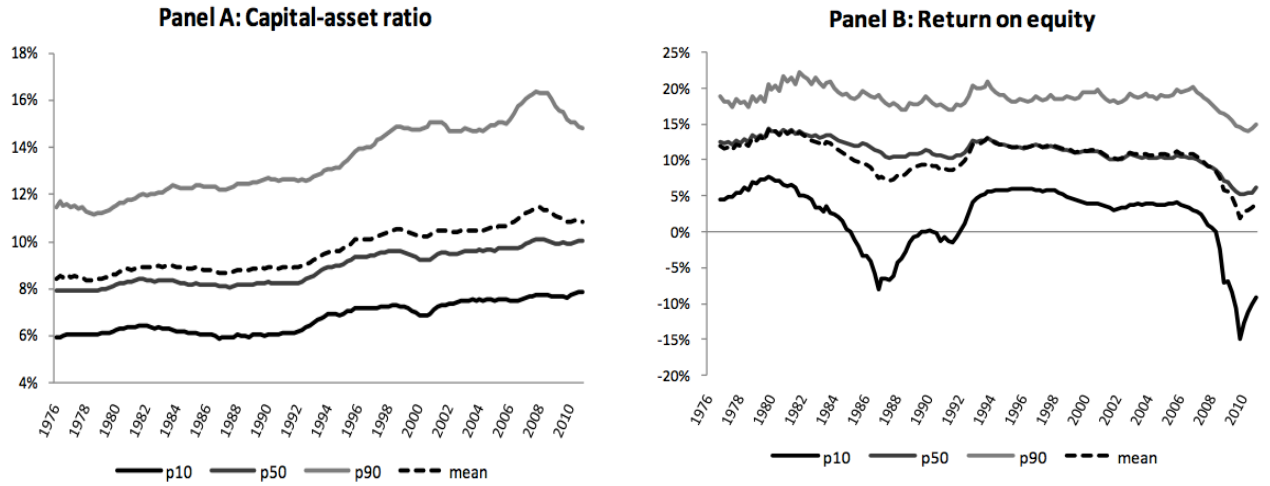


Source: R. Ayadi et al. (2015), "Banking Business Models Monitor 2015. Europe", CEPS and IRCCF HEC MONTREAL, p. 20.

These traditional business models faced the waves of financial crisis of 2008 and IT revolution, reacting in a similar way: banks started a process of disintermediation of assets and liabilities in order to gain through services different from those traditional ones (for example, banks offer nowadays consultation services). Since lending channel was freezed and competition of non-bank channels and of other specialized financial intermediaries, banks saw their interest margins deeply decreasing and compensated by servicing fees, especially by trading book.
Moreover, financial revolution had urged the "moving away" of banks themselves from the relationship banking model or "originate-to-hold" model to "originate-to-distribute" which will lead to the securitization of ABS and the consequent speculative bubble. In this way banks seemed to have found a solution to credit risk: simply tranferring it to other FIs or the so-called special purpose vehicles (SPV).
A bank, which has no more credit risks since assets can be transformed in securities and distributed through financial markets, feels less the duty of screening and monitoring, thus it puts in the financial vortex "junk" bonds and speculation.
A less careful bank is not trusted by consumers and customers and, as we know, trust is on the base of financial system. Thus, in this years, borrowers are preferring more and more to deal with non-bank lenders which are fit also with their new "digital" needs, since new lending marketplaces, nowadays, offer digital financial services.
But, if, on a side, depositors started to distance themselves from banks because of the lack of trust and a spreading fear of bank's insolvency, on the otherside, banks played an important role as a bridge between financial and real economies, since they found more profitable State bonds and wholesale financial sources, blocking their credit channel towards corporates and consumers, increasing their risks.
In fact, leverage ratio were too high but, in order to be competitive with new FIs which especially worked in consultation hambit, banks tried to gain income not by interests but by services fees.
However, this phenomenon of changing of banks' business model (a more collection of wholesale financial sources) is not an outcome of the last great financial crisis, but, as Berger and Bouwman (2011) affirms, it is one of the causes of the latter, since it contributed to the rising-up of systemic risk among FIs.
From important researches, outstanding scholars deduced that banks with mostly high no-interests incomes and wholesale financial sources had also high levels of risk (Demigurč-Kunt and Huizinga-2012), banks, in order to be sound and compliant with Basel Agreement, had made considerable capital increasings up with the improving on avarage of ROE and ROA.
When we consider increasing of ROE, however, we must put attention on the causes of this increase: in fact, the growth of English banks' ROE was due to higher leverage ratio than higher income from assets: thus the more they are leveraged the more they are risky (Osborne et al., 2010) (figure 2).
However, they depended more and more on capitals' market thus on "Value Based Management" and we know that the management brief-term viewpoint for maximizing investors' value brought about financial disasters in long period.
For decades before 2008's crisis, banks' diversified and interconnected business model was characterized by high levels of profitability and leverage ratio, riskier but less liquid assets, broader size which increased the lendings demand through financial innovation and shadow banking system, more diversification and more interconnectedness. But this model trasformed in an other one which has

deepenend crisis's effects: more concentration, even broader size, less diversification, more risks. All this has a huge impact on the cost of funding especially of equity with higher and higher required ROE.

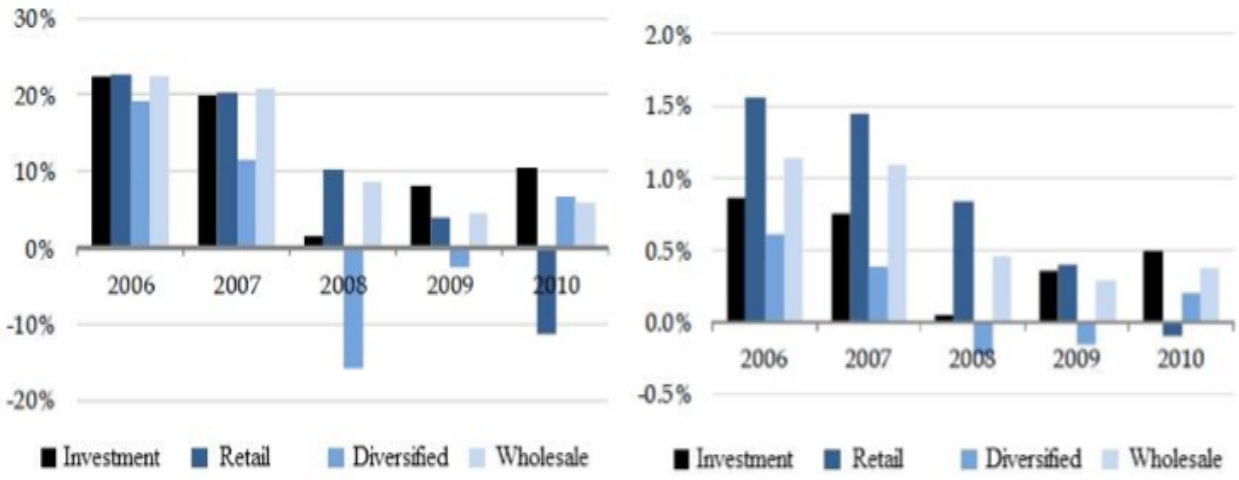
FIGURE 2: LEVERAGE OF ENGLISH BANKS.



Source: US Federal Reserve Reports of Condition and Income (Call Reports).

Less deposits means less liquidity, thus banks more exposed to liquidity risk found a solution through a "disintermediation" of liabilities, offering Deposit Certificate and similars, bonds.
Thus the choice of a more diversified business model, as we have said before, has increased the effects of risk sharing in financial market. Financial crisis has stressed the point on the inefficiency of this system, in fact this was a credit and liquidity crisis. After 2007, there was a global drop-off of ROE and ROA (figure 3).

FIGURE 3: ROE and ROA, rispectively



Source: R. Ayadi et al. "Banks and business models: Towards a new paradigm?", Cambridge press, p. 25.

For this particular liquidity lack, banks are again focusing on deposits and depositants' protection and need which can be considered the banking core business. However, banks were too focused on non-interest outcome through diversification which was risky and brought about excessive volatility of global outcomes, moreover, we know that deposits are the surest financial sources thus the other ones banks exploited increased banks' risk, leverage ratio was too high and a universal business model brought about an excessive integration with other specialised FIs generating instability and risks sharing. Furthermore, riskier assets have important impacts from a regulatory viewpoint: in fact, it means a higher level of equity in order to be compliant with Basel III, ensuring liquidity and investors' protection. Thus a new direct link between regulation and banks business model seems to be fundamental for soundness and safety of financial system, and not indirect as nowadays: Basel III urges banks to increase equity and to reduce RWA, thus reducing credit, deleveraging and solving the problems of NPLs, revisiting business models. Just USA tried in 2009 to regulate banks' business models through "The Credit Card Accountability Responsability and Disclosure Act" with a consequent decreasing of income and fees by banks, thus without success.

In this moment, when customer retention rate for banks is decreasing, banks must find a solution to all these disruptive forces which has strongly weakened them.

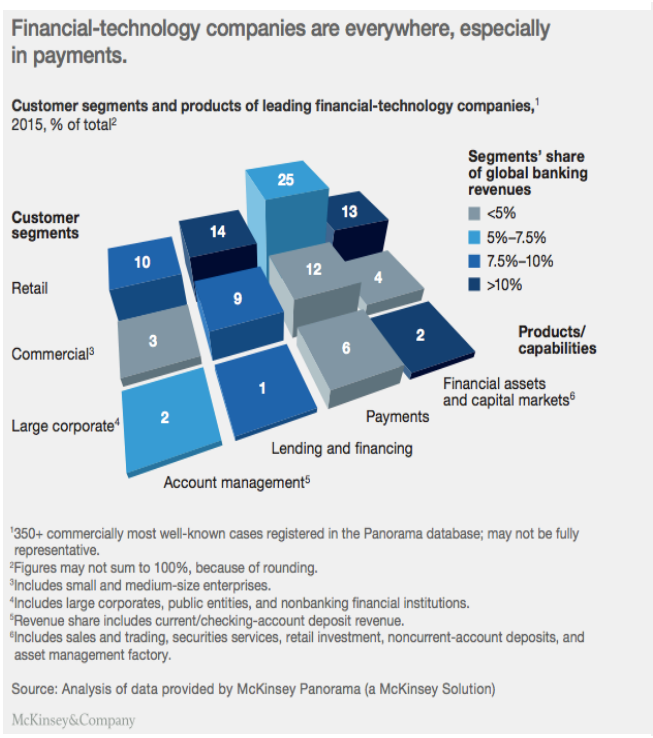
A first step was the introduction of online and mobile banking through which banks has decreased structural costs and gained the possibility to reach customers at every distance. This means that banks must continue to innovate in a "radical" sense. Considering that, as Apak et al. (2012) stated, that there are three different levels of innovation, transactional, incremental and radical, banks are still focusing on incremental one, on "storage" investments which improve the existing technology they use, without welcoming the disruptive impact of the radical innovation which mirrors the social change. Banking industry is becoming "technology-driven" reinventing the relationship between technological innovation, which enters the characteristic area of a bank, and retail banking, reducing transtactional costs and increasing sources of revenues.

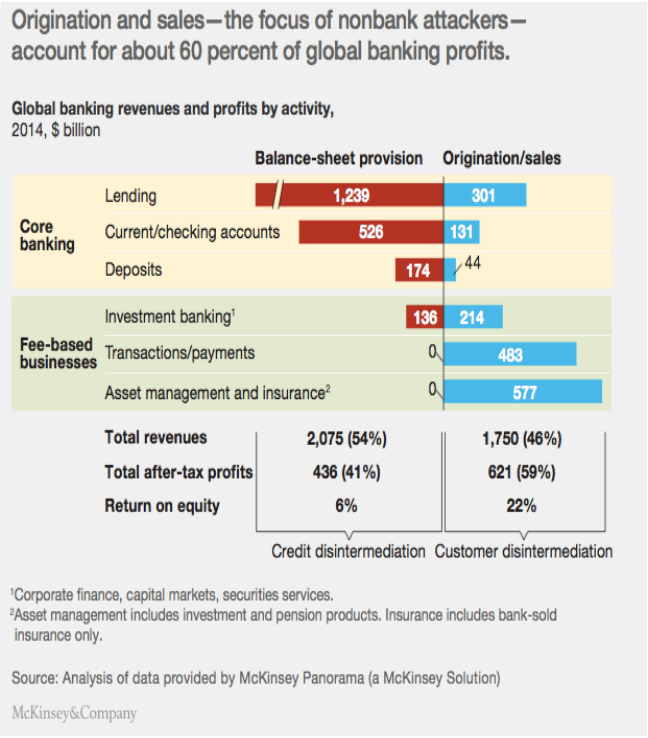
New sources of income are services fees but banks must challange a tough regulation which put constraints to credit and a resistance from customers who in this way are looking for nonbank solutions since the majority of them are considered "unbanked". Moreover, the growth of digital needs' satisfaction leads customers to deal with new channels such as apps on smartphone and website on internet, but why are bank's investments in financial technology not sufficient to recover customers, depositors and interest margin?

The key question is always *trust* in financial system: banks must focus on a new customers' segmentation in order to individuate new needs and new means through which satisfying them, since consumption model itself is changing. The segmentation should improve quality, potentialities and intensity of customer relationship. Since more information circulate through IT, customers are more involved in defining finacial tools ad choosing the best solutions. This will bring about a "customer-centric" business model (Teece, 2010). Moreover, IT led to the development of social network system through which people exchange information and exploit new multimedial channels which secure digital experience and increase communication and customer's satisfaction. For this reason, banks are staring at technology suitable to the so-called "cashless society" (Agnese, 2011) which will lead banks to modify the distribution channels' model within the business model. Next to a "vis-à-vis" customer-bank relationship, in fact, a new form of relationship, said "mass" relationship, based on the demand of mass

banking services with a low impact on added value (early banking) in order to reduce disequality among bank's customers through a mass and transactional and more impersonal strategy (Marinc, 2013).
Banks cannot ignore that customer disintermediation ensures an "attractive" 22% of ROE compared with 6% of ROE by credit disintermediation, as McKinsey's 2015 Global banking Annual Review reports (figure 4).

FIGURE 4.

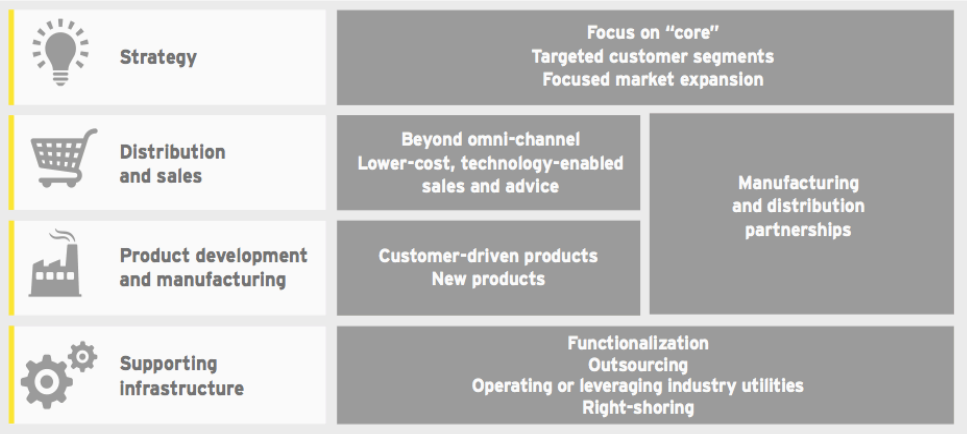




Customer disintermediation means also to include through innovative uses of Big Data the three segments of customers which suffered more the effects of the crisis, that is Millenials, SMEs and unbanked customers as householders and consumers.
Banks must focus on an actual marketing research and data-driven insights in order to build new digital capabilities inside, integrating with digital marketing and digital customers' experience. Segmentation will lead banks to personalized products abandoning the "one-size-fits-all" formula and to give more protection to customers making them more aware of their rights and the legacy conditions behind every financial tools (this means more disclosure, another aspect of compliance of Basel III's third pillar).
Key words are nowaday person-to-person banking relationship, a new "fit-for-purpose" business model a new generation of "digital" employees who work as bridge for this new "best practice" of necessary digitalization. This means bringing about more value for customers who will be more involved in deciding the best financial tools for lending or the best conditions for deposits, services as "lifestyle" plans for Millennials (as global banks nowadays are trying to uphold) (figure 5).
This focus on new business model is particularly important for SMEs, since it can reduce credit constraints towards them and it can lead to the recover of real economy starting from the small business.

It is a profitable segment since, as we have analysed, it provides more than 50% of world GDP and creats the majority of employment, thus banks must understand its features, needs and potential threats.

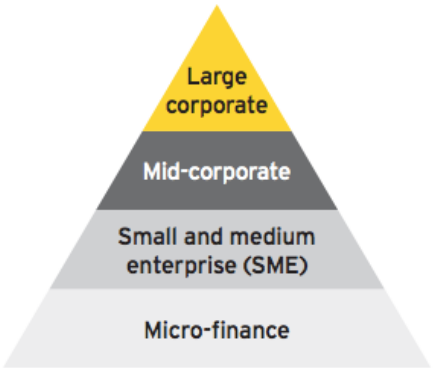
FIGURE 5. Focuses of a new business model for banks.

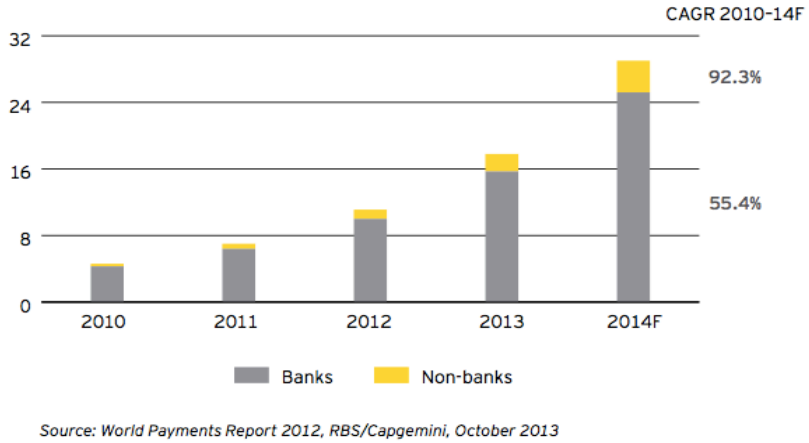


Source: EY Global Banking Outlook 2015

SMEs desire more digital services and prefer a bank no more as a mere "product pusher" but a non-traditional "holistic advisor"[3], as a guide for every financial aspect of SMEs, thus redesign the front-office. However, this is the bank segmentation hierarchy still today (figure 6).
However, we can notice the proximity of SME and Microfinance: the latter spread up especially in a digitalized context and, since the crisis brought about liquidity problems in characteristic area for SMEs, small business too needed to access in a context of micro-finance approaching to digital nonbank microfinance system. Also the lack of trust, obviously, paved the way for SMEs' aiming to alternative banking competitors (figure 7).

FIGURE 6. A new bank segmentation hierarchy. *FIGURE 7. Banks vs non-banks competition*





Source: World Payments Report 2012, RBS/Capgemini, October 2013

Source: EY Global Banking Outlook 2015

[3] B. Schlich et al., 2014, "Business Banking. Redesign the front office", EY, p. 2.

Thus, we can notice that P2P lending is upholding an exponential growth in few years passing from a range of US$3 billion to US$6 billion. Three main features is on the base of non-bank system: efficient and speedy decision-making processes, innovative technology platforms and strong customer service strengthening customer communication.

3. Peer-to-peer lending and the sharing economy

Peer-to-peer lending is a new marketplace lending which exploited the strength and the size of the World Wide Web to allow borrowers (whose the majority is considered "no-bankable" borrowers) to access credit through an online platform where directly "meet" lenders.
And, according to Huw Van Steenis (head of Morgan Stanley European financial services research), "banks will be forced to provide a simlar level of service and price, if they hope to compete and stay relevant to their customers".
The importance of P2P, however, regards not only the financial world but also the real economy (P2P file sharing): we focus on financial P2P platforms specialised in lending and the core driver is the availability of funding sources which allows ownership's transferring.
This is called also "sharing economy" which provides changing in business models through technology and easier access for C2C property or skills. Sharing economy's business model is accessability-based models. "Accessability" means possibility to obtain a lendings for "unbanked" borrowers and the fact that these models are web-based too leads to involve more customers and makes services cheaper, since there will not be high structural costs which usually disadvantage customers.
Sharing economy seems to move in a parallel way together with banking industry, since P2P lending platforms are not the online platforms that banks made up after broad investments in technology and IT tools in these last years.
They both grasped the new trend of customers who spend more time online in order to satisfied everyday-life needs. However, P2P lending marketplace has a business model based essentially on fees as revenues which are comprehended in the extraordinary activities for banks and new sources of revenue for the latter, since interest margin is decreasing. Thus P2P lending system is specialised only on financial services of lending (for now).
Theorically, the mediation of FIs is not required but, basically, many platforms are partially financed by larger financial institutions, some of them because they consider these platforms as innovative start-ups, some of them because required by law, since regulation is becoming more and more invasive in every financial field. In general, it is relatively easy to acquire access to funding, since a feature of these platforms is internationalization.
As there is still a customers' resistance towards technology albeit IT revolution was positively welcome, P2P lending platforms must focus on the growth of financial and online confidence.
Thus, understanding how a P2P lending platform works is a first step to be more and more confident with this new way of funding/lending. Starting from the etymology of "peer-to-peer", we can deduce that there are two sides, as it happens in every traditional lending channels as a bank lending, but they are not called simply "lenders" and "borrowers": they are "peer". Investors and borrowers are put and,

especially, have to feel at the same level and there is not an intermediary as a bank, but a platform. The gain for participants is different: borrowers could achieve loans which they should not have received in a traditional way, lenders, relying on credit rating of borrowers (which is public and can be consulted in every time), can propose their bid (quantity of loan and interest rate) as more coherently as possibile with the conditions of the borrowers, platform (and its marketplace manager) can gain raising fees when transactions successfully end.
The total exclusion of FIs, especially banks, in lending process seems to be the consequence of the mistrust on traditional financial system after crisis. Online P2P lending platforms, however, was born before the Great Recession: the birth is attributed to the UK platform "Zopa" in 2005 which remains essentially a qualitative platform, whereas there is less transparency as for quantitative data. We have to thanks Prosper.com platform, founded in 2007 in US, for the spread up of P2P lending system, making quantitative and qualitative analysis through its public data easier, clearer and quicker.
Big Data from P2P lending platforms are source of great interest for scholars in economic, social and IT fields.

3.1. Features of p2p lending platforms: pros and cons

There are two kinds of online P2P lending platforms: commercial and non-commercial.
Commercial platforms are characterized by a mostly national workability and higher returns for higher risks requested by lenders who want to invest through P2P lending but with the same results they had achieved through a traditional investment way.
Non-commercial platform, on the other hand, is especially used in a global contest by lenders whose aim could be also "donation" or who accept from a lending just rewards (either tangible or intangible), investing for social purposes.
There are other shades of P2P lending: "crowdfunding", where funding is granted by a crowd of investors; "alternative foreign exchange platforms"; "non-bank invoice discounting" where SMEs, improving online their cash flows, ensuring investors without invoice; "cryptocurrencies" like Bitcoin and Litecoin upholding online payments without central issuers.
The success of this alternative financial source is given also by its stakeholders (those who are interested in the goals of a project or a business in order to achieve personal benefits participating in it). In this particular system, lenders and borrowers have the same interests they would have when they turn to a bank for funding, but all they are actively involved in every part of the project or the business or a financial plan published via online platform, in order to urge investors to monitor investment managing and borrowers to maintain quality and stable incomes, discouraging him to exploit informative asymmetry.
Moreover, borrowers, after a careful credit screening and scoring, and investors, once analysed the main investment fields for each of them, are ordered in communities: this division can be justified by not only the economic but also and especially the social aspects which P2P lending is based on.
The social aim is obviously trust which is really difficult to ensure sometimes, since regulation can put tough obstacles to platforms in accessing information about borrowers and investors and measuring credit scoring in a correct way.

Many platforms consider both hard and soft data for borrowers' credit scoring, such as stable income and capability of past or present obligations' reimbursement, before accepting funding proposes and offering them to the group of investors more suitable for the propose's aim. Furthermore, borrowers' data verification is made also after investors' accepting, in order to enforce risk coverage and ensure higher probability of success.
Lending process is supported by the platform through which not only loans but also fees for managers of platform travel. Fees are essentially the revenues of P2P lending system and they are paid by both lenders and borrowers: a closing fee of a certain percentage of the loan, fees for payments' late or failure by borrowers and servicing fees proportional to the provided loans by lenders. Usually 1% to 2% of the loan balance are origination fees and 1% of the outstanding loan balance are servicing fees.
Lending process is charcterized by different steps (figure 8):

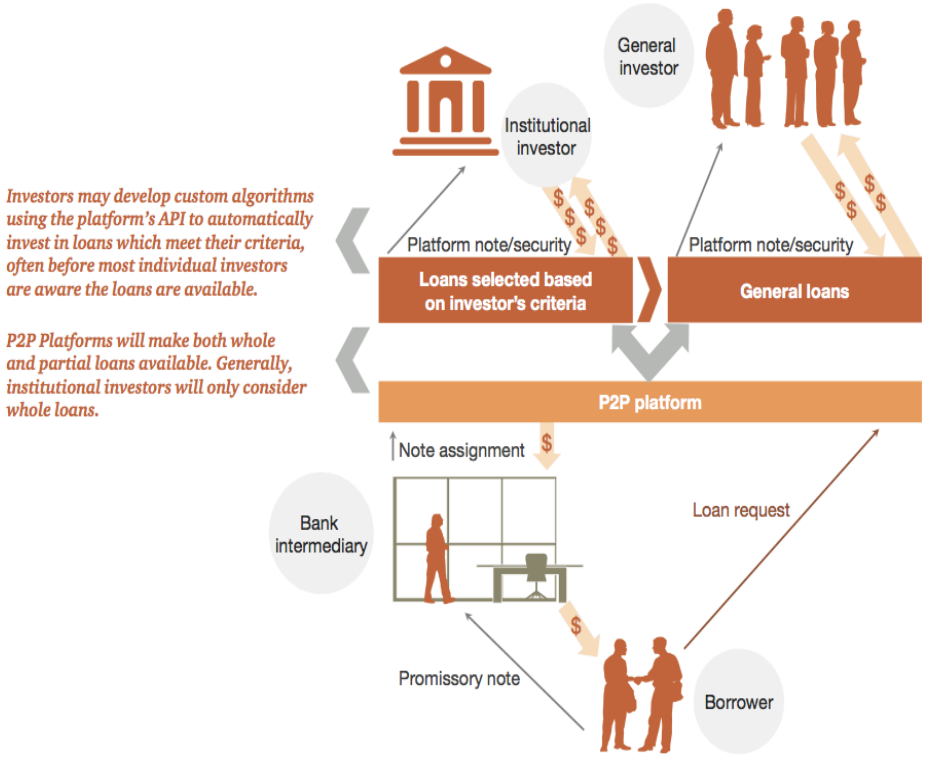
1) the borrower introduces himself through an application in order to obtain a credit scoring;
2) platform uses hard and soft data to assign a risk grade to the borrower and the loan request can be accepted or not;
3) the loan request is posted and valued by investors according to their financial "tastes";
4) if a sufficient number of investors funds the loan, the latter is originated by a bank called "originating bank" which must adhere to Federal Deposit Insurance Corporation (FDIC) or other deposits insurance funds;
5) Originating bank sells notes specific for each borrower and its loan according to the country regulation about notes (for instance, they must be registrated with SEC in USA);
6) The "borrower payment dependent notes" are guaranteed by underlying loan and it means that investors will pay the platforms if borrower repays the loan;
7) Platform gains fees for the loan intermediation and its servicing.

Since it is a process which can be done through banking channel, why do a borrower and a lender choose P2P lending platforms?
The former can benefit from a transparent and easier use of online platform, lower interest rates since there are less structural costs and an efficient decision-making, whereas the latter can benefit from high risk-adjusted returns according to new systems of credit scoring, high-yield investment class in investment for a minimum of $25 increasing the possibility of diversification and including also smaller investors, transparency due to the sharing information online and personalized process of investing decision from the possibility to monitor borrowers.
There are obviously risks such as inefficiency in credit-scoring models[4], limited hystorical experience and diversification, risk to endure borrowers' insolvency and a nowadays regulatory uncertainty.
Especially, we can talk about variability of default due to the diversification among borrowers and lenders which should secure investors and platform itselt against default and loss but, when we look at the system of loan loss recovery, maybe there is an outstanding hole in regulation as for protection against any negative business trend. For these reasons, investors have an important role in contract

[4] The most important and officially recognized score system is FICO: "A FICO® Score is generated using multiple scorecards, with each scorecard tuned to assess risk for a specific consumer segment—for instance, consumers with serious delinquencies. To streamline model updates, scorecards are aligned to reflect similar risk across FICO scoring systems and releases."
Source: http://www.fico.com/en/products/fico-score#overview [4]

stipulating, since they request for the maximum recovery or the minimum interest rate which protect them from fraud, insolvency, default, cybecrime and platform's default.

FIGURE 8.



Source: "Peer pressure" by PwC

Moreover, the fact that more and more institutional investors (especially in US P2P marketplace) are involved put in danger the other investors who could endure prices falling because of a "marking-to-market" adjustment of exposure by selling loans to other investors for institutional investors' willing (with more experience and more careful to market trends). Thus, nominal value is not guaranteed for investors. For this reason, UK Peer-to-Peer Financing Association is urging to more transparency and data standards, hoping that it could be applicated to all the P2P platforms.

3.2. P2P lending's social capital

An aspect which makes P2P lending system special is its "social" capital, meant as all those soft data which the platforms can reach through the quali-quantitative information that borrowers provide in order to obtain a credit scoring, including also information passing through social networks and other online channels, reducing in this way transactional costs such as the research ones. Borrowers become participants also of the new social network created by P2P lending platform itself where they have a saving in term of transactional costs reflected on interest rates but they must "spend" reputational costs of default.

Creditworthiness anlysis' systems of P2P lending platforms are similar to those of banking industry, adding other variables as important to build up the interest rate structure, such as a borrower's bank account.
The demographic variables like age and race are really less measurable as soft information thus they are influencing factors which are considered in different ways according to the specialization on lending of the platforms. The common elements, instead, are friends and groups and the whole of personal relationships which are difficult to summarize in an alfanumeric score.
From Nahapiet and Ghoshal's analysis in 1998, social capital is characterized by three dimensions, structural, relational and cognitive. The first dimension refears to the level of interconnectedness of borrowers with people through offline and online means, the relational dimension is related to the kind and quality of relationships the borrower builds up and, finally, the third one is the dimension of the sharing knowledge of borrowers and all around people.
Thus, friends and group intermediation starts to be really important and even fundamental for P2P platforms in credit scoring, since the history and the social reputation of the borrower can help to rough his profile out as precise as possible.
Undoubtedly, nobody can be completely sure of the good faith of a borrower but surely a friend or his narrow social group can know more qualitative aspects of the borrower and sometimes it is evident through social network activities. We can consider P2P lending a complete online system made by computers, but behind them there are people who deal with money and, fresh from crisis, could be trustful at least among each others. Sometimes group's or group leader's information about the borrower can be mandatory and it often grants a smaller interest rate for the borrower: this is a proof that soft data from social capital of every borrower is really important in terms of costs and trust.
This is a screening system really similar to banking one but more focused on qualitative aspects of the participants and based on a continuous update not only by the borrower himself or the platform, but also by the other participants to the P2P social network.
It does not mean, however, that in P2P lending hambit there is a personal direct contact between borrowers and lender (the bank, for instance) but there is a digital direct contact.
Online P2P lending system adopts to different ways in order to match borrowers and lenders. The easier one is an automatic fit according to the different market interest rates for different risk rating classes and, if there is excess of demand or supply of loans, platform corrects interest rates until the break-even point. An other approach is based on an online auction where borrowers propose their maximus interest rate they would pay for loan and lenders submit their minimum interest rate they would accept fot lending.

3.3. P2P lending market's size

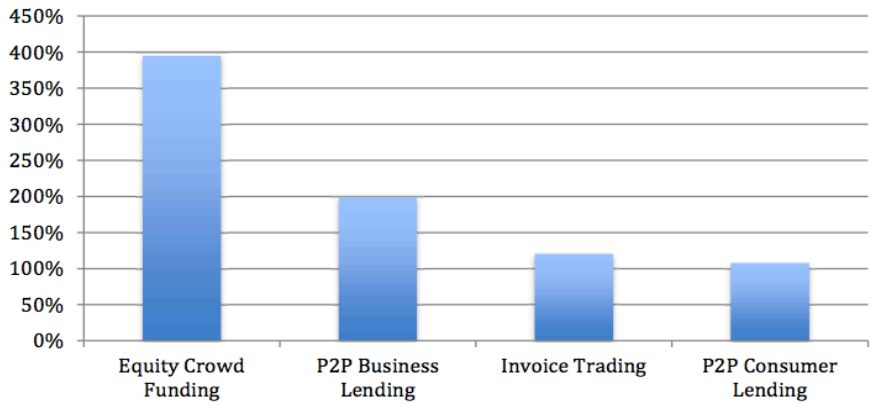
The exploitation of new technological devices allows P2P lending marketplace to acquire broader market share before owned by bank industry and its growth is thought getting double in five years.
The main reason of this success, beyond its technological nature, social capital mainly made by soft data and more confortable financial aspects for both borrowers and lenders, is the conquence of these elements: an easy credit access for customers, especially unbanked ones. And this is a key driver for

both P2P lending marketplace and banks: the former must continue to deal with this segment and the latter must reconsider constrained customers maintained a link with real economy.
Talking about numbers, P2P lending spread all around the world with different disruptive impacts.

3.3.1. THE EUROPEAN UNION

The majority of lending cash flow was made by UK: in fact, outside UK, P2P market counted business for €620 million on a total of €2,9 billion and the most active countries are Spain, France, Netherlands, Germany and Italy (the latter especially in crowdfunding).
In UK, annual growth rates of alternative financial sources overcame in 2015 (figure 9): Table 1 contains the UK P2P lending volumes by platform compared with other UK credit markets: if we look at the % of total made by P2P lenders, it is just 0,4% and it does not seem a threat for banking creditmarket but, as we can carefully notice, some data were difficult to be found thus this analysis is not complete.

FIGURE 9.



Source: Zhang et al., "Pushing boundaries: the 2015 UK alternative finance industry report".

However, albeit in relative measures this phenomenon seems to have still a low success, in absolute terms a positive balance of £2,155 million and a net lending flow of £1,033 million in 2015, when crisis effects are still alive, is a considerable source of reflection: esteeming that growth rate is over 100% and considering the abrupt success of ZOPA and Prosper (thus the contribution and influence from USA to P2P financial sustems) as a right answer to crisis and IT revolution, that 0,4% can be seen a first step of acceptance by the customers which can be only increasing through the spread of financial culture and P2P marketing on social network, too.
Moreover, despite the recent spread, regulator was and still is careful to the areas and the ways of P2P lending platforms work but in Common Law countries like UK operators themselves together with the judges are makers of rules. In fact. In order to secure the customers, UK P2P lending platforms consider the lending as a legal contract between borrowers and lenders.
Furthermore, Zopa lenders have two opportunities to recoup their investments: they can simply take back principal and interest or they can sell their loans to the other lenders of the platforms paying a 1% fee or 0% according to rating categories. The platform does not endure credit risk and, differently from banks, it does not allow loans to be withdrawn on demand or at the end of a fixed term.

Finally, we can notice that UK P2P platforms are more SME-oriented than focused on consumer credit.

TABLE 1.

	Balance	Net Lending Flow, 2015 (£mn)				Number of:	
Platform	End-2015 (£mn)	Consumer	SME	Secured on Property (mainly buy-to-let)	Total	Lenders '000	Borrowers '000
Funding Circle	657	-	243	89	332	42.9	15.4
Zopa	625	293	-	-	293	53.0	113.6
RateSetter	517	154	68	24	245	26.5	138.5
Lendinvest	195	-	-	108	108	2.2	1.0
Thincats	89	-	21	6	27	1.8	0.3
Market Invoice	36	Annual lending of £264mn to businesses				0.2	1.6
Landbay	21	-	-	19	19	0.8	0.1
LendingWorks	14	10	-	-	10	1.1	2.9
Total P2P	2,155	456	332	246	1,033	128.3	273.6
All lenders	522,620	14,606	2,294	6,784	21,380		
P2P as % total	0.4%	3.0%	12.6 %	3.6%	4.8%		

Source: Zhang et al., "Pushing boundaries: the 2015 UK alternative finance industry report".

3.3.2. THE UNITED STATES

US P2P lending is, unlike UK one, more oriented towards consumer credit and it is mainly a mechanism through which selling loans to institutional investors rather than direct contact among borrowers and lenders. However, the marketshare is still low but increasing (0,36%) and a Morgan Stanley Research of 2015 has reported a size of $12 billion of P2P marketplace at the end of 2014.

As for investors, the majority of them are insitutional, such as banks, asset managers and hedge funds, whereas in UK and other countries investors are mainly private financial operators (for instance, the platform Fixura in Finland benefits from a broad share of private investors). Another link to institutional financial operators is the partnerships, since P2P marketplace is an opportunity and not as a threatening competitors.

All this attention to US P2P platforms obviously derives from the great fear for future "Too-big-too-fail" crush, thus US financial market does not leave this new financial channels far from regulation and control: partnerships or M&A operations with US banks can be a source of information sharing, risk sharing and buffering, costs reducing thanks to digital servicing.

Albeit P2P lending market share is still contained, since it is attracting those customers who were constrained in the long term, banks and other US financial institutions consider P2P lending a threatening phenomenon to be controlled also from a financial regulatory viewpoint, especially because, beyond SMEs, the customers are mostly consumers: in fact, regulator is careful to interest rates requested for loans, oversight task is assigned to US Consumer Financial Protection Bureau together with FDIC and the US Treasury which "requests for information", thus imposes disclosure duties.

3.3.3. CHINA AND OTHER COUNTRIES

Chinese P2P lending platforms deal mainly with SMEs and the value in ten times the size of US in 2015 (the size is of $150 billion on avarage), a broad share of Chinese P2P platforms serves householders.
Regulatory is really careful to the risk of fraud and laundering but there is not an actual attention to oversight this new marketplace.
In Australia P2P lending was born with SocietyOne which offered more than $60 billion in loans and its key success was record low interest rates after the financial crisis and IT revolution. It is followed by RataSetter and Thincats. Sydney-based DirectMoney allowed the spread up of P2P lending in Australia but it is a sort of hybrid of traditional lender and marketplace. Australia, through Melbourne-based MoneyPlace exported P2P lending in New Zeland which was approached through "Harmoney" p2p platform.

3.4 P2P platforms' investors: overview of liabilities management.

The actors in P2P lending field are P2P platforms linked to the "originating banks" since it cannot yet lend money, Institutional investors and individual ones.
In previous analysis, we focused on the "assets" side, that is on the side of borrowers giving importance to the fact that these borrowers are all those unbanked and constrained ones who suffered more crisis and It revolution changes.
Liabilities' side is not less important: funders are private people uphold by private angels, venture capitals, institutional investors and banks through M&A or partnerships. But, as we know, there is also debt near to equity among liabilities and debt of traditional balance sheet lenders is made by bonds and especially a "special" debt: deposits or "endured" collection of financial sources.
For P2P lenders, unbanked customers are easier to be attracted since they offer convenient low interest rates for loans, despite banks' ones are not so unconvenient as P2P platforms' ones. These platforms, however, were born in order to satisfy these particular segments which are constrained for bad credit scoring . But, after a liquidity crisis where depositors' insurance funds were too weak to protect them, how could online platforms ensure depositors through their internet systems?
The first solution can be more trasparency and interest rates for deposits more profitable and coherent with eventual risks of liquidity or insolvency. Moreover the fact that institutional investors and great investment banks are really interested in this phenomenon can be, on a side, an element of trust towards P2P lending system which can ensure depositors and, on the otherside, an element of threat for banking

industry which uses their own P2P platforms but they seems to be not so successful as indipendent P2P lending platforms as Prosper.com and Zopa.
An aspect of competition among those platforms is, in fact, to adhere to a deposits insurance fund. The legislative problem is identifying the precise activity of P2P lending and the consequent limits and duties of these lenders. But it is still a slow process and, in the meanwhile, P2P lending platforms can benefit from a really low number of investors as actual depositors (maybe they are waiting for a regulatory more defined pattern of rules which ensure them) and from short-term markets, such as short term repos, ABCP money markets[5], structured credit securities and other short-term financial tools.
These tools shape equity of P2P lending platforms but there are not only shareholders but also donors, a sort of private angels who prefers immaterial and soft rewards rather than money ones.
How does an investor access to a P2P lending platform for investing? He can start dowload historical loan data publicly available, like in US Lending Club and Prosper.com, he can create an actual "secondary credit models" through which he can decide whether investing or not, where investing according to his own risk inclination, as in Prosper.com[6].
Furthermore, he can exploit automatic softwares for the entire investing process, as in LendingRobot.
Large institutional investors relay on fund administration servicing and third-party loan servicing firms such as Opus Fund Services, Millennium Trust Company and First Associates

3.5 What do investors expect?

Generally speaking, when an investor has to decide whether investing or not in a corporate or in a project rather than an other one, he look at ROE and ROI. But we know that in credit lender hambit, ROE is an ambiguous measure of profitability and it is not interesting if the investor prefers to be simply a creditor and not a shareholder. Thus, ROI is the key driver of investor's decision.
In the case of P2P lending platforms, ROI is given by the ratio between the difference between the cumulative discounted payment (CDP) and the loan amount (L) and the latter: ROI= (CDP-L)/L[7].
Moreover, an investor can also take in account the ROI distribution in order to evaluate that ROI is fit for risks which are different according to the different credit-score categories. In fact, naming "x" each group, ROI can be expressed as a function of x (ROI= f(x)) through investor can calculate the composition of optimal investment portfolios.

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5 "The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility was a lending facility that provided funding to U.S. depository institutions and bank holding companies to finance their purchases of high-quality asset-backed commercial paper (ABCP) from money market mutual funds under certain conditions. The program was intended to assist money funds that held such paper in meeting demands for redemptions by investors and to foster liquidity in the ABCP market and money markets more generally. The AMLF began operations on September 22, 2008, and was closed on February 1, 2010." Source: *https://www.federalreserve.gov/monetarypolicy/abcpmmmf.htm*

7 Decomposing formula, elements are:

$$CDP = \frac{P_1}{\left(1+\frac{d}{12}\right)^1} + \frac{P_2}{\left(1+\frac{d}{12}\right)^2} + \cdots \frac{P_{24}}{\left(1+\frac{d}{12}\right)^n} + F * PB_{24}$$

$$P_n = \Delta PB_n + PB_{n-1} * \frac{l_n}{365} * r + L_n - S_n$$

where Pn is the net payment lenders receive at the end of nth month, PBn is the remaining principal balance at the end of nth month and "d" is the discount factor, "n" is the default month or full payment month, "r" is the loan interest rate, "ln" the length in days, Ln the late payment and Sn the servic fee charged in period "n".
Source: H. Singh et al., 2012 "Risk and Return On Investments in Online Peer-to-Peer Lending", School of Management of University of Texas at Dallas and School of business of University of Connecticut, p. 3.

Naming the fraction of total investment in xth group "w(x)", the expected return of portfolio E(ROIp) and the risk V(ROIp), K a given level of risk, the investor's optimization problem is:

$$\text{Max}_{(w(x))}\ E(ROIp)$$
$$\text{Sub } V(ROIp) <= K$$
$$\text{Sum of } w(x) <= 1 \text{ (budget constraint)}$$

And the efficiency measure for each group is given by E(ROIn)/E*(ROIp) where the numerator represents the return of nth group and the other term is the maximum return from optimization.
From this brief ROI analysis, there are not simply mathematical calculations: this means that investors are really involved in P2P lending mechanism and we can confirm, as we have said in previous chapter, that investors, as borrowers too, are active and not passive operators of this marketplace and this is way through which P2P platform gain transaprency, abandoning for both lenders and borrowers that gap of asymmetric information typical of banks' contracts (which are simply forms and questionnaires).

TABLE OF LENDING CLUB ACCOUNTING, 2012-2015

Years Ended December 31, $'000	**2015**	**2014**	**2013**	**2012**
	(audited)	(audited)	(audited)	(unaudited)
Statement of Operations Data:				
Transaction fees	$ 373,508	$ 197,124	$ 85,830	$ 30,576
Servicing fees	32,811	11,534	3,951	1,929
Management fees	10,976	5,957	3,083	824
Other revenue (expense)	9,402	(1,203)	5,111	716
Total operating revenue	426,697	213,412	97,975	34,045
Net interest income (expense) and fair value adjustments	3,246	(2,284)	27	(238)
Total net revenue	429,943	211,128	98,002	33,807
Operating expenses: (2) (3)				
Sales and marketing	171,526	85,652	37,431	18,201
Origination and servicing	61,335	37,326	17,978	7,589
Engineering and product development	77,062	38,518	15,528	4,855
Other general and administrative	122,182	81,136	19,757	10,024
Total operating expenses	432,105	242,632	90,694	40,669
Income (loss) before income tax expense	(2,162)	(31,504)	7,308	(6,862)
Income tax expense	2,833	1,390	—	—
Net income (loss)	$ (4,995)	$ (32,894)	$ 7,308	$ (6,862)

Operating performance of Lending Club. Source: Zhang et al., "Pushing boundaries: the 2015 UK alternative finance industry report".

From previous analysis and looking at first glance this table (representative of the majority of lending platforms with different shades according to the different segments platforms deal with), the business model is clear: revenues are almost fees and they are considerably increasing up to eleven times from 2012 to 2015, whereas expenses derive from servicing, marketing and engineering and product development. The latter are particular costs which we difficutly find in banks' balance sheet, since the

majority of investments is made not to develop but to maintain the existent technology (a sort of storage investment). P2P platforms, instead, despite they still today record a loss (inferior to 2015) for tough administrative costs, give the right importance to innovation and to invest not only in that technology of that moment but into its development, in order not to be behind progress. We know P2P lending phenomen is relatively recent, but, as loss is decreasing (about -27%), we cannot deny that in unbelievable times it can involve other segments beyond the unbanked ones: all balance sheet items are increasing from 2012, included costs which reflect the before-said investments.

4. How can banks approach towards P2P lending platforms?

Banks are not conservative operators of financial markets, but they are toughly trying to be compliant not only to Basel III Regulation but also to IT rules, offering digital services through their online banking platforms. It seems to be not sufficient since value propositiona and customers' satisfaction are really hard to be maintain in times of crisis. Which could be a solution?
Banks can cooperate, like in US, or compete with P2P lending marketplace.

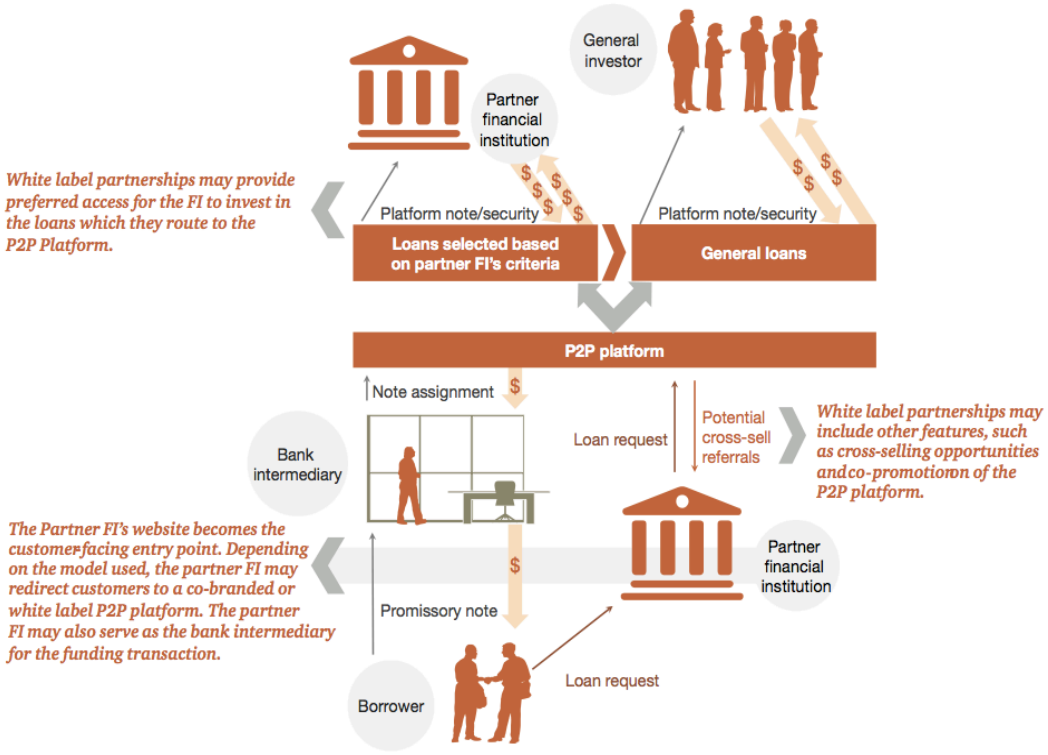
The collaborative approach means partnerships in terms of M&A and co-branding:

A) Partnership through M&A allows banks to reach those segments which were credit constrained by traditional lenders, to diversify, to recover trust and to gain a new asset class with worthy risk-adjusted returns. However, customers do not consider banks' brand and cannot benefit from cross-selling of other banking outputs. There was a case study, reported by the "National Mortgage News" in 2014, which represents an example of agreements between a P2P lending platform and banks. These are small banks which uphold platform financing it for 10% and purchasing each of them $2 million per month in P2P loans that platform originates and services. A 25% of loans originted by the platform could be bought by these small banks after a maintain period at fixed conditions by another investor;

B) Partnership through co-branding transforms P2P lending platform as a financial channel for banks and other insitutional investors which exploit platform's infrastructure. The advantages of lower interest rates and servicing fees as profit for platform are held by P2P lending system but banks and the other investors are no more anonymous (figure 10).

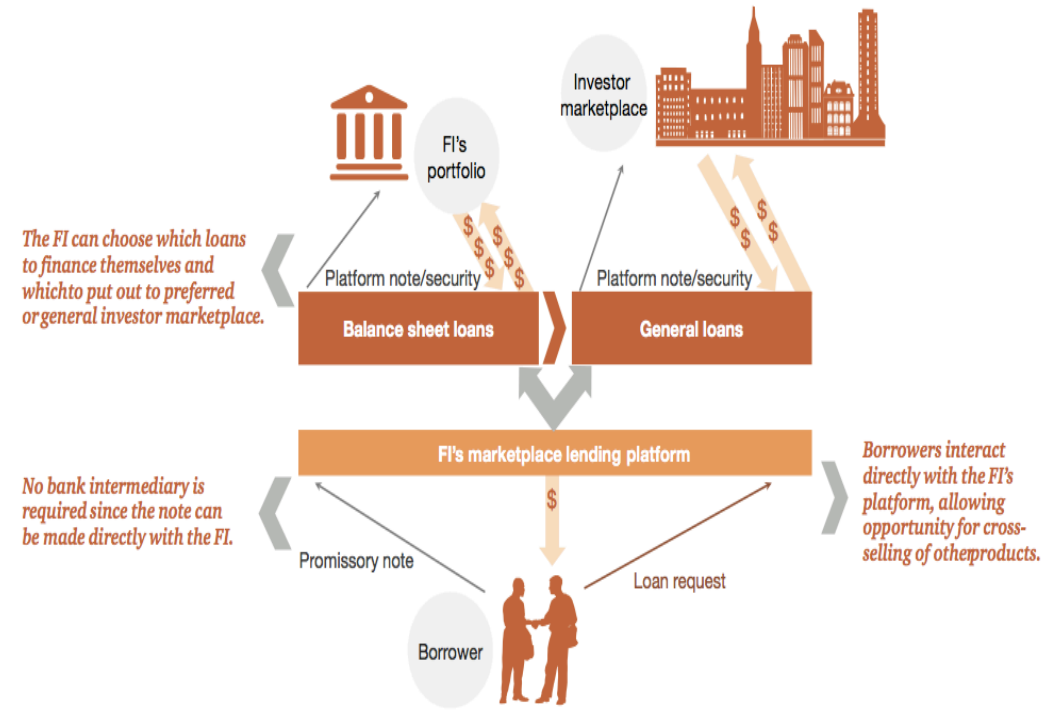
The competitive approach is creating an own P2P platform by banks which requires higher investment since banks must exploit marketplace as P2P systems do, thus technology which secures digital customer experience to increase customers retention rate, easier application and access to lending, lower decisions' timeline, end-to-end loan processing such as e-signature, use of soft data such as from social media (figure 11). Banks have already started to be innovative through promoting their new tendence to be omni-channel: the online banking and the mobile banking are acquiring more and more success thanks to their speedy and personalization of services.

FIGURE 10. A "white label" partnership



Source: "Peer pressure" by PwC

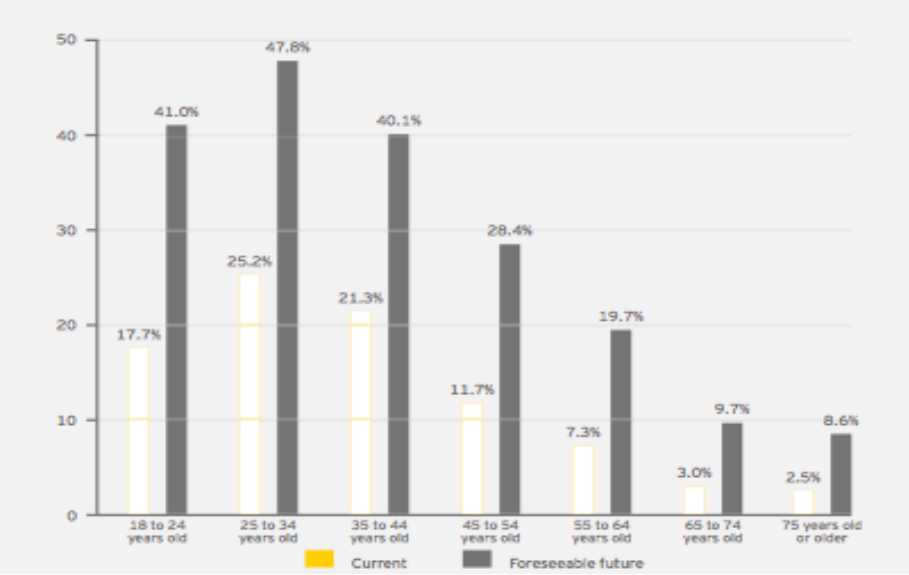
FIGURE 11. Direct competition



Source: "Peer pressure" by PwC

Moreover they can be competitive with peer-to-peer lending since they can benefit from a regulatory framework which can guarantee the cyber security differently from what happens with P2P marketplace still lasting of a certain regulation.
Furthermore, many banks are investing in actual digital incubators called "innovation hubs" where they can experience fintech tools. Since they must face the increasing digital society (EY 2015, figure 12), banks are staring at "seamless" relationships with the customers in order to be constantly present and careful of every kind of customer's need in real time.
Banking applications are transforming "bilateral banking" made by customer-officer relationship in "self-banking" where customer could feel at the center of needs and solutions.

FIGURE 12. The future "digital" society



source: EY Fintech Adoption Index 2015

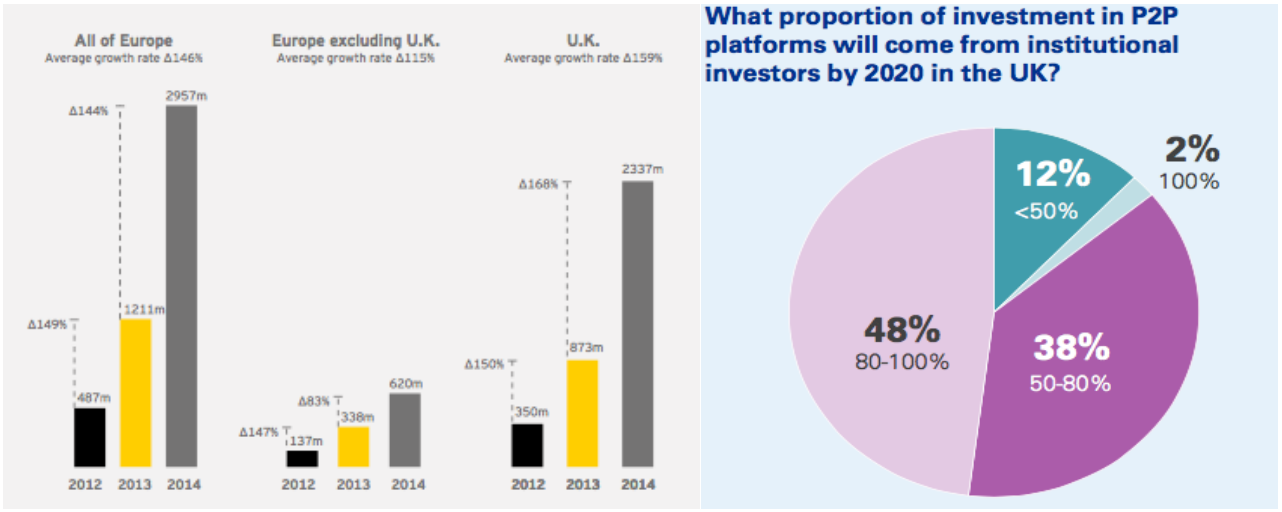
However, digital banking seems to be threatened by P2P platforms which are gaining the 60%-70% of banking business[8] since the recourse to the alternative finance is growing in these last years (figure 13A).
Albeit the increasing awareness of Fintech and its advantages, however the majority of customers are sceptycal, thus banks can exploit this weakness point of alternative non-bank finance in order to keep their customers creating fintech tools' demand through offering them their digital products, enabling them and showing them that a new way of funding and lending is possible.
Could be banks really capable to face this challenge in times of more capital requirements requested? It appears more convenient the first approach through which banks can learn more from P2P lending value proposition, since marketplace is a "game-changer" (Mead 2015) but not so threatening for banks which could focus more on a cooperation avoiding disinvestment costs and following the example of many

[8] The European House - Ambrosetti, 2015.

institutional investors: the trend, in fact, seems to go in this direction (figure 13B) and, furthermore, in spite of the more percentage of storage investments, banks could exploit new investments for partnerships (figure 14).

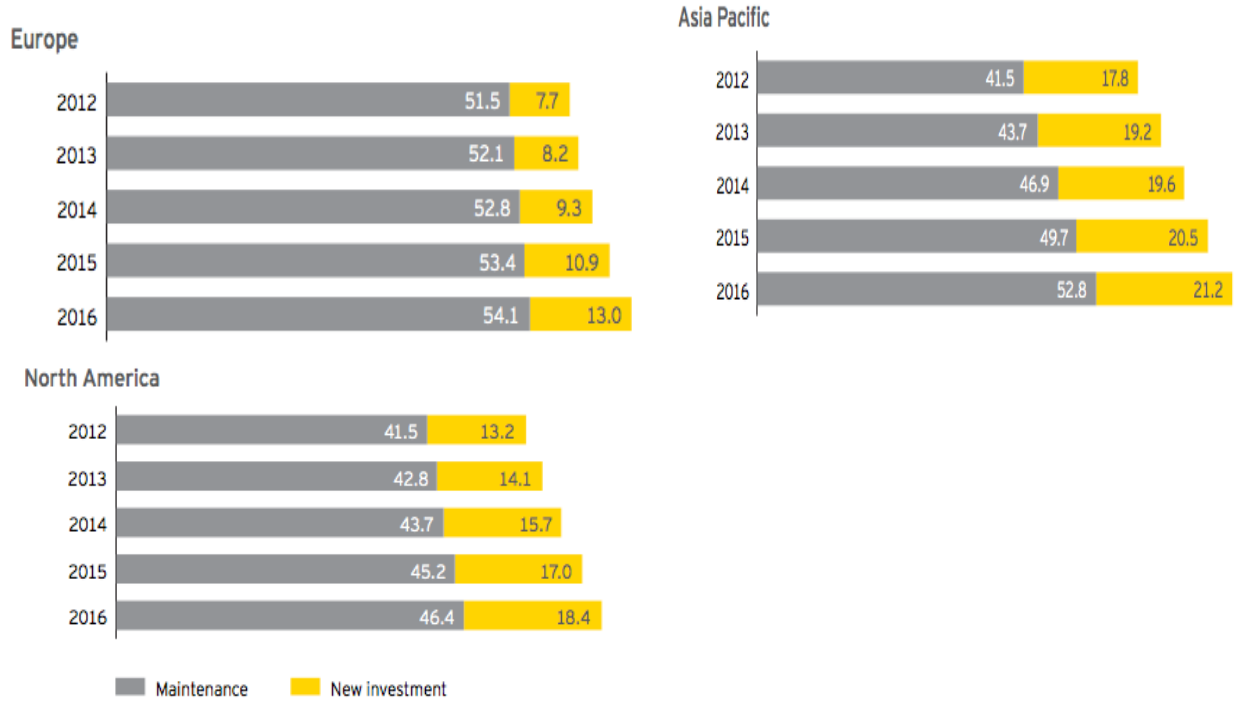
FIGURE 13. Alternative finance market's size (A) and institutional investors' contribution in UK P2P platforms (B)

A) *B)*



source: EY, "The Journal of financial perspective. Winter 2015. Fintech", 2015, p. 64 (A) and W. Mead, 2015, "P2P is a game-changer but banks can respond", KPMG LLP, p. 3 (B).

FIGURE 14. IT spends by banks remains low but increasing



source: Celest, 2014, EY

5. Conclusions

Banks cannot deny the existence and the success of P2P lending marketplace. The latter, in spite of its risks due to an uncertain regulation and control, places its foundations on the unbanked ground, thus putting at the centre again the customer (SMEs and consumers and housholders and great corporate, etc.) and his experience and protection, a hope to recover financial conditions and satisfy in secured way financial needs without fears to be credit constrained. Thus banks' task is to revolutionising the front-office system remaining off-line, in terms of meeting points for those conservative or simply "not-update" customers, but also developing an online side as P2P manners, overcoming traditional credit scoring and explointing also soft information through marketing researches and digital specialist employers. As EY suggests, "to rebuild trust and develop cohesion as the front office is redesigned, customers must be an integral part of the change program". The process of rebuilding starts within banks where technological innovation must be a crucial and integated aspect of the ordinary banks' business area. According to the evolutive model of Consoli (2005), banks must follow three phases, variation, selection and feedback, on innovation development:

1. Variation: banks must vary, welcoming the social changes due to technological innovation mainly developing out of the banks. They must be careful to absorb as more tendences as possible through especially relationship banking.
2. Selection: banks try to "digitized" through improvement of existent technology in order to guarantee the best fit with the newest technological tools. Banks must develop new financial competences improving their knowledge: they exploit a "melting" of digital specialists who become "bridges" of competences among the different organization levels.
3. Feedback: banks' application decisions are based on customers' preference and competences.

Regualtory plays an important role, since, through his legislative framework, he can help or constrain banks in their innovative change.

The path for P2P platforms' development directly starts with a digital business model and with a more dynamic and flexible penchant in greeting new technological tendeces. For this reason, partnerships will bring about spillovers and costs savings by exploiting the P2P platforms, however banks cannot yet be a total digital bank, since there are still traditional customers not ready to welcome this abrupt change. Moreover, banking industry must keep attention to the risk of cannibalization, that is that risk due to a heavy shift of customers towards a total digital approach, and be capable to manage the different business areas through a careful segmentation.

The digital side can be organized through a decentralized approach in terms of value proposition, exploiting cooperative teams of young specialists all around the world who always refer at last to a central control tower: this allows to spread cross-selling of new financial products thanks to flexibility and IT speedy but, in the meanwhile, centralized control and supervision secure a good financial behaviour.

The slowing down of radical innovation's absorbing by banks could be caused by the evidence which highlighted the positive impact on performance and profitability by a process innovation, thus banks "crundled" for years, thinking that incremental innovation of processes was sufficient to survive and grow in competitive market.

However, this did not coincide with an increase of efficiency and quality: in fact, technological innovation has got tangible and intangible elements. Thus, what makes the difference is the usage of the soft aspects of digital innovation directly linked to the customers' experience and satisfaction. The difficulties derive from the business culture of a bank made by "departments" and branches spread all over the country and increasing structure costs. A virtuous top management must accompany bank to modify the approach towards customers respecting the segmentation. This means that the role of branches is changing and the tendence is clear: they will be less copious since they will be substituted for less expensive digital platforms and they will be meeting places. Large and private savers or investors, in fact, will exploit branches to meet a bank operator who could describe to them highly personalized financial tools. Digital platforms can be used for mass and partly or completely standardized financial services, whereas filials become meeting-poins for personalized financial needs' satisfaction.

Since investors in P2P lending platforms can re-sell loans they financed and since borrowers are mostly those unbanked of financial crisis, could P2P lending platforms be a channel through which banks can securitized their NPLs as they were involved in a "coupon stripping" in order to get rid of their junk bonds, thus considering P2P system as SPV, allowing it just to those institutional investors who funds P2P platforms?

Could it be a new business area for P2P marketplace with the right warranties?

These are increasing questions in a time when banks are losing day by day profitability and trustworthiness and they have not yet found an optimal solution, but the answers cannot be given nowadays, since, as we have said, innovation in banks is still incremental and not radical. P2P lending system, however, has surely improved a sense of necessary and disruptive change in banks' awareness as for their digital side of business models. P2P lending is a guide to lead banks to deal again with a customer-centric decisions strategy, becoming as closer as possible to old and new customers: despite there is a digital platform among lenders and borrowers, the base is always trust which can be deceived also by a personal and physical relationship between customer and bank. Thus transparency and correctness have a weak relationship whit the personal link with bank's operators. The soft consequences of P2P lending is a development of a more social and transparent relationship in financial hambit and, in a time of financial difficulties for banks, partnership with P2P lending platforms can be a cheaper solution in term of costs and time, as an outsourcing strategy.

Finally, P2P lending platform can be mean of financial education for customers and a pattern of best practices for banks which want to be clear and disclosed according to Basel III requirements.

CHAPTER 3.
Crowdfunding: "fund" by the "crowd"

1. Introduction: two kinds of P2P lending

P2P lending is a whole of different shades of online lending mostly oriented to unbanked borrowers. Its development brought about essentially two main forms of lending: crowdfunding and social lending.
The former is essentially based on community's guarantee for lending, the sense of friends and the "group", whereas the latter is closer to donation for mere social purposes than the other online lending kinds. In fact, it is associated to microfinance and it can be considered a hybrid lending model from crowdfunding one.

2. Crowdfunding: origins and features

"Crowdfunding can be defined as a collective effort of many individuals who network and pool their resources to support efforts initiated by other people or organizations. This is usually done via or with the help of the Internet. Individual projects and businesses are financed with small contributions from a large number of individuals, allowing innovators, entrepreneurs and business owners to utilise their social networks to raise capital". (Framework for European Crowdfunging).
Born as a tool through which providing "fund" from the "crowd" via 2.0 web, crowdfunding links project proposers with groups of funders through an online specific platform.
Previous definition suggests us that crowdfunding is not only an alternative way through wich collecting funds but also an actual antropological and social and economic phenomenon since it creates a network of people which share financial resources and allow entrepeneurs to collect funds through their spread contacts.
Together with crowdfunding, there is crowdsourcing where mass is intended to be a group of interlocutors which is a whole of referring users, potential consumers or project co-authors. Estellès and Gonzales (2012) tried to synthesized in a single definition all theories about crowdsourcing and this is their result: "crowdsourcing is a kind of online participating activity where a person, an institution, a no-profit organization or a profit corporate proposes to a group of people, through an open and flexible announcement, the free and willing realization of a specific tool. Participation consists of work, money, know-how and experience always bringing benefits for all the involved parts. User will obtain, in change of his participation, the satisfaction of a concrete economic necessity, a social recognising, self-esteem, personal capabilities development; on the other side, crowsourcer will obtain and use as his own benefit user's contribution whose importance will depend on the kind of realized activity".
Thus, crowdfunding cannot exist without crowdsourcing since they both depend on the concept of expected value: this aspect was and is fundamental for the crowfunding spread-up.

2.1. History of crowdfunding

Crowdfunding basis can be dated in the 1630s and 1640s when friendly societies originated in Britain in the 1630s and 1640s. By the early 1700s friendly societies became better established and there were increasing trends towards institutionalisation at a local level through rules and charters and at a national level. However, friendly societies tended to have a specifically welfare oriented approach to mutual support and financial assistance. Nowadays crowdfunding changed its approach thanks to IT revolution and the birth of Internet. Exploiting web sites, at first crowdfunding dealt with the collection of funds primarily for no-profit aims. Moreover, there were also the first online funding collection of music world since artists could trust a broad community of fans whose financial resources would help them to record CDs and make concerts up. For example, Marillion team could reach $60,000 to finance its US tour through a successful online financial collection.

At the beginning of XXI century, the first two world platforms were born: JustGiving for no-profit campaign upheld about 12,000 recorded association collecting £700mln, ArtistShare is a platform for musicians who can exploite donations in change of rewards for received funding.

Web 2.0 and a more accessible and speedier internet facilitated crowdfunding spread thanks to the increasing social network usage. The possibility of creation of "horizontal" networks allowed first peer-to-peer lending platforms like Prosper, Kiva, Zopa and LendingClub to develop. In 2006 the term "crowdfunding" was used for the first time by Michael Sullivan, creator of Fundavlog. The aim of this site was to creat an online box for projects linked to the video blog giving the possibility to directly donate online. This project failed but its model was implemented with many common points with crowdfunding. In fact, the proposal was the collection of funds by crowd via web and it was based on principles of disclosure, shared interests and reciprocity which will guarantee crowdfunding to succeed some years later.

In this scenario the actual crowdfunding was born: in 2008-09 IndieGoGo and Kickstarter platforms was founded. The former aimed to "democtratize funding collection" and "give the power to creative entrepreneurs". These platforms soon enslaved "social web" like Facebook, Youtube and Twitter becoming the symbol of "downside financing". The importance of these experiments consisted of the absence of a remunaration, but participants accepted also rewards such as premiums or recognitions, that is material or experience rewards. Finally, in 2010, equity-based crowdfunding (based on financial tools) was born.

The first platforms were GrowVC and CrowCube. The former is defined as "a new model of community financing" staring the aim to develop a market to uphold IT start-ups through "until-$1mln" financing system. The great success of this crowdfunding model could be read considering these last years' economic situation: credit crunch, as we have analysed before, had a great impact especially on SMEs. However, regulation got the path of equity-based crowdfunding development really slow, since shares acquired by investors are actual financial bonds. Legislators are trying to define rules suitable to this new financial model.

2.2."Creators" and investors, face-to-face on platforms: how does it work?

Since the presence of just a reward and not an actual income was the basis of the first form of nowadays crowdfunding, its development is narrowly linked with social web thanks to which funders could create

social networks of peer-investors with common interests. Thus, the presence of Big Data is becoming a really important element which every financial source is based on, since they are pillars through which measuring credit scoring is easier and more precise using hard and soft information. All these data are enslaved to make a complete scheme of financial conditions of borrowers and lenders up in order to offer a better "stage" where acting "financial" performances. In order to create a crowdfunding project, what we need is three different actors partnership.

The "creator" (who proposes) is the person, the corporate or the association which proposes the project on a crowdfunding portal. The "group", as we have analysed, is really important in order to obtain soft information about the borrower who can join it and obtain the lending even if the request from the group is unsuccessful.

Crowdfunding platform is the virtual place where financial resources' transferring occurs. Platforms can be classified according to the kind of projects which allow to finance, the proponents and/or investors whose they deal with or geographic area where they work. The majority of the platforms is linked to social web and allow to share projects on the most important social network. The importance of the group is also given by the capability of the group leader to attract members in order to diversify and share the default risk of the group and crontrolled the status of the borrowers, signaling eventual insolvency problems: the so-called "peer monitoring" and "enforcement mechanism". Moral hazard can be reduced, in this way, despite sanctions are not certain.

Crowdfunder is the representative of the crowd who gets resources for the project available.

According to the features of the collection, he can obtain different nature returns, for example they can belong to the emotional and social sphere, or they can be rewards proposed by creator, or financial returns (figure 1).

FIGURE 1: crowdfunding functioning

2.3. Different platforms for different purposes

There are four main categories of crowdfunding: donation-based, reward-based, lending-based and equity-based.

The first one, as the name suggests us, collects projects which considers financing as an actual donation, thus without any tangible return (generally speaking, projects by no-profit organizations or with social aims).

In reward-based crowdfunding, proponent recognizes a "reward" to investors not linked with the result or profits by the project. Personal greetings, project output's delivering or discount for purchasing output are three kinds of possible reward. An example is the project of artists to finance a concert or an album. Economic value of reward is less than financed share but this mechanicism allows investor to be incentivized to recognize a higher value to reward. For this reason, different classes of reward are proposed based on financed shares' number in order to spur crowdfunders to invest more capital.

The third one is based on crowdfunders who lend money to proponent (corporate or single private citizens) and the latter commits to pay back capital and interests at a determined date. These projects are divided into two cathegories which are micro-lending (to those who have low incomes and economic difficulties) managed by an intermediary named by the platform, and P2P lending directly among people without intermediation of financial institutions. The relation between proponent and investors is "one-to-many": promoter asks funding and the latter is spread among different crowdfunders in order to limitate the impact of insolvency risks on the single person.

Equity-based crowdfunding is equity offering by start-up or corporates and crowdfunders become its owners. This is the last kind of crowdfunding which was born and nowadays it's evolving quicklier than the previous described models. The biggest limit is the regulation of financial market which is slowing its development. Indeed, financial tools are offered and platforms and issuers must respect tightening rules. Italy is the only country which has already ruled this phenomenon, but it will be soon followed by other countries as USA and UK. This model is used more by businesse, especially SMEs and sturt-up.

There are other kinds of crowdfunding defined as "hybrid": social lending is similar to lending-based crowdfunding but the difference is the payment of just capital without interests by proponent (this model will be analysed in following chapter, talking about financial channels for householders and consumers, generally speaking for private single aims); other models are revenue sharing or royalty-based, but less spread (table 1).

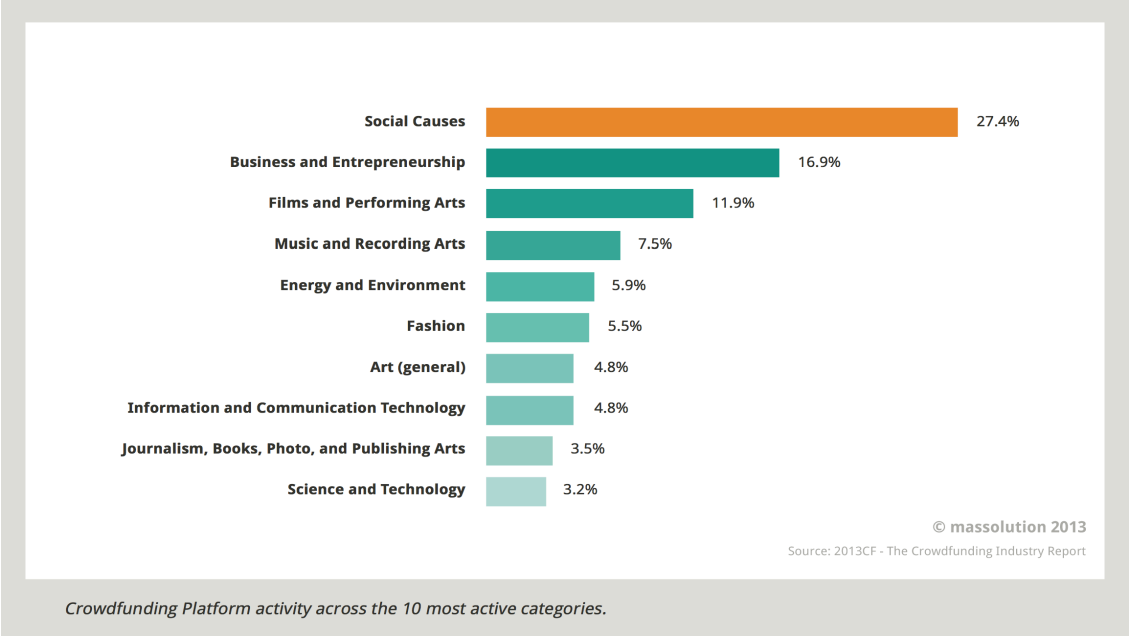
Table 1: Crowdfunding in the EU in 2015

	Total raised (EUR)	Average raised (EUR)	Number of campaigns	Number of platforms
Equity	422,039,462	504,832	836	60
Bonds and debentures	103,368,785	1,590,289	65	8
Loans, of which:	3,209,368,439	15,688	204,575	77
Secured business loans	453,423,956	79,132	5,730	6
Unsecured business loans	728,839,337	58,154	12,533	16
Secured individual loans	63,497,821	35,834	1,772	3
Unsecured individual loans	1,266,723,276	7,082	178,854	14
Revenue-sharing	69	69	1	1
Invoice trading	348,547,943	59,898	5,819	1
Community shares	7,183,406	478,894	15	2
Microloans	5,186,566	739	7,014	5
Rewards	96,899,235	4,573	21,538	127
Donations and microdonations	25,264,527	2,938	8,634	63

Source: Crowdsurfer Dashboard (www.crowdsurfer.com)

Platforms can be classified also according to the manners which collected funds are treated through: "all-or-nothing" platform where proponent will receive funding only if the collection reaches the minimum aim, otherwise promoter will pay back crowdfunders; "take-it-all" platforms where received fundings will be transferred to proponent even if project does not rech the stated financing threshold; geographic platforms based on local criteria, such as "Idea Giger" in Emilia Romagna.
European Commission (May 2016) has reported a volume of EUR 2.3 billion in 2013-14, where EUR 6.1 million refear to equity-based projects and EUR 5.0 million refear to mere loans. UK Alternative Finance Report recorded a share of GBP 523,978 in 2015 and it means that crowdfunding market in UK is increasing of four times more than in 2014. EU Equity Crowdfunding platforms raised of 167% in 2014 and loan one grew by 112%. European Commission, moreover, has highlighted a "cross-border" trend of crowdfunding spread up in order to exploit the scale and diversification economies especially among Eurozone Member States with a volume of EUR 180 million (8% of the total). The alternative finance covers the 25% of financial sources of economic operators' balance sheets but there are evidence that it could be cover the 55% of funding especially from foreign countries. Globally speaking, in USA crowdfunding grew of 167% in 2014 reaching the USD 16.2 billion, in Asia the raising-up was superior to US one with a growth of 320% (USD 3.4 billion), overcoming Europe.
As for the purposes, FIGURE 2 clearly shows the causes of using crowfunding platforms and what emerges is that, beyond the social causes which are the basis of the crowdfunding phenomenon, business and entrepreneurship are the second important reason of crowdfunding success. It can confirm the importance of this nonbank source in economic hambit and not only in social one, especially in SMEs market.

FIGURE 2: where is crowdfunding active?



Crowdfunding Platform activity across the 10 most active categories.

2.4. Hard elements and soft motivational aspects of crowdfunding

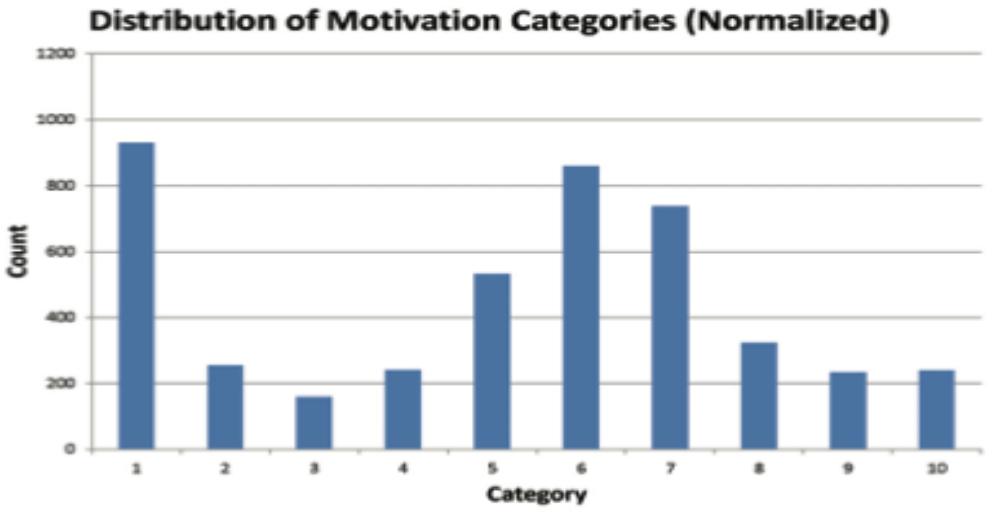
Everything was born by an idea, an intention or a willing to solve problems. Thus, why was crowdfunding born? Why is it spreading up just after crisis, despite its birth is dated before? Which are the pro-social motivations of lenders?

Crowdfunding interested economists and management scholars who study still today consumers' behavior in their choices among products and services in order to find what pushes the development of this new lending way through insights analysis.

They analyse advantages of crowdfunding such as practicing menu pricing and extracting a larger share of the consumer surplus, and disadvantages of crowdfunding such as constraining the choices of prices to attract a large number of funders. They all agree that crowdfunding cut down distance between funders and funding searchers and this is really important in an epoque characterized by great revolution and development but also by an increasing social gap and poverty. But beyond the motivation of IT revolution which allows crowdfunding to exploit internet platforms, which are the actual and deeper causes that brought to the spread-up of crowdfunding?

According to theories of social identity and preferences, Y. Liu et al. (2012) individuated ten categories of soft and social motivation which could urge investors and lenders, generally speaking, to participate to crowdfunding rather than other kinds of funding typical of intermediaton system. These are "general altruism (1), group-specific altruism (2), empathy (3), reciprocity (4), equality and social safety net (5), social responsability and social norms (6), effective development tool (7), personal satisfaction (8), religious satisfaction (9), religious duty and external reasons (10)" (figure 3).

FIGURE 3.



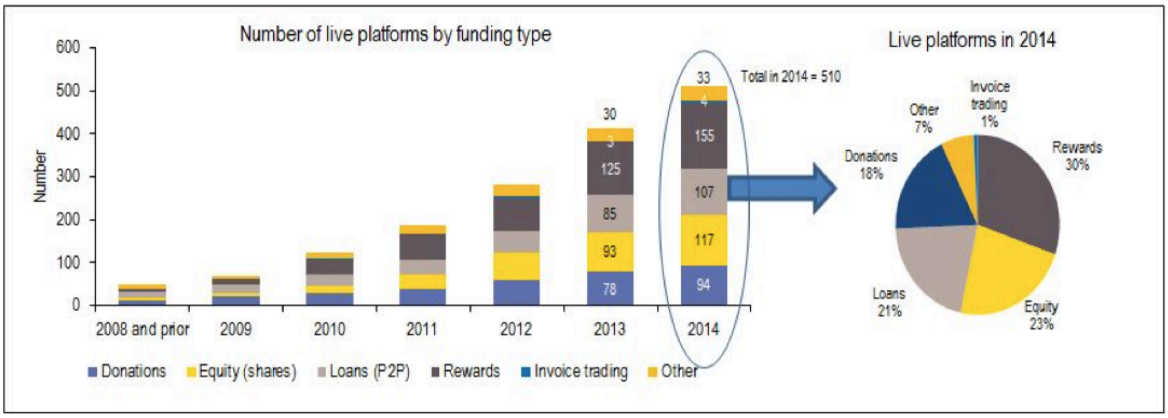
source: " "I Loan Because...": Understanding Motivations for Pro-Social Lending" by Y.Liu et al., p. 506.

We can notice that the motivations that mostly urged lenders in crowdfunding are the general altruism (1) which brings about a belief in a global community, the social resposability and social norms (6) due to the awareness of the increasing global poverty and the effective development tool (7) which refers to the sustainability of business models through technology usage. What can be deduced is that, albeit IT

revolution dated back to the beginning of XXI century, the last financial crisis highlighted the importance of social aspects through a sharing economy which exploits the social side of digital tools: in fact, social technologies increase their value share for retail finance players.
In a 2010 study, Belleflamme and colleagues analysed results from a closed question questionnaire by Lambert and Schwienbacher (2010) completed by 69 entrepreneurs who used online crowdfunding platforms and found that raising money, getting public attention, obtaining feedback on product/service motivated participation. Moreover these platforms try to control and reduce the moral hazard urging investors and managers to uphold a policy of monetary but also social rewards in order to avoid the so-called "brief-period viewpoint" (results as soon as possible provoking dangerous consequences in long period). All investors who are customers of the platforms join the group of alternative funders to external ones which are the traditional bank loans, venture capitals and private angels, in order to diversify the financial sources reducing the so-called risk of financial sources' instability.
Since motivation is narrowly connected to moral and behavioural affairs, researchers focus their studies on the psychology of giving seek to understand why certain people give and how to get more individuals to give. Factors for giving include sympathy and empathy , guilt, happiness and identity, which can also influence the amount of the donation. For example, in laboratory and field studies, researchers found that people will ultimately donate more money to a charity if first asked how much time they would like to donate (versus how much money they would like to donate).
I would add a need of trust, trust in an efficient and clear financial system which highly betrayed trust. Thus, motivations for giving are related to interpersonal connections between the giver and the requester and communication styles.
In fact, on a hand, creators are motivated to participate to raise funds, receive validation, connect with others, replicate successful experiences of others, and expand awareness of work through social media. On the other hand, funders are motivated in order to reach rewards, support creators and causes, and strengthen connections with people in their social networks. The latter is becoming the most important mean through which studying social trends and feelings about any fields of knowledge can be easier and more efficient in terms of quantity and quality of information than before. "Big Data Analytics" is the "mantra" for every social platforms, especially crowdfunding (and its different models) ones.
As for motivational needs, platforms satisfy them encouraging different groups of people to launch their ideas (but not all the crowdfunding online platforms have this structure): funders and creators may support each other's motivational needs and improve business skills, bringing about a new model where investors themselves, proposing opportunities they offer, may lead creators to improve their goals and projects. Thus, since groups have not got precise limits, identities are malleable and may be connected in common plans. Understanding identity within the context of crowdfunding is important to give a reason for the existance of the so-called motivational crowdwork, investigating about motivation as it relates to online task outsourcing. Since motivation is what makes us human, it is useful to analyse the effects of IT revolution on needs, especially on motivational needs and the new ways to satisfy them.
Participation may have a significant effect on the economy by encouraging a more diverse set of people to start small entrepreneurial ventures, influencing the type of ideas that are introduced into the world, and the use disposable income to support these ventures. As venture capital operators do, also crowdfunding, especially equity model, is characterized by instruments which allow funders to directly participate to the project, monitoring and leading it through suggestions about managing resources. Thus

a feeling of participation is an outstanding piece of the project's building, made of not economic contribution but also soft contribution, such as experience and kow-how, creating more value than the economic one.
Since there are different motivations which urge investors, there are also differend kinds of funding (figure 4):

FIGURE 4.



source: Platforms database, Crowdsurfer Ltd.

3. Equity crowdfunding: a new way of funding for SMEs

Equity crowdfunding is the most used model since it seems a bridge between the traditional way of financing a business (providing equity through shares' own) and a new way of funding (through online peer-to-peer platforms). Belleflamme et al. (2010) define equity crowdfunding as a mean through which "entrepreneurs make an open call for funding on a crowdfunding platform, and investors make their decisions based on the information providede therein, moreover, the crowdfunding platform facilitates the transaction by providing standardized investment contract and settling the payments". Bradford, instead, considers equity crowdfunding as "a model in which funders receive an interest in the form of equity or equity-like arrangements (e.g., profit sharing) in the ventures they fund".
Throug these definitions, these scholars highlight two important viewpoints: the one of the entrepreneur and the investor's one. For the former, a new financing mean is available and it may be considered more efficient in terms of information that he can provide and the investor can take in account at the decision of investment: models of credit scoring almost personalized are possible using the data from social network and the other "Internet movements" of the borrower. Information are fundamental since it is a driver of decision whether financing a project or not and, if yes, according to which conditions (capital and interest shares, maturity, fixed or variable rates, etc). thus both lender and borrower are active part of building a contract (investment or financing according to the viewpoints) standardized for a side, and personalized fot the other, thanks to information provided by borrower and his Internet social activities.
Two "ingredients" must be added to the receipe of traditional crowdfunding in order to obtain the equity one: beyond proponent, platforms and investors, other elements are a specific business idea of project and regulation. The latter is really important since crisis moved souls to think about a protection for both

aware and not-aware investors. Thus equity crowdfunding, more than the other platforms, is subjected to a tougher regulation, slakening its growing path.

Motivation is the spirit which moves proponet and investors. The former proposes his project on the platform in order to obtain not only equity, but also visibility of his own business idea and feedback in order to get better through know-how eventually provided by investors participation in project's managing. The positive result brings him to continue the usage of crowdfunding platforms to get equity. But there are disadvantages, too, for entrepreneur, such as the fees and the cost of usage the platform, or the image damage in case of no-reaching the amount to be financed, diclosure duty (entrepreneur has often difficulties in providing personal information causing problems of informative asimmetry), cost of mananging a large number of investors which can deepen the gap between management and supervision. In order to overcome these problems, through an equity crowdfunding, borrower can propose a bundling: it means offering shares including rewards through which investors can obtain the outcome of the project free of charge or with a reduction proportional to the number of shares. This method is a sort of remedee to the adverse selection of investors, since just those who recognize a high value of the project and desire the output before its enter-to-market will finance it accepting a higher price of shares. This leads to a community of investors which can uphold the single business but also other crowdfunders, helping them to access easilier market and maintaining a pool of faithful investors for the future, too. The latter are often "willing to pay" and their willingness can be considered as proprotional to the network of people that entrepreneur and platform can make up, justifying that a price premium can be recognized through a crowdfunding platforms and not through traditional channels.

Information from both the sides (lenders and borrowers) are useful also for the develompment of the platforms itself and the trust on it. Platform, in fact, is an other important element since it is the marketplace where investors' and proponents' information meet each others and where entrepreneurs can make market testing, collecting skills ad expertises and creating or improving brand awareness. For this reason, the pool of investors often becomes an actual community of investors and borrowers in managing projects. Platforms' managers are remunerated in different ways according to the business model and the regulation of the country where they work: generally speaking, remuneration plan is based on services fees which incentivize managers to accept just projects with high quality, to avoid fraud, to facilitate the meeting of ideas and avilable capital and information.

The last (but not least) elements to be considered are the project, which is the "kernel" of the equity crowdfunding since it contains the entrepreneurship idea, and the regulation.

The latter is one of the element that a creator (borrower) considers when must choose the platform where introducing his idea. Other aspects are the costs of services, the specialization and the reputation of the platforms in terms of services and quality and quantity of investors and in terms of information providing duties for credit scoring. According to the due diligence, platforms usually collect information before sending the requests for funding to the pool of investors, after a first analysis of potential group of investors specific for that project. The business idea is published in terms of quality and quantitity in order to allow investors to evaluate the project, thus accept or not. The prospect of the project collects information about business model, team management, ways of collected capital and other financial details through multimedial means in order to involve expert and non-expert investors.

Creator must reach as more investors as possible keeping in touch with them through forum or a social network orten provided by the equity crowdfunding platform itself. The latter offers a "funding

window" through which amount and maturity of capital collection are stated and, if there is not providing of financial tools, the "all-or-nothing" system allows to finance the project only if limits of funding window are both respected. Investors who finance the project can be recorded in the book of shareholders of the start-up or indirectly considered through the registration of the platform on the book. It depends on the platform model.

Crowdfunders just have to record their information on the platforms and if they accept to fund a project they become shareholders of the corporate.

The key success, however, is the cooperation of all involved parts: equity crowdfunding allows investors to play an active role in managing the project trying to overcome the problem of agency theory distance between agents and pricipals. In fact, together with the creator himself, they can and sometimes must publish reports about the activities and the results of the investment, giving visibility to the platform itself, too. This is another motivational need (the need of feeling active, involved and estimated) which crowdfunding stares to, as mean of success.

From this brief description of the equity crowdfunding structure and functioning, what's emerge is a similarity with venture capital model in terms of stakeholders (big and small investors, SMEs and start-ups), aims (upholding of businesses with an high potential, economic growth and acces to export markets), financing manners (distance does not exist thus this financial way has a "global breath"). Its success is starting to involve also big investors and corporates which continued to use traditional channels also during and after crisis.

Moreover, an other reason of growing is the involving of the equity crowdfunding platform since the early stage of business life-cycle, wherease venture capitals intervene more during the maturity stage then the early one helping business when path for growth has already been walked. Thus equity crowdfunding offers a complete service of support, but the majority of market share is still in the hands of Venture Capital system.

However, since equity crowdfunding phenomenon is relatively recent, the evidence about the reason why corporates should chose this funding channel rather than the others is not clearly emerged: the fact that the majority of customers is made of not only big but also small investors, SMEs and start-ups suggests us that crowdfunding and especially its equity-based model is seen as an alternative source of funding greeted with success on a side because of the IT boom and on the other side because of the necessity of fund and investment increasing after the crisis.

The impact on the economic growth of nonbank systems as the one described before cannot be measured from a macroeconomic viewpoint until the end of the recession, but from a microeconomic side crowdfunding is one of the most important financial supports for SMEs market which is the basis of economy in many countries.

Importance to crowdfunding is also given by regulation so frequently that it is a subject of many rules and it means that legislation welcomes a spread social phenomenon. Moreover, regulation must be harmonized at global level, since crowdfunding has become suddenly an international phenomenon to uphold international pursposes: IT growth and crisis solving.

The central feature of equity crowdfunding (and crowdfunding generally) is the participation of investors who are not a low number of potential principals, but an actual "crowd" of investors that small business must catch in order to obtain funding. It allows investors to be active and proposing whereas "agents" or "creators" to elaborate strategies for "selling" their idea and to have a share structure similar

to that of the public company. Through networks of contacts, social media and information, small business can arise up with a new "weapons" against crisis and credit constraints.

3.1. "If I were a SME…"

If I were a start-up or simply a SME, aware of my low creditworthiness, I must make a project planning up as well as possible in terms of targets, strategies and guidelines for the team management. I must elaborate strategies in order to "sell" my business idea to a crowd of investors, and no more to few investors in a room sit around a table. I must be effective, clear and concise in showing my idea without forgetting what it can offer in terms of economic and social returns. However, I must keep the same attention in choosing the most suitable platform for my patterns: thus I have to analyse the field where the platform work, quality and quantity of investors, the amount I can achieve, the purposes, the national or international level, the possibility given by the platform to spread my idea or my output. In other words, I must consider the value proposition of the platform. Being a business, I must not forget the important aim of maximize the return for stakeholders, including shareholders who will be my platform's investors. Thus, what have I to offer in terms of rewards and returns? Diversification is the key to reduce any kind of risk, thus in this case I can also exploit a "long tail" of tangible and intangible returns according to the kind of group of investors, enslaving also information about passed approach of investors themselves towards reward issues. Finally, since all the actors of my project are completely and actively involved, I must exploit the so-called "domino effect" of the world of "mouse" through online means available on the platform or social network (i.e. Facebook, Twitter, etc) in order to spread not only my business idea (gaining support for financing) but also a periodic update of project's results (or simply a monitoring report) in order to receive feedback and suggestion and transmit a sense of involving deeper than in case of traditional funding.

Which is the economic contest where equity crowdfunding spread up? SMEs' approach towards this new funding source is different if we consider pre-crisis period and post-crisis one.

As Richard Harrison stated in a 2013 study, small business deals with a "menu" of financial sources according to the different stages of life-cylce which changed after the Great Recession: before it, in fact, debt structure was essentially characterized by sources by families, friends, funders, fans and fools (so-called "5 F") sometimes accompanied by "followers" for altruistic and social aims of the funds collection. Overcome the first "start-up" phase, Business Angels and Venture Capitalists played a fundamental role in leading the business to grow up until an IPO launch. SMEs had on availability a large range of investors, from risk-lover ones to those less risk-tollerant and institutional, as well.

After 2008, something changed from a financial viewpoint not only of banks anf FIs generally speaking, but also of small business, consumers and householders, and the whole private sectors: as we have said, austeruty worsened effects of credit crunch (State helps are not allowed anymore), real estates are not accepted as collaterals and VC and PE are less risk-tollerant thus they prefer to invest in start-ups already grown and important from an international viewpoint in their portfolios. Business Angels continue to uphold new SMEs and old ones but less than before. All this facilitated the growth (but not birth, since equity crowdfunding put its roots before crisis) of crowdfunding and especially equity one, since we are focussing on SMEs' financial sources changes.

Since SMEs feel really distant from financial channels such as banks and othe FIs, crowdfunding allows a sort of "democratization of funding collection" for both small business which can collect a larger number of investors spreading its own business idea through social channels on internet and investors who benefit from a broader range of investment alternatives according to their personal tastes and preference.
For giving an idea of the dimension of this phenomenon, Massolution esteemed in 2013 a financing support for start-ups and SMEs by equity crowdfunding for $5 bln at global level, highlighting equity crowdfunding's great potential and an important grapple carrying start-ups development and, indirectly, economic recovery. This path would really slow and difficult and what's hard is establishing whether it could be the main or a secondary financial mean for start-ups: this doubt derives from the fact that the instruments proposed on platform are actual financial instruments, thus subjected to regulation. In any case, this form of crowdfunding is the most important for Small business, whereas consumers and single private entrepreneur (which can be an householder or a family) deal especially with hybrid form of crowdfunding, i.e. social lending od peer-to-peer lending. All these kinds of lending are considered as mean of "disintermediation" since between lenders and borrowers there is just an online platform. But which are their behaviours towards a disintermediated system? They must be "self-made" operators who can be put in a scheme similar to one in the following paragraph.

3.2. A simple economic sample of equity crowdfunding platform functioning

Let's suppose two kinds of investors: project-lovers who bestow a premium "s" from non-monetary benefits of investment whereas project-no-lovers who do not recognize any premium. Moreover they can be "optimistic" who value business V1 and "pessimistic" who value business V2 thus V1>V2 (on net of eventual premium "s" given by project-lovers). Let's consider an imperfect market in order to consider a situation really similar to actual one: i.e. there is an informative assimmetry betwenn creators and crowdfunders and the latter do not know the start-up's pre-money.
Thus, market can be segmented in four areas: there are optimistic and project-lover investors who evaluate business V1+s, pessimistic but project-lover investors who evaluate V2+s, optimistic but project-no-lover investors whose evaluation is V1 and the last ones (pessimistic and project-no-lover) whom value is V2 according to TABLE 2. Potential investors will be those whom creators are able to reach through the platforms and thei contacts on social networks and other comunication channels. Let's name "m" the numebr of potetial investors divided into the four segments according to a percentage "bi" where "i" can be 1,2,3,4 and the sum of "bi" is 1. Start-up's pre-money value is V(pm) calculated as the summation of actualized financial cash flows.

TABLE 2:market segmentation	Optimistic	Pessimistic
Project lovers	V1+s	V2+s
Project no lovers	V1	V2

Source: A.Biffi e M. Columbaro, 2013, "Equity Crowdfunding: un modello di analisi del comportamento di imprenditori e investitori", Politecnico di Milano.

Small business can exploit the asymmetric information to gain privite benefits by small investors, peer to "W" but business value will be reduced exactly of W.
Moreover, there are important aspects of private information that entrepreneur cannot renounce to give in order to get funds, reducing again the business value of "S" because of a high spillover risk. Equity crowdfunding management requires a fees for the services of the platform, thus the capital which SME will receive "K" will be hit by a deduction of success fee. In case of collection success, the final capital is K(1-x).
All these potential losses will be recovered through positive information which travels via social network and online about the succes of the business idea, increasing business value if online funds are obtained.
We can call "gamma" (>1) the business post-money value moltiplicator and it is function of the number of investors who have a strict contact with the creator and the sector where start-up works.
The request of capital "K" through equity crowdfunding is not necessarily welcomed, an this happens also if a SME deals with a bank which is more focused on activities which provide fees from extraordinary services rather than commercial lendings activities.
However, as for equity crowdfunding, problem is not the absence of qualitative collaterals or the arrest of lendings for less risk-tolerance and assets managing for respecting Basel III's capital requirements. The kernel states in the SME's capability of create value from the idea proposal itself, introducing itself as a source of richness, trust, quality, a solution for economic growth since it primarily based on small business.
The more SME is capable, the higher is success probability (let's call it "p1"). The latter is function of network of potential funders "m", number of offered shares "n" and the lowest share investor can subscribe "K/n".
With the simple mathematic instrument of derivatives, we can affirm that: $\Delta p/\Delta m$ is positive and it means that the broader is funders' group, the higher will be success probability; $\Delta p/\Delta n$ is negative, thus what is better and convenient for SME is a low number of offered shares in order to have higher success probability, otherwise, with more and more shares, SME will need more and more investors who could be too many and too difficult to reach; finally, since $\Delta p/\Delta K/n$ is negative (it is the so-called "lottery effect"), K/n is better to be not too low in order to avoid any irrational behaviour by funders who can bet on start-up about its potential high returns (speculative hazard).
For these reasons, SME must keep great attention in choosing the potential investors: once estimated success probability, finding optimum quantity of investors n* will be easier.
The value of n* is the maximum point of the function of borrower's profit $\pi cf = f(n)$ which increases at decreasing rate until n* and decreases once overcome this point (appendix 1).

3.3.Criticalities and possible solutions

Equity crowdfunding is criticized as for the aspect of Asymmetric Information, since it seems not to solve this problem but to incetivize borrower to announce a fake premoney value cheating investors. The latter, however, are aware of this threat, thus, through equity crowdfunding platforms, they can behaviour with due diligence maximizing their profit.

Borrower, in order to avoid situations of bad reputation on network, will be urged to behaviour in correct ways, annoucing actual information about the project value. Basically, which are remedees? They can be a global opening of crowdfunding platforms in order to diversify and reducing risks and regulation which imposes high punishment in case of serious violations of the transparency.
Analysing numbers from reports about the equity crowdfunding market, in US it has a share of about US $300 milion and it is spread up in Europe to uphold SMEs but in both US and EU the highest barrier is the legislative environment which is particularly focused on the regulation of securities which equity crowdfunding is based on.
These platforms are consideres increasing since it can be a mean of employment growth. In fact, despite platforms seem to be highly capital-intensive, the "disruptive" and at the forefront technologies require young experts who make the basis of human and intellectual capital which is the distinctive element of crowdfunding platforms.
The need of young specialists is also satisfied through alliance and partnership with teams of managers of digitalized sturt-ups and IT engineers (remember the "characteristic" costs for engineering development among the costs of P2P platforms in their balance sheets).

As for regulation, it is still unclear since regualtory may be more aware of the phenomenon. However, crowdfunding is regulated in different ways in the world:

- US: crowdfunding is considered in yearly US JOB ACT and in SEC's registration requirements. There are many Amendments to existing rules and the last one was made in October 30, 2015 [9].

- ITALY: CONSOB was immediately active in regulating equity crowdfunding in June 26, 2013.

- UK: there is a new regime which facilitates the spread up of crowdfunding and it dated back to April 1, 2014.

- FRANCE: next to a specific regulation of crowdfunding, since October 1, 2014 there have been two specific regulatory statuses.

The other countries seem to be less active and maybe less worried about the disruptive impact of crowdfunding.

3.4. The equity crowdfunding in Italy: CONSOB Regulation

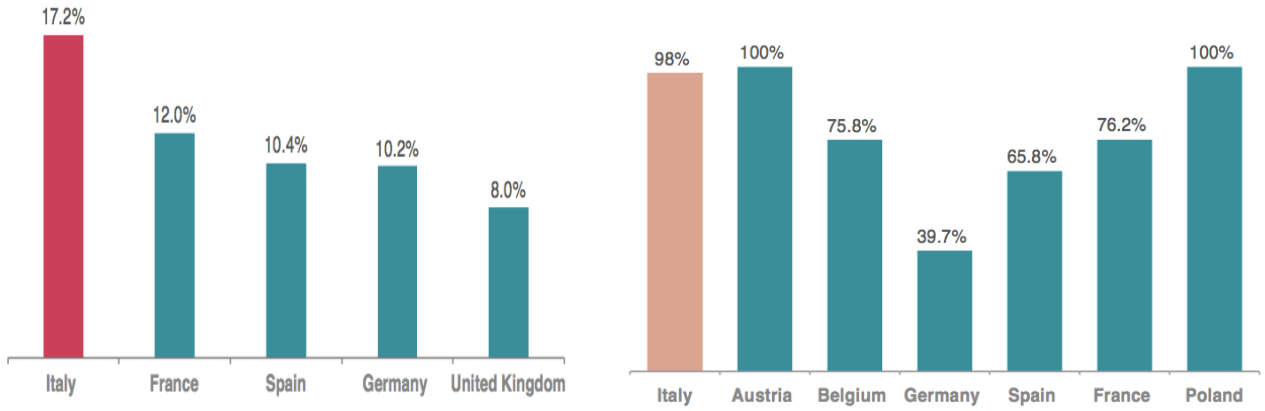
In Italy, equity crowdfunding is spreading up in order to face the heavy crisis which toughly hit SMEs more than in the other European Memeber States: it is due to the fact that Italy is characterized by the

[9] *For more information: https://www.sec.gov/news/pressrelease/2015-249.html*

highest number of SMEs in Europe and they have one of the highest rate of banks' borrowings dependence (figure 5).

FIGURE 5. Share of Italian SMEs in Europe (A) and the rates of dependence on banks' borrowing in EU(B)

A) *B)*

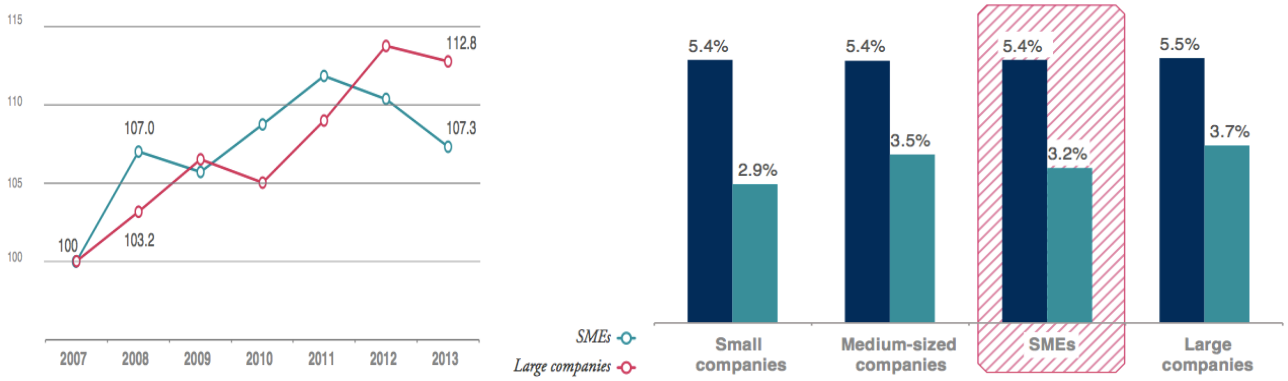


Source: European Commission, Annual Report on European SMEs 2013/2014 (A) and Bach from 2014 Cerved SMEs report, pp. 7-34 (B)

Credit constraints for Italian SMEs were toughest than for the large companies, for these reasons SMEs dealt with alternative sources and, as we have analysed before, equity crowdfunding allows tham to have a shareholding similar to that one of public companies but made by a crowd especially of small investors (figure 6).

FIGURE 6. Falling of financial borrowings (A) and ROA (B) for Credit Crunch in Italy.

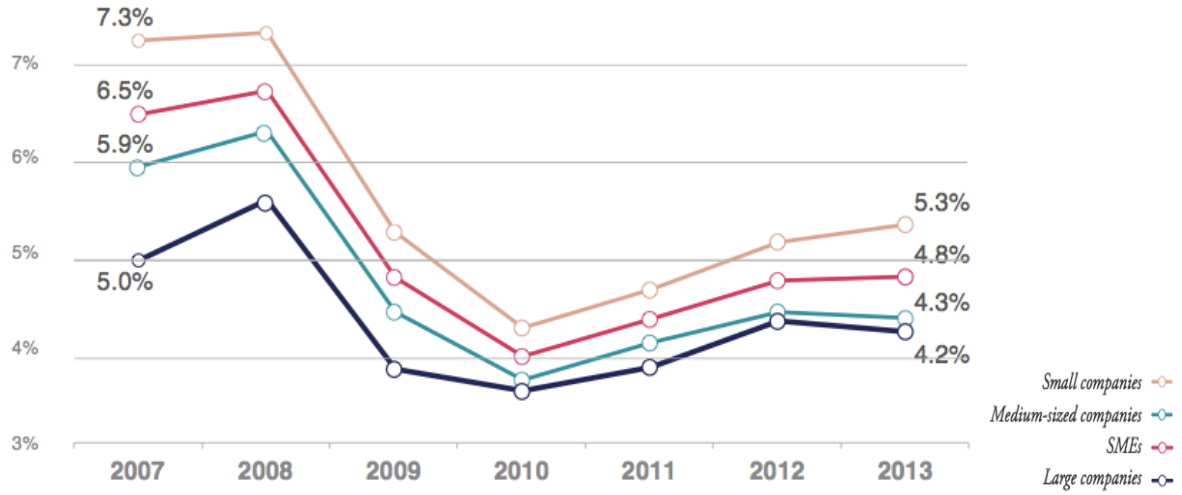
A) *B)*



Source: 2014 Cerved SMEs Report, pp.11(A), 30 (B).

Italian regulator could not deny SMEs' searching for new financial sources, since the main cause for their insolvency is the really strict dependence on banks' borrowings and cost of debt increased (figure 7), and, independently from the Great Recession, that IT revolution led to the birth and growth of digitalized start-ups whose funding derives from financial tools by the FinTech.

FIGURE 7. cost of debt trends



Source: 2014 Cerved SMEs Report, p.29.

On a side, Structure costs too high for banks being fit with new FinTech tools and higher capital requirements with Basel III Regulation amplified the cost of debt for corporates, generally speaking, and particularly for SMEs if we include also the higher risk of the latter after crisis. On the other side, the digitalization wave requires high investments which SMEs could not carry on with evident difficulties of staying in competitive markets. Investments in technological solutions are really important since they ensure returns higher than ROE: equity, however, became rare ad expensive thus SMEs had to find a solution.

Alternative finance seemed to give then the answer to their financial questions so that Italian regulatory decided to welcome the equity crowdfunding delegating CONSOB to publicize the regulation in order to give also protection and certainty from a legalo viewpoint to this new phenomenon.

Equity crowdfunding is a financial alternative next to other Italian legislative solutions such as Bond market ruled by The Italian government's "Decree for Growth" (Decree Law 83/2012, art. 32), The "Fondo di Centrale di Garanzia (FCG)" (or SME Guarantee Facility) in 2009, Cassa Depositi e Prestiti (CDP) which esablished a private equity fund for SMEs in 2010, the European Investment Bank (EIB) and European Investment Fund (EIF) which are lines of intervention are in operation on specific EU programmes to aid SMEs in 2013 together with securitisation and covered bonds to guarantee bank lending to SMEs wanted by M. Draghi in 2013, new credit intermediaries like VC, PE and institutional investors.

Decree Law no. 179 of 18 October 2012[10], known as the Growth Decree 2.0 makes Italy the firs European country which decided to regulate in a specific way crowdfunding and CONSOB regulated equity crowdfunding through its 18592 resolution of June 26, 2013[11]. This is still a new phenomenon in Italy, but high potential of crowdfunding platforms are attracting more and more VC and private large investors.

[10] *http://www.gazzettaufficiale.it/atto/serie_generale/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=2012-12-18&atto.codiceRedazionale=12A13277*

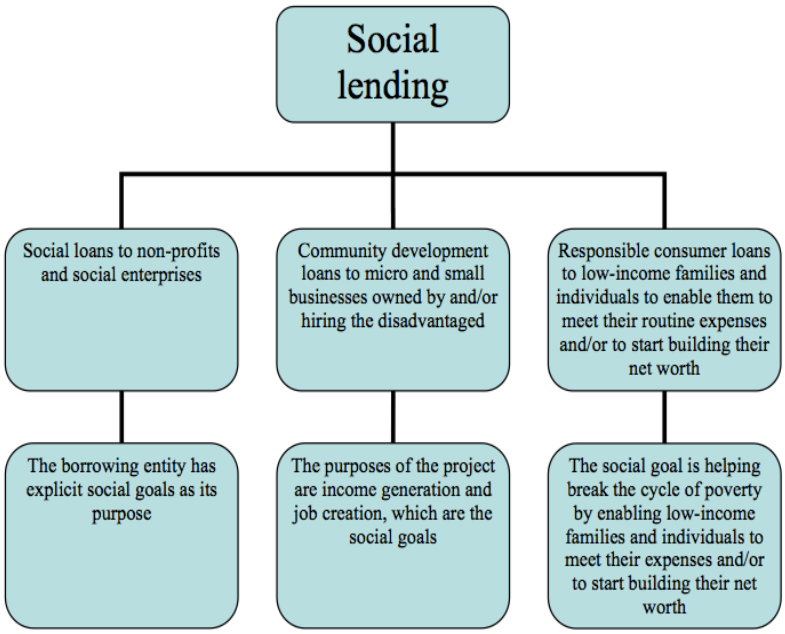
[11] *http://www.consob.it/mainen/documenti/english/laws/reg18592e.htm*

Decree Law 179/2012 defines “innovative start-up” as a SpA or a Cooperative which works in high technological markets and benefits from high tax breaks, thus it can turn to crowdfunding platforms for funding. Moreover, Decree Law 3/2015, said also “Decree Law 3.0”, amplified the beneficiaries of the crowdfunding rules among the corporates.
Thus Italian Regulatory recognized the importance of crowdfunding for corporates different from SpA. The discipline rules the manners according to which the access and the negotiation of financial tools are possible in crowdfunding platforms, creating a mere digital markets, a new marketplace where especially SMEs could be competitive within a regulated framework.
CONSOB edited a paper to explain what crowdfunding and its equity form are, who benefits from them and how they function. It defines “equity-based crwdfunding” as an online investment which make the investors shareholders whose “reward” is all the tyrpical rights of the participation in a corporate.
CONSOB, moreover, deepens the concept expressed in the Decree Law 179/2012 as, for inctance, the definition of “innovative start-up” and “the ‘manager’ of the online platforms” which discipline is slighter for. The latter could be authorized managers, SIM and investment banks in order to secure “reliability” and “quality”.
Furthermore, among the features of the platforms’ managers, described in a clear way, there are the deny to hold money and to directly carry out orders because these are tasks of the SIM and the investment banks, the prohibition of offering consulting services and the analysis of the return-risk profile of the investors according to MiFid regulation. A retail investor must successfully pass the “aware investment path” in order to be welcome in offering phase of tha platform.
If transparency is secured by the MiFid principles, sureness is guarateed by the presence of professional investors who can underwrite the 5% of financial tools offered by the platform.
This depends on the fact that innovative start-ups promise high returns but they are characterize by high risks, too. For this reason, retail investors can cancel their underwriting and, if they decide to accept funding, they must underwrite according to their financial capabilities to support eventual loss and they must accept the initial dividends’ no-distribution. For liquidity risk, CONSOB imposes that financial tools offered through crowdfunding platforms must not negotiate in organized market until the corporate continues to b an innovative start-up. Finally, platform must support risk of fraud.
Among the Italian equity-based crowdfunding platforms which are in launch phase, AssitecaCrowd and Smarthub have already been register in CONSOB book.

4. A hybrid of p2p lending and crowdfunding: the social lending

We must not be deceived by the word “social”. In fact, social lending does not refear to “social networks and media” (which its platforms simply exploit) but it deals with the needs of society and economy in terms of SMEs, consumers and householders, especially. For example, despite it is less spread up in New Zealand, this tool is really important in terms of a local phenomenon since it allows to uphold the development and economic sustainability of communities’ life promoting social goals through the unlocking of $2,8 billion by community trusts. The main social goal is protecting the economic and social dignity of communities. Generally speaking, a scheme provided by L. Benedict (2010) can be a starting point to reflect about social lending (figure 5).

FIGURE 5.



source: L.Benedict, 2010, "Social Lending: A Tool for Grantmakers, an Opportunity for Communities", p.5.

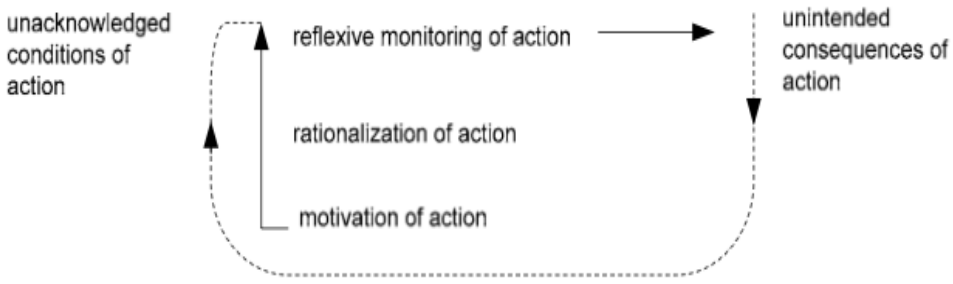
Social lending is a form of peer-to-peer lending closer to the microcredit and microfinance than the other ones. The social aspect is more evident since it was born exactly in order to promote projects with educational, narrowly social, especially no-profit purposes. In fact, as it associated to microfinance, online social lending is a way to giving credit to poor people with the aim of struggle poverty. This new way of online lending was first analysed in 1970s as a result of a network of microfinance initiatives and a mean for banks, self-employed and people good at digital tools usage to optimising cash management and exploit a new way to invest or borrow.

Moreover, social goals bring about a higher marginal utility for borrowers and lenders since ethical aspects add a "soft" value together with the possibility of sharing hard and soft information important for credit access and for reducing Informative Asymmetry.

The social impact is, for instance, a growth of employment and a social surplus for local MicroFinance Institutions: this means that, for example, local MFIs can exploit platforms like Kiva which suffer transaction costs but give interest free loans in favour to the borrowers (who do not support interest costs). What we can deduce is that the motivational reason is the main cause which allows to prefer social lending rather than the other forms of online lending. As Giddens (1984) affirms in his theory of duality of structure and agency, he considers human agency as the events which humans create with predictable and unpredictable consequences on the structure. The latter, thus, is a consequence of human actions but also an element which can influence people. Aware of this, humans monitor in a cyclical process their activities (figure 6.).

The process starts with the motivation of the action which is rationalized and monitored and the consequences are intended but also unintended and more copious and the latter generate unacknowledged conditions in social structure.

FIGURE 6.



Source: A.C.B. Ortega and F. Bell, 2008, "Online Social Lending: Borrower-Generated Content", Salford Business School and Information, Systems, Organisations & Society Research Centre, University of Salford, p. 3.

We can contextualise this theory in social lending, considering those social and ethical motivations which spur to participate to online social lending platforms. The action of lending and borrowing are rationalized and monitores in order to avoid default and, since this process requires information providing, the consequence is a less Informative Asymmetry which can be exploited by banks and other online operators. The conditions of the structure is a social system based on as more trasparent as possible socio-economic architecture.

Interactions and transactions among humans requires also trust, the base of the whole socio-economic system. It has three sources, according to many legal and economic literature: personality, competence and reputation. These are elements of marketing which online social lending cannot put out of consideration for its foundation elements. For these reasons, not only hard but also soft information are required to both lenders and borrowers in order to obtain respectively a return-risk profile and a credit scoring; competence and reputation can be both required and also deduced from the activities made by the participats through social networks and other social media. Trust is important because it is the "glue" of the eventual engangement between lenders and borrower. In this particular case (social lending), trust can be built through the ankowlegdement of participations and contribution to social events for ethical causes by the investors and of social or stricly personal projects with social purposes.

It is something more than mere charity, since social lending and its microfinance aims allow investors and borrowers to be first actors and to monitor each others without the intervention of an onlus and maintaining an economic side for eventual extra-profit.

Trust among people is also the result of cultural and legal system which is different for the communities and it must not neglected since social lending platforms works mostly cross-border: many platforms, in fact, ensure participants through the presence of a sponsor whose task is supervision but without generating a phenomenon of free-riding. This means that operators must not be negligence and they can exploit the function of "relational signaling" through which they can observe and eventually signal conditions of moral hazard and mistrust.

For example, the microfinance platform Kiva offer a third party institution as an "arbitrator" who mediates situation of mistrust and signaling (ex-post), but he is essentially an actor who must avoid negative situations and intervenes ex-ante. His role is to ensure that a potential Kiva's "Field Partner" (that is an investor who decides to start funding important and huge projects) has personal requirements of soundness and trustworthiness such as copious experience in lending poor and vulnerable people or in

serving more than 1,000 borrowers, in order to verify the actual intention to invest and donate funds for ethical and social purpose.
Thus, this led to birth of ethical banking whose investors became more interested in donation through online platforms directly to borrowers in evident social and economic want: new partnerships are growing, getting through microcredit institutions.
However, microfinance is still local since what is difficult is serving different communities with different cultures and needs but poverty is equal in every part of the world. Social lending can be a mean through which economic and mere social purposes can be reached thanks to the presence of both investors and those who can be called “donors”.
None of the borrowers must be abandoned since economy must not be freezed: crowdfunding, social lending and, generally speaking, P2P lending may be the solution for doing “alternative banking”.

5. Conclusions

In spite of the recent spread up of P2P lending, the different needs of unbanked customers allowed a fast growth of copious platforms with a higher sense of diversification (crowdfunding) and "social" (social lending). A greater attention of them by regulatory is necessary in order to let them increase in importance and usage and make this new marketplace surer and trustful, especially in light of the last crisis.

Crowdfunding can be an opportunity of crating a commuty network as a small financial market made by people who know each others or could the possibility of doing that: a sort of experiment of trust which can me enlarged if functioning. Social lending adds to the other platforms a sense of "social" and an increasing and necessary importance to that non-economic side of everyday life, that is values and the sense itself of "society" and of trust more than in crowdfunding, since it is more similar to a "donation-based" lending. In fact, a central role is played by especially soft rewards.

The following chapter gives us a practical example of how upholding a P2P lending is advantaging for every operator of financial market, borrowers, lenders and FIs.

CHAPTER 4.
The case of Prosper.com: "Loan Made Simple"

1.Introduction: from Zopa to Prosper.com's success

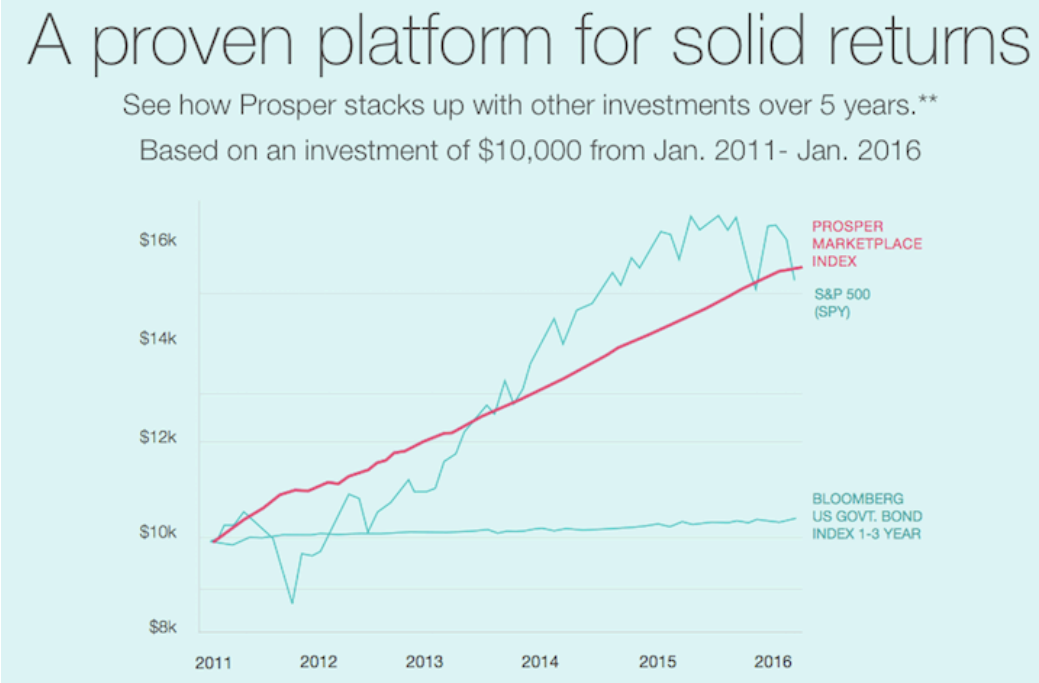
The birth of P2P lending is officially dated back to 2005, when ZOPA was founded in UK. However, for the growth and spread up we must thank the founder of Prosper.com which, together with Lending Club, moves the highest money amounts (176 million USD in issued loans) in P2P lending marketplace.
Prosper.com, in fact, soon became a field of study for scholars who are trying to define the phenomenon of electronic markets' "disintermediation". The latter is relative in the sense that there is always an intermediary which ensures all the advantages of intermediation according to Diamond's theory (1984). In this case intermediary is an electronic and totally digital platform which, however, cannot work without an actual FI like a bank where there are deposits to be moved through the platform. As we have analysed, what changes is the lenders-borrowers relationship and manners and decisions of investments. However, a deeper analysis of Prosper.com will be useful to understand the disruptive income of P2P lending system.

2. Prosper.com: "Loan made simple". Birth and features.

Prosper.com was founded in 2005 at San Fracisco (California) and it soon became the America's first peer-to-peer lending marketplace. It accounts over 2 million members and more than $6 billion in funded loans. $6,060,652,487 is the amount of investors who are contributing to fund Prosper.com since 2006. Prosper Lendig LLC is the wholly-owned office location of Prosper Marketplace, Inc.
Key people of the executive leadership are Aaron Vermut (CEO), Stephan Vermut (Executive Chairman) and Ron Suber (President).
Information about the platforms history and the managers is minimal, clear and direct and follows the first two sections of the website which are "Borrow" and "Invest" and highlight the customer-centric viewpoint typical of P2P lending marketplace.
Accessing Prosper.com website, in fact, borrowers are soon showed as the main operators of the platforms since the mantra of the platform is "Loan made simple".
What makes loan easier are four elements: low interest rate, fixed terms (3 or 5 years), single monthly payments and no hidden fees or prepayment penalties.
Once taken aware of these advantages, a borrower can soon check his own rate according to three elements which he must provide: the amount must be included between $2,000 and $35,000, the purposes (debt consolidation, home improvement, medical / dental, business, large purchase, household expenses, Auto/ motorcycle/ RV/ boat, special occasion, vacation,
taxes, baby & adoption, others), Credit quality whose ranges are "Excellent credit (760+)", "Good credit (700+)", "Fair credit (640+)" and "Poor credit". The platforms precises that "checking your rate won't

affect your credit score". Thus the path of rate's checking in based on the direct involvement of the borrower himself which must be aware that obtained loan is not traditional banks' one.
"How it works" section fixes the main points to be followed to request a lending: after checking the rate, the borrower must choose the lending terms which are 3 or 5 years[12]. Finally, he can obtain the funds which will become direct deposit of the bank account.
Disclosure, transparency and customers' monitoring are secured through the control of financial accounts and evolution of credit scoring through the mobile application "Prosper Daily".
As for investment, Prosper.com introduces itself as an opportunity of diversification with "solid monthly returns" and "a better way to invest" in personal loans earning 6.25% in estimated return[13] (figure 1).

FIGURE 1.



**Source: Bloomberg Finance L.P. The Prosper Marketplace Index is calculated based on a blended average ('Weighting') of actual historical monthly returns from January 31, 2011 to January 31, 2016. Weighting between historical monthly origination periods ('vintages') is done at the end of each monthly period by assuming full reinvestment of all net proceeds (principal, interest, and other proceeds) received over the course of any given month in the current vintage (this is often referred to as 'on-the-run') as of the end of that month. Weighted monthly returns are linked using standard compounding to create a cumulative time series of performance. Each monthly vintage returns series is calculated as the monthly interest and net recovery proceeds received, less charge-offs divided by the beginning of month principal balance for that vintage […]. Source: https://www.prosper.com/invest

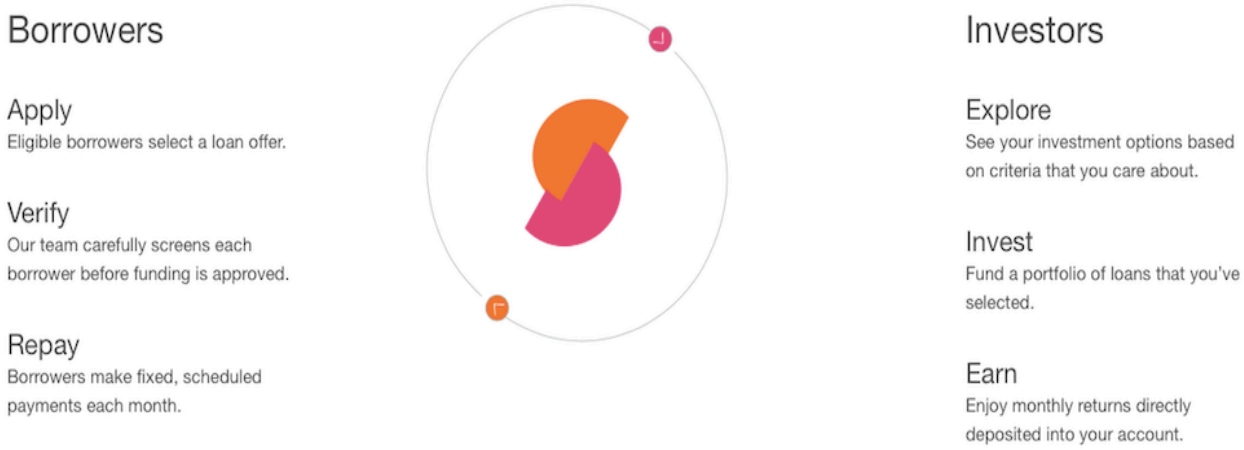
The aim of Prosper is clearly expressed: "connecting people who want to borrow money with investors who want solid returns". It is a marketplace where mnultiple interests meet as if it were an actual FI but

12 For example, a three year $10,000 loan with a rate of 5.99% APR would have 36 scheduled monthly payments of $302. A five year $10,000 loan with a rate of 9.68% APR would have 60 scheduled monthly payments of $201. Annual percentage rates (APRs) through Prosper range from 5.99% APR (AA) to 36.00% APR (HR) for first-time borrowers, with the lowest rates for the most creditworthy borrowers. Eligibility is not guaranteed, and requires that a sufficient number of investors commit funds to your account and that you meet credit and other conditions. Refer to Borrower Registration Agreement for details and all terms and conditions. All loans made by WebBank, a Utah-chartered industrial bank, member FDIC. Source: https://www.prosper.com/landing

13 Estimated returns are calculated by taking the weighted average borrower interest rate for all loans originated during the period, adding (ii) estimated collected late fees and post charge-off principal recovery for such loans, and subtracting (iii) the servicing fee, estimated uncollected interest on charge-offs and estimated principal loss on charge-offs from such loans. The actual return on any Note depends on the prepayment and delinquency pattern of the loan underlying each Note, which is highly uncertain. Individual results may vary and projections can change. Past performance is no guarantee of future results and the information presented is not intended to be investment advice or a guarantee about the performance of any Note. Data from March 5 - March 14, 2016. Source: https://www.prosper.com/invest

totally electronic and digitalized whose main function is to facilitate the so-called "assisted direct" exchange.
Prosper.com itself provides an "how it works" scheme of lending process (figure 2).

FIGURE 2. How it works.



source: https://www.prosper.com/invest

Investors are secured by the team screening and monitoring of the borrowers and can self-check their best portfolio proposing his own risk propension according to risk rating (figure 3):

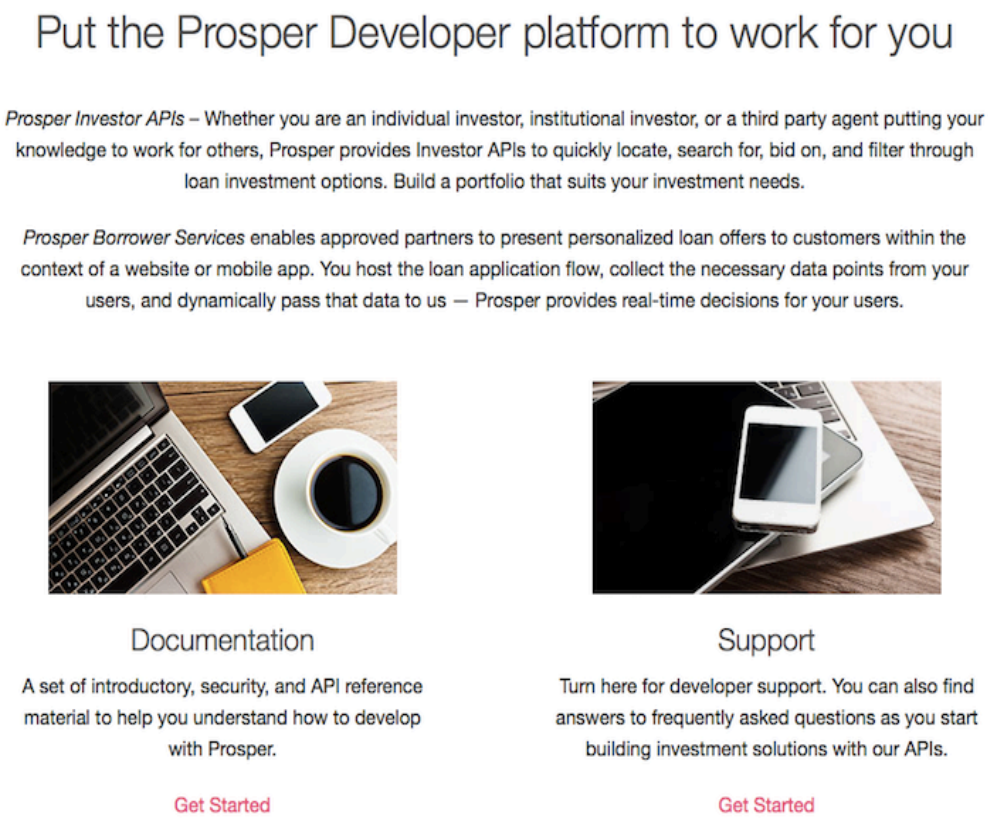
FIGURE 3.

source: https://www.prosper.com/invest

Coherently with legislative duties of disclosure, Prosper.com is transparent in informing customers that all personal loans are made by WebBank (a Utah-chartered Industrial Bank) and despite it is a Member of FDIC, loans are fully amortized but unsecured. Notes, too, are not FDIC secured and not guaranteed. Thus investors must be aware of the fact that they ,ay lose some or all the main investments. Thus it is a marketplace platform which does not play the role neither of a "clearing house" nor of a deposits collector since it does not respect the mandatory belonging to a FDIC. The prospectus contains other information and for additional one and questions they can consult their finanancial advisor.

Prosper.com allows institutional investors to join the funders' team providing simple data through answers to personal questions (names, title, addresses, email and phone number), technical questions (firm name, assets undet management and location) and marketing one (such as "How did you hear about Prosper.com?").
Another section is dedicated to developers who Prosper.com offers as services for borrowers and investors (figure 4):

FIGURE 4. Prosper for developers.



source: https://developers.prosper.com

2.1. A deeper analysis of "unbanked" borrowers: SMEs, householders and consumer credit customers.

Prosper.com, together with the other marketplace lending platforms, was born with the aim of helping those unbanked subjects who, as we have analysed before, were credit constrained during and after the Great Recession.
In "Loans for your life" section of the website, an entrepreneur who looking for personal loans for his small business can deal with Prosper which approves loan basing on a personal and individual credit scoring. In the case of small business owners, they will be evaluated according to a group rating measured by Prosper itself, with the possibility of lower rates. In any case, Prosper helps new and small business with personal loan. It considers itself the "right place" since it helps entrepreneurs to obtain the right small business loan at the greatest rate which he can support, but they must be responsible to pay

back the loan. All this attention to small businesses by Prosper is due to its aware of the "backbone" essence of them for the financial and economic system. Obviously, a bad credit scoring is an obstacle in obtaining loans through Prosper, but a perfect one is not necessary since Prosper can help the small business's owner, through the usage of an avarage credit score, to access to lower interest rate loans. Moreover, it provides services of improving bad credit scoring in order to actually obtain loans from Prosper itself.

As for householders, Prosper has a specific section called "Get a home improvement loan": home loans are required in case of remodeling kitchen or bathroom, adding new furniture or appliances, a new outdoor deck or garden and repairs, and Prosper.com intervenes in order to avoid the search for a new home without any collateral and withrout changing the interest rate during the lending path. The traditional means of funding for home improvement projects are credit cards and home equity loans. The latter can be added to existing debts as a mortgage and fees and inspections are often "mortgage-sized" but they are unconvenient in case of small home loans. The former can be used by Prosper too as a mean of control the financial planning of the family who enters this new loan, preventing impulse in overspending. The request can be made online and if credit is bad, it must be improved, also with the help of the platform, before asking for a home improving loan.

As for pro-consumer short term loans, they are obviously online, unsecured, at a competitive rate according to the borrower's credit score and history, but not payday loans. The latter were spread up but their success was covered by exageratly high interest rates, despite they were really short-term loans. Through Prosper, pro-consumer short-term loan are sent to the bank account and loan payments are automatically withdrawn every month. Timeframe is decided together with Prosper according to borrower's needs. Moreover, Prosper allows a borrower to request for an auto loan or a vehicle loan without the traditional tightenings: that is, differently from the other lenders, Prosper does not imposed limit of purchased vehicles or that a car must be purchased new. Loan are usecured, however, and there are no vehicle eligibility requirements.

The borrower starts with a listing in a few minutes and the problem of a bad credit is solved as in the other cases.

Once obtain a credit scoring, if it allows the borrower to join the auction to request for loan, he can post an e-Bay-style listing where he provides the information about the maximum interest rate, the request loan amount, the auction duration (3-10 days) and whether opting for the "autofunding", that is closing the listing as soon as it is fully funded, beyond a description of himself and other soft and qualitative information. Together with borrower's listing and credit score, Prosper publicizes an other listing containing the home ownership status, debt-to-income ratio and other credit history information using Experian, whose model based on historical credit information is called ScorePLUS[14].

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14 The credit score reported in the Experian ScorePLUS model is different from FICO score, because the model intends to better predict risks for new accounts. Source:.S. Freedman and G. Zhe Jin, 2008, "Dynamic Learning and Selection: the Early Years of Prosper.com", University of Maryland & NBER, p. 5. The correspondance between scorePLUS and FICO score is shown by the following Table:

Prosper Credit Grade:	AA	A	B	C	D	E	HR
Borrower's FICO Score:	760 and up	720-759	680-719	640-679	600-639	560-599	520-559

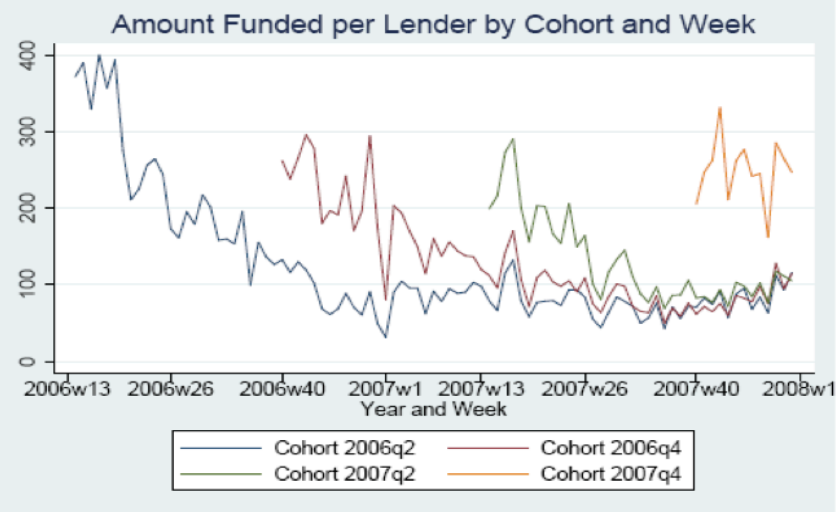
source: M. Lin et al., 2009, "Judging borrowers by the company they keep: social networks and adverse selection in online peer-to-peer lending", University of Maryland, p. 29.

As for the credit risk of borrowers, ex-post risk has got two main elements: "predictable risk" and "unpredictable risk" and they are different depending on the fact that they refear to listings or loans. S. Freedman and G. Zhe Jin (2008), in fact, showed through a Regression analysis that the predictable risk is higher for listing than for loans and this is a signal of a better observable risk which lenders are better capable to screen and monitor from the pool of listings and they proved that group borrowers have better observables than the non-group ones, thus they could be better selected.
What is clear is that Prosper's policies are improving the possibility for investors to analyse the observable risks by themselves.

2.2. Lenders in Prosper.com

Prosper requires information by potential lenders, too: a social security number and bank information. After entering, a lender can exploit borrowers' information in order to decide the portfolio's elements together with information about bids placed, the percent funded and the listings current interest rates, whereas for deeper information a lender can download snapshot of Prosper records using the API tool (Application Programming Interface), which allows investors to obtain statistics consulting a third party website.
Lenders increased their funding activities even just after two years of Prosper.com foundation (figure 5).

FIGURE 5.



Here, the term "cohort" defines a group of lenders who fund their first loan in a given quarter. Source: S. Freedman and G. Zhe Jin, 2008, "Dynamic Learning and Selection: the Early Years of Prosper.com", University of Maryland & NBER, p. 63.

Through a regression analysis, S. Freedman and G. Zhe Jin (2012) studied the potential reasons of change of lenders' behaviours, such as preference to shift risk with the age increasing, the expost performance of previous loans. Thus, they put in relationship dependent variables (at first the funding of a loan and then the amount which is funded and the features of loans on avarage) with the independent ones which are the age of the lender, the features of the portfolio and the percentage of different loans in portfolio[15]. The result was that lenders are active but invest less amounts for loans especially if affected

[15] These are the equations used in S. Freedman and G. Zhe Jin (2008)'s analysis:

by misperformance of loans in their portfolios and if previous loans are late. Moreover, at first they prefer to invest in AA to A grade loans if they are adverse at risk and in E to HR if they have a risk propensity, thus they settle at the extremes of the scoring curve, whereas with the age increasing they settle at the centre uncreasing diversification.
For these reasons, Prosper.com is urging to invest in system of credit scoring as right as possible in order to help lenders to evaluate creditworthiness by themselves and through an IT platform.
As for the bidding, a potential lender can fund just a part of the whole investment whose minimum is $50.

2.3. The auction in Prosper.com

Prosper.com describes it self as an "eBay for loans" since it exploits the competition among investors to decrease the final interest rates for the borrowers. Thus, the latter could ask for loans at lower interest rates and costs and the lenders have investing opportunities with higher ROI.
Borrowers edit loan listings where amount of money they would borrow and a reserve interest rare (the maximum interest rate they accept for the loan) are specified, whereas lenders, choosen single listings, propose their bids about the amount they would lend and a desired interest rate for each loan. Criteria followed by lenders could be different, not only credit standards but also personal elements and histories. The bidding starts at the reserve rate from which lenders bid down and at the end of auction Prosper put bids with lowest interest rates into a single loan verifying they are fit for lenders and borrowers' preference and only if the matching is successful, lenders and borrowers will equally pay a service fee to the platform.
Prosper auction is similar to a VCG mechanism according to which k identical items from competing sellers can be bought. In this case, supposing that "D" is the loan requested by borrower (k in VCG mechanism), "i" is a lender, "ai" his budget (=1) and "bi" the interest rate offered by the lender, the uniform price mechanism is slightly modified and the interest rate received by all winning lenders is the same and it can be the bid of the last winner or the one of the first loser, closing to a Nash equilibrium.
Prosper auction is often compared to a "multi-item ascending-price" auction where sellers propose hi slow per-unit price for the items and buyers how many units would buy at that defined price, until break-even point is reached.
Once received a bid, Prosper calculates the auction outcome, that is the interest rate and the amount to the lenders, as if that was the end of the auction. The loan allocation follows the rule of the bidding at the lowest interest rate. If the amount bid is inferior to the demand, the rest of the auction bidding is allocated according to the second lowest interest rate. If there is not a winning lender, the lowest interest rate among the losing bids is taken in consideration. Losing bids are public, whereas about the winning ones only amount bid and lender's identity are of common knowledge. Once placed, a bid is irrevocable.

$$FundedALoan_{it} = g_1(LenderAge_{it}, PortChar_{it-1}, PortPer_{it-1}) + \mu_{1i} + \gamma_{1t} + \epsilon_{1it}$$

$$AmountFunded_{it} = g_2(LenderAge_{it}, PortChar_{it-1}, PortPerf_{it-1}) + \mu_{2i} + \gamma_{2t} + \epsilon_{2it}$$

$$AvgLoanChar_{it} = g_3(LenderAge_{it}, PortChar_{it-1}, PortPerf_{it-1}) + \mu_{3i} + \gamma_{3t} + \epsilon_{3it}$$

For the results, consult S. Freedman and G. Zhe Jin, 2008, "Dynamic Learning and Selection: the Early Years of Prosper.com", University of Maryland & NBER.

Repayments by borrowers are mothly and servicing fees are deduced as it happens at the funds' transferring for the lenders. Nowadays, fees depend in the credit grade of the borrower but it is not inferior to 2% of loan account.
The budget is known and, even if a "one-bid" offer is allowed for each lender, lenders are not excluded to propose more bids and this will lead to the satisfaction of just one lender according to the allocation ratio with higher income and loan interest rates for the winning lenders for lower budget. This means that the total amount is lower than at the beginning of the auction. Higher incomes, however, means also higher servicing fees compensating losses for the decreasing demand In the formal model of the auction N. Cheng et al. (2011) excluded the hypothesis of budget constrains:

1. D is borrowers' demand and R the reserve interest rate which are public;
2. Li is a lender;
3. ai is the budget, exogenous and public;
4. bi is the bid and the requested interest rate for the loan
5. for any j the sum according to every i and j of ai must be equal or superior to D;
6. xi is the allocation for each lender and it must be included between 0 and ai, that is the amount borrowed by Li;
7. pi is the effective price at which borrower repay back the lender;
8. the sum of xi is the total allocation and it must be equal to D;
9. in order to ensure the volutary participation pi>bi and Li will be a winning lender if xi >0;
10. ri will be that interest rate at which Li will be indifferent in investing in Prosper rather than in outside options and often the benchmark rates are LIBOR, fed funds rate or prime rates used by banks, too.

According to this model, "first price" auction is neither incentive compatble nor a nash equilibrium, for this reason Prosper uses a set of prices that can arise at an equilibrium with the smallest price as the cheapest Nash equilibrium, hypothesizing that losers always bid their true interest rate.
It is not irrealistic since loser's utility depend on an interest rate which is superior to the actual true interest rate and cheating will bring about an utility loss, thus compelled to leave the market. Mainting the true interest rate allows to avoid moral hazard behaviour.
Thus, this mixed system of auction tries to be as similar as possible to a perfect competitive market where lenders who are partly satisfied can undercut the other lenders offering lower minimum interest rates (Galloway 2009). Once reached a fully fundend loan-request, Prosper.com has another system verification of the borrower's capability to pay (for instance, the steady income)[16].
Beyond a mixed system, a borrower can singularly choose between the auction formats:

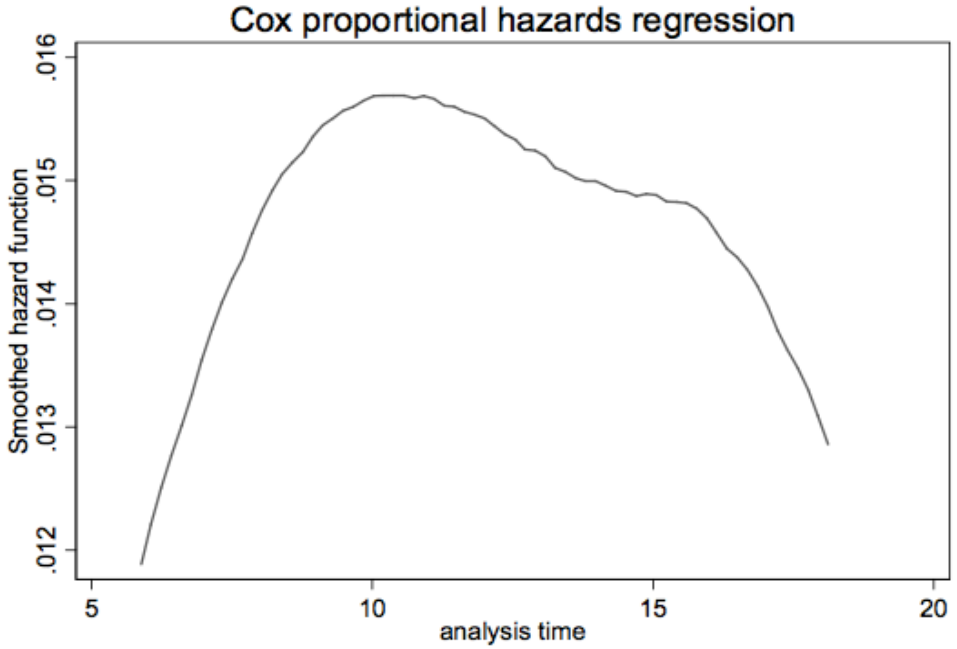
1. a closed auction or immediate funding: listing ends up when the bid cover ratio (total amount bid / total amount sought) is equal to 1.0, the loan interest rate coincides with the one asking by the borrower;

16 The analythic demonstration of the formal model are available on N. Chen et al., 2013, "Auctions for Social Lending: A Theoretical Analysis", Nanyang Technological University, Singapore, Cornell University of NY and Stanford University, pp. 1-13.

2. an open auction considers the auction open even if the whole amount requested is fully funded and the ongoing rate reduces and the lenders with the highest bid-rate are expelled.

Another pecularity is that the interest rate considered in case of not-total funding of the loan is the one asked by the borrower even if lenders' one is lower.
Many scholars (such as M. Lin et al. (2013) name Prosper.com's auction a "second-price auction" since for a lender who is outbid and loser can rejoin the auction proposing a second bid, whereas for boorrower a loan can be fully funded or not funded: in this last case auction is unsuccessful and there is not funds' transferring. The probability of funding depends on the hard information, the features of the social network which the borrowers joins and other variables and obviously the higher hard infos and quality of social network are, the higher the probability will be, whereas the loan default can be measured through a "Cox model of loan performance" described by M. Lin et al. (2009) (figure 6) considering it a "survival model" according to which the hazard function h(t) is estimated as "the probability of surviving for the next instant time given that a subject has survived until time T: h(t) = Pr (t<= T <= t + dt | t => T).
This model considers all the group features and variables and the authors proved that beloging to universities or companies group increases the probability of the loan funding decresing default risk, whereas the other groups have not an important impact on default risk , neither the size of the group. The auction last is standardized at 7 days.

FIGURE 6.



Source: M. Lin et al., 2009, "Judging borrowers by the company they keep: social networks and adverse selection in online peer-to-peer lending", University of Maryland, p. 28.

As for the repayment, every borrowing has a status: it is "current" if the monthly amount is paid back in time, "x months late" according to the number of months late and it obviously affected the credit scoting of the borrower which could be daily and publicly monitored. However, comparing Prosper.com scoring

to other ones, they shown, moreover, that lenders in Prosper are able to better select risks from the listing pool but distribution of loans is still imperfect.
The minus grade loans have obviously ex-post worse performances but, ex ante, the observed credit grade and not credit score leads to have no difference of rates between the shades of grades but it depends of fixed effect such as the time-line (the month and the duration), the division and the membership of the group, the grade itself.

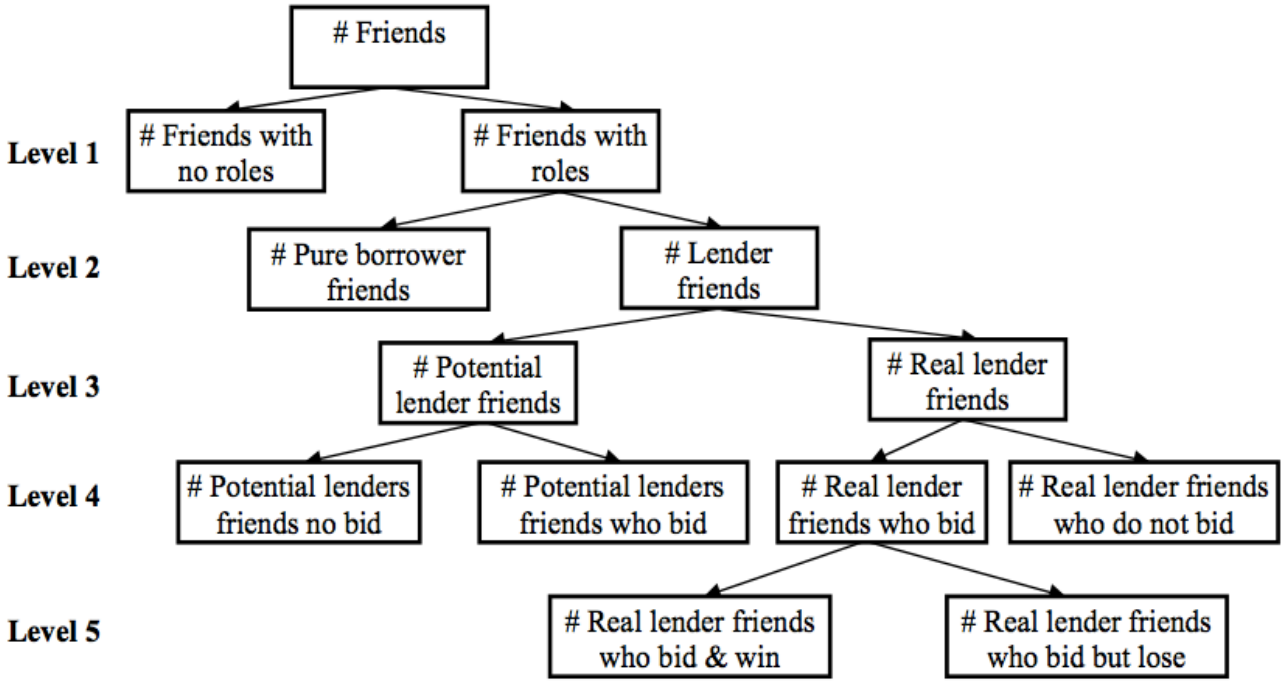
2.4. The information problems in Prosper.com

Since Prosper.com provides to lenders just a credit grade and not a credit score like the traditional FIs, platform is characterized by an evident adverse selection: as shown by S. Freedman and G. Zhe Jin (2008), two borrowers with two different credit score (601 and 639, respectively) will be treated in a different ways by lenders, whereas, since Prosper would score them at D grade, it does not allow lenders to distinguiss the credit worthiness, generating the adverse selection. In fact, those who are D but more creditworthy will not be incentivated to participate to the auction, since they could be overcome by those less creditworthy D borrowers.
Another information problem derives from a potential systematic mismatching between lenders and borrowers who opt for consumer credit due to an undervaluing of the credit consumer risks by the lenders: this means that lenders could mistake lending at lower interest rates to borrowers with high default risk levels. Previous two scholars linked through regression the dependent variables "probability of being funded", "the interest rate if funded" and "whether the loan is default or late" to the attributes of the listing, the macroenvironment, the year-week fixed effects to control environment changing and a full set of monthly loan to check the life cucle of loan performance.
Evidence is that the default or late probability grows with credit grade whereas the other dependent variables decrease by credit grade: this means that the more a borrower asks for, the higher default risk is, increasing interest rate and decreasing funding probability.
Moreover, they shown that among the listing attributes, the image of a listing, too, can have an influence of the variables: in fact, the presence of an image affects rates which will be inferior, thus two listings, albeit performing in the same way, can have two different interest rates (more advantaging for listing with image) since lenders are like to consider image as a positive signal. Furthermore, in spite of group-loans have lower return rates, lenders seem to support them especially if group leader's endorsement and bid are public, whereas the presence of friends' information with endorsement and bid have a more consistent effect on loan returns and funding probability.
Lenders aim to an IRR (Expected return rate) superior to that one effectively obtainable by group-loan, but the renounce to a part of loan return could be seen as a payment for an insurance and a careful monitoring delegated to the group leader. The latter embodies this task through the publicly spreading up of his endorsement and bid.

2.5. The social capital of Prosper.com

Members of Prosper.com means active operators in lending system exploiting the possibility that the IT Revolution and digitalization granted: in fact, Prosper platform uses a sort of social network where borrowers and lenders can monitor each others. There are two kinds of social network: a friendship network and groups.
The former is a sharing system which involves online and offline friends (the latter just if invited), owners of a valid user ID on Prosper.com. After creating a listing of email addresses of friends, the borrower can trust the capability of Prosper.com to generate an email messagge to the potential friends who will join the network.
Among the participants, just those who really want to become a lender or a borrower will provided the required information for credit scoring to the platform.
The latter can be created by any member and usually groups are homogenous: entry and exit are free, but if a borrower requests a loan, he cannot leave the group or join another one until the end of the repayment.
Hanneman and Riddle (2005) explain that networks have two main kinds of aspects: structural aspects and a relational aspects. The former are degree centrality (number of members linked with the borrower), betweenness centrality (frequency of a member to be as closer as possible to the different links among the largest number of members), coreness (degree of closeness to the core members), effective size (difference between number of friends and the avarage number of ties among friends) and it can be normalized by the actual size of the network and called efficiency. These aspects have specifi metrics measures, whereas soft elements are considered in the measuring of the relational aspects which concer the identities and the roles of the network members according to a hierarchy (figure 6).

FIGURE 6. Hierarchy of friends



Source: M. Lin et al., 2009, "Judging borrowers by the company they keep: social networks and adverse selection in online peer-to-peer lending", University of Maryland, p. 27.

Having many friends in the membership has a double face: it can be an advantage since it enhances the lending outcomes, but an excessive number of friends among lenders which could not join the auction not bidding can be seen as a negative aspect and an additional soft information to be considered at the credit scoring calculation and verification.
As far as groups are concerned, M. Lin et al. (2009) composed for their analysis a table of groups which can be individuated in Prosper.com: "alumni" (according to the graduation for example), geography-based groups, military mambership, religion-based groups, groups with edical needs, demography-based groups, hobby-based groups, business groups or ones for general purposes, every ine of which has its own admission criteria.
Moreover, there are evidence found by S. Freedman and G.Z. Jin (2008) according to which monitoring within social networks leads to lower default rates and higher return rates than other loans. Everett (2008) shows that another cause of the decresing of default risk is the membership of a group characterized by broader "real-life personal connestions".
The group lending has a solid theory in Diamond's frameworm about the intermediation theory (1984) and in practice it firstly spread up in less-developed countries such in Bangladesh where Grameen Bank is founded by Premio Nobel Muhammad Yunus in mid-1970s, whereas in US just some programs were activated on the roots of Grameen's example, in Europe there are Irish Loan Funds and German credit cooperatives.
The model by E.S. Prescott (1997) is similar to Diamond's 1984 framework adding heterogenous monitoring costs and screening costs. In any case, group lending and FIs have three common elements in their operative sector: the joint liability groups, more traditional FIs and large FIs lending to the groups. Furthermore, Prescott (1997) individuates the aspects which can affect a lending contract: the possibility of lenders to have private information by borrowers making constracts feasible or infeasible, the liquidation costs in case of default (the higher these costs are the more inconvenient the contract would be), costs for screening and monitoring (as a FI, a group too can screen and monitor the members in order to secure high credit scoring and quality of the membership). Prescott's conclusion is clear: " lending groups are financial intermediaries, albeit small ones" since groups too can exploit scale economies for screening and monitoring.
This is the theorical bese of Prosper's groups' architecture: members of the same community are more responsible towards each others increasing trustworthinessand benefitting from lower interest rates due to lower default risk. Thus, having a group leader facilitates the anlysis of the "due diligence" of each borrowers and the strength of the ties of the social network among members. A member can enjoy a group as a group leader if he owns a great sense of responsability and altruism, beyond economic interests, in exchange of tangible and intangible rewards. They are motivated by "intermediation" fees by Prosper which are limited "community payments" creating the incentive for borrowers to disclose to group leader in order to attract as more bids as possible in credit listings benefitting from better interest rates. However, despite a group leader plays the role of intermediary as he facilitates the capital transfer among units, a borrower can choose between "free" or "paid intermediary, thus scholars find difficult to understand if the figure of the group leader is effectively a source of additional value.
What is sure is that a group leader may encourage rapayments and reduce uncertainty for lenders, for these reasons, S.C. Berger and F. Gleisner (2009) formulates a series of hypothesis which, however, just a long-term analysis of Prosper.com trends could confirm:

1. “borrowers within groups are able to borrow at lower credit spreads” since group leader can make the recommendation of a credit listing;

2. “a group leader’s bidding serves as a credible signal for the quality of the credit listing and results in lower credit spreads” and “has a stronger impact on credit spreads than a recommendation by the group leader”.

3. “a higher group rating leads to lower credit spreads”. Since the group leader is directly involved in the auction for providing his own rating guiding the official one and it reflects the ability of the group to assess borrowers’ credit quality as a proxy for the behaviour of the group leader. The collusion is not convenient for both group leader and the potential borrower who could “bribe” him since it is disadvantaging for the whole group whose credit rating would worsen incresing credit spreads.

As far as the last point is concerned, a group leader endorsement is not necessarily a signal of good grade and less risk, since there could be a danger of free-riding due to the negligence and the disadvantage to gather new information by the borrowers, unless group leader benefits from screening and monitoring instruments for old and new potential members.
Thus, a particular attention is requested to the group leader, as it happens in case of a social network of friends (S. Freedman and G. Zhe Jin, 2008). Furthermore, a social network could secure a sense of reciprocity of control among the members who could enjoy intangible rewards favouring themselves and the whole group. However, a lender must be careful to the ties of the borrowers within the social network, without forgetting the credit grade of the single borrower independetly from his ties and links, in order to avoid funding a borrower with good connection but a bad reputation, and viceversa. Thus, the “cheap talk” on the social network should be developed by Prosper.com in the sense of incentives to communicate truth facts.

3. Conclusions

Despite a solution to informative problems is still unknown, Prosper.com gained a strategic and strong positioning in P2P marketplace , since it offers different possibilities for borrowers and lenders to approach to lending process: the presence of a platform is not be an obstacle for lenders-borrowers meeting and they are all directly and actively involved in the auction. Albeit the usage of a credit grade and not a credit score, the system of social network and the presence of a group leader who publicizes endorsement and bid are two solutions which Prosper.com is exploiting in order to secure lenders and give incentives to borrowers to disclose. Morover, lenders can diversify through investing in copious lendings for small parts of the whole amounts with the possibility of selling them to other lenders. It is a sort of primary and secondary marketplace whose management seems to be given to borrowers and lenders linked towards the figure of group leaders and friends. This means that sometimes "soft" information can account more in judging a borrowing, that a compromise with the "unbanked" borrowers is possible and necessary for the whole economy, that a bank account is necessary to ask for a loan through Prosper.com but the borrowers themselves can loud their voices about the contract conditions. Thus, FI cannot and must not disappear but P2P systems like Prosper.com must be an incentive to search to new lending models, new financial relationship approach, new management culture.

Prosper.com itself understands the importance of partnerships: in fact, in April 2015, it announced the strategic partnership with the platform of Small Business lending "OnDeck". Prosper's CEO A. Vermut affirmed "This partnership gives Prosper Marketplace's customers access to more options for credit now and creates a great platform for the future".

CONCLUSIONS
The complementary and cooperative P2P lending marketplace

The Great Recession was an important field of challenges for the whole financial world, for both borrowers and lenders: the former, especially SMEs, householders and consumers for consumer credit, highly suffered credit constraints since, albeit the last easing of credit standards by banks, continued to be classified as "unbankable". They were discouraged and heavily decreased the demand for loans and credit lines. The latter suffered the copious mistakes made by the exagerate enthusiasm of the financial market due to a long favourable trend of economy starting with the IT advent and the recovery of economic world after the crash of Tween Towers (2001).

All this brought about a crescent credit approval also for those unbankable subjects and trading activities together with riskiness and profits for old and new FIs: in this hambit, banks started to face the competitiveness with new financial operators, thus they slowly moved away the real economy, not considering the risks of an "easier credit access" and approaching throught their new universal model to the mere financial sector.

Real side was neglected, whereas financial one acquired more importance: this distance was felt by borrowers who were compelled to reach for alternative finance, for new financial systems of lending which could be more disclosed and trustworthy.

Banking industry tried to face a "freezy" period of stalemate due to the credit crunch: low interest rates, in fact, did not urge loan demand because of a tough tightening of credit standards (in order to solve the problem of NPLs) and a greater bank's focus on services producing fees, integrating the intermediation margin.

Moreover, banks, more than other FIs, suffered crisis because of the parallel process of compliance with the Basel III regulatory requirements which compelled them to increase equity and capital buffers: the seriousness of the crisis leads authorities to ease compliance process in order to help banks to recover their assets and to deleverage.

IT and crisis changed the customers' way and devices to satisfy needs and, consequently, banks' business models and way of "banking".

Digitization is bringing about online services through which acquiring goods and soft values is possible in an easier way: P2P lending platforms are taking advantage of this period of weakness for banks, imposing a new business model for lending and funding, thus for offering new financial services and tools.

Dealing with constrained borrowers and highlighting the importance of small business as economic base of employement too were those two aspects whose P2P lending made its success key. Making lenders and borrowers as "peers" at the same level is the aim of alternative finance which tries to strunggle the gap between "real" and "financial". Alternative finance, moreover, (obviously excluding the forms of dangerous shadow banking) is imposing a new model of doing finance and choosing financial aims. Tha gap can be reduced through social aims near financial ones, involving also small operators and savers, up till a whole community of small investors, as in crowdfunding and social lending, benefitting from the advantages of intermediation as for screening and monitoring. However, since P2P lending is a recent phenomenon, these platforms cannot exploit experience in order to reduce information problems,

as a bank can do through its online and mobile banking platforms: thus also "disintermediation" can be considered as inefficient in the sense of information efficiency.
For all these reasons, P2P lending could be complementary to banking one, becoming a "complementary and cooperative" finance rather than a "competitive and alternative" one.
In fact, the collaborative approach of the banks towards these totally digitized intermediaries might be the best solution in a period of trust recovery in financial market: on one hand, P2P lending can offer to banking industry a releasing possibility of owning a new business area where "unbankable" and "digital" subjects can be again involved, allowing banks to avoid additional costs of bulding hubs for fintech tools and to exploit the costs for engineering development for fintech solutions already endured by P2P platforms. The latter, furhermore, can give new credit scoring models favouring qualitative aspects more than quantitative ones, next to the existent models of the banks. On the other hand, banks could offer their experience in screening, monitoring and signaling and their networks of lenders and borrowers in financial world securing operators from a legal point of view. This could mean saving of capital for future investments, since now there would be the possibility of exploiting already existing but, in the meanwhile, at the forefront technology for new frontiers of funding.
We can neither imagine nor want a world without banking industry: economy could not exist or, better, it would be deeply incomplete and inefficient without intermediation. The fundamental problem which P2P lending could solve is the absence of trust in the economic and especially financial world since that moral hazard which FIs try to struggle to make market more efficient is the same which FIs created to gain profit damaging customers and real economy. P2P lending gives another possibility to change and do better than before, since everyone must understand he has the same aim of the other subjects, that is borrowing and lending in a safer and sounder economic world. Just when people are put in a condition of equality, the awareness that a short-term benefit to the detriment of "neighbours" will demage everyone in long-term can offer to operators guidelines through which working without being selfishness and ensuring trust and soundness in markets. Finally, if systems were collaborative and as more disclosed as possible, economy could efficiently work with "peer" operators in an easier and quicker way, through an application or a computer: what makes borrowers and lenders as "peers" is also the possibility of complete information access, for this reason P2P platform can be a new business area for information and financial education of customers through which a bank can enhance the relationship banking, next to the transactional one, giving a new importance to soft data and soft values.

APPENDIX 1

How is informative asymmetry managed?
Let's suppose that:
-V(pm) is pre-money value known only by the borrower
- Lenders have to pay costs of due diligence "d"
- Scope economy associated to the network size increases success probability since the community of peer investors can share information through which they can decide whether funding or not.
- due diligence probability function is Pd(m) whose first derivative is positive ($\Delta p/\Delta m>0$) and borrower esteems V1, V2 and s through this function according to the number of investors (superior or inferior to m) and the real pre money value. Finally, he decides whether communicating his offering and whether exploiting Asymmetric Information.
- Vd is the pre money value which borrower decides to announce.
Investors will accept to fund only if V(pm) >Vd and the highest achieveable gain for the borrower is the sum of the private benefits taken by AI exploitation(W), the post money value in case of success (γcf (Vpm+K(1-x)-W-s) and the percentage of borrower's equity (1-%offered to crowdfunders), thus it is function of p1 (success probability) and the due diligence according to market structure and borrower's decisions.
-if borrower obtains funds, the actual post-money value is Vr= (γcf*(Vpm+k(1-x)-W-s)). If he exploits Informative Asymmetry, Vd>Vr, considering Vd the fake pre-money value of the offering. The highest achievable payoff is Vf= γcf*(Vpm+ Δ+K(1-x)-W-s)=Vr+ γcf * Δ where Δ represents how much borrower overestimates the real pre-money value. According to the class of investors, he will chose a Δ=V1+s-Vpm, Δ=V2+s-Vpm.
The highest achievable payoff in case of Vpm=Vr is πr= W+Vr-K, whereas, in case of Informative asymmetry exploitation, it can be written Δ"fake" = W+Vr-(k*Vr/(Vr+ γcf* Δ)). Differential (πfake – π r) is K*(1-Vr)/(Vr+ γcf* Δ). Thus the higher is Δ, the higher is incetive to overvalue start-up.

Source: A.Biffi e M. Columbaro, 2013, "Equity Crowdfunding: un modello di analisi del comportamento di imprenditori e investitori", Politecnico di Milano.

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