ISCTE Business School
Instituto Universitário de Lisboa

# HOW FINANCIAL TECHNOLOGIES ARE REVOLUTIONIZING THE FINANCIAL INDUSTRY

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## Abstract

Financial technologies (fintech) have known an incredible exposure over the last years, attracting investments of large billions of dollars. Fintech can be seen as the match between finance and technology and they are imposing a way of thinking in all the branches of the financial industry. The main aim of this dissertation is to study how the financial technologies are revolutionizing the financial industry.

After the financial crisis of 2008, customers have changed their ways of seeing “Finance” and, more particularly, “Banks”, looking for products and services responding to their needs. Moreover, the financial crisis has highlighted a relevant number of dysfunctions of the banking sector and on the financial regulation. Regulators have strengthened their requirements for banks, particularly in their relations with clients.

These have opened a breach for Fintech companies and they are using it. Fintech companies rely on a different value proposition to clients that is based on a timesaving, fast and clear experience. Indeed they are proposing majors innovation in products and also in the processes. Fintech companies have put the customer back at the center of all their attention; customer becomes again the top priority.

Financial technologies have already revolutionized the finance industry even if their impact on the market, for the moment may still be seen as trivial.

Key words: Financial technologies, Financial Industry, Innovation, Customers.

JEL Classification: G18, G21

As tecnologias financeiras (Fintech) têm conhecido uma crescente exposição desde há vários anos, atraindo o investimento de largos milhões de dólares. As Fintech podem ser vistas como o casamento entre finanças e tecnologia e estão a obrigar a repensar todos os ramos da indústria financeira. O principal objetivo desta dissertação é estudar como as tecnologias financeiras estão a revolucionar a indústria financeira.

Após a crise financeira de 2008, os clientes mudaram a sua maneira de olhar para as "Finanças" e, mais particularmente, para os "Bancos", na procura de produtos e serviços que respondam às suas necessidades. Além disso, a crise financeira colocou a descoberto um número relevante de disfunções do sector bancário e na regulação financeira. Os reguladores aumentaram as suas exigências para com os bancos, particularmente nas suas relações com os clientes.

Tudo isto criou um conjunto de oportunidades para as empresas fintech que estas aproveitaram . Estas empresas assentam fintech numa proposta de valor diferente para os clientes, que assenta numa experiência de economia de tempo, rápida e clara. Na verdade, propõem um conjunto de inovações importantes não apenas em produtos mas também nos processos. As empresas fintech voltaram a colocar o cliente no centro das atenções. O cliente volta a ser a principal prioridade.

As tecnologias financeiras revolucionaram a indústria financeira ainda que, neste momento, o seu impacto no mercado possa ainda ser visto como algo trivial. .

Palavras-chave: Tecnologias Financeiras, Indústria Financeira, Inovação, Clientes.

Classificação JEL: G18, G21

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## Glossary

ACCA: Association of Chartered Certified Accountants

ACPR: French abbreviation “Autorité de contrôle prudential et de résolution” meaning Prudential Control Authority and Resolution

AMF: French abbreviation “Autorité des marchés financiers” meaning French Autority of financial market

ATM: Automated Teller Machine

BIS: Bank for International Settlements

CIF: Advisor in Financial Investment

FDIC: Federal Deposit Insurance Corporate

IFP: Intermediary in Participative Financing

IPO: Initial Public Offering

OECD: The Organization for Economic Cooperation and Development

SEC: Security and Exchange Commission

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## Introduction

The first apparition of the fintech was in 1950's nevertheless with the 2007-2008 crisis it has expanded on a proportion never seen before.

Definitely the financial crisis of 2007-2008 has led to numerous shifts in terms of liquidity and capital for banks. Indeed, after this crisis, consumer's behaviour, regulation and technologies have been submitted to changes and have re-defined the financial environment. This crisis has opened up the barriers to new competitors on a proportion never seen before (Worthington and Welch, 2011).

There is a socialization of the finance Industry meaning that due to various shifts the Finance is internalizing all the new element of the surrounding environment.

The new competitors that appear are called "fintech", the aggregation of financial services and technologies. Since several years, this phenomenon of fintech has attracted a lot of attention from media, investors and Established Financial Institution. Indeed, these fintech are representing a new type of companies that use innovation and creativity in order to rethink "traditional" finance services, products and clients' experience.

Nevertheless, how are these financial technologies revolutionizing the Financial Industry?

These fintech start-ups are attacking the banking system by proposing to clients a totally different approach. In fact, nowadays competitive pressures are coming from various companies; others banks, non-banks; pushing banks to get out of their comfort zone and to rethink their business model (Perrott, 2008).

In a first part of this thesis, we will start study the socialization of the finance industry. Afterwards, in a second part we will see the services and products proposed by fintech start-ups and their challenge to banks.

# 1. The socialization of the Finance Industry

## 1.1 Why has the Finance environment changed?

### 1.1.1 Change of consumers' behavior accompanied by the technological evolution

The 2007-2008 financial crisis has led to a lot of changes in the financial industry. Indeed, this crisis has tarnished the reputation of many banks creating an opportunity for "non-banks" to provide an improved and different service to customers.

If banks once inspired an almost reverential fear, it is no longer the case and there are many reasons for dissatisfaction and distrust that emphasize the relational gap accumulated over the crisis period.

Customers are more and more upset of the commercial aggressiveness of banks seeking to sell banks' products. The constant turnovers of advisors, the lack of transparency in proposals as well as the rates and conditions practiced have emphasized the defiance regarding banks.

After the crisis, the anger of customers regarding banks has increased once again leading them to consider alternative providers (Steve Worthington, Peter Welch, 2011). Banking customers have become mistrustful towards banks; at least 70% of their customers think that banks are not acting in their best interests (Kimberly Hedley John White Cormac Petit dit de la Roche Sunny Banerjea, 2006). Customers are seeing banks as opaque companies making money thanks to their current account, by charging overdraft or interest paid on credit balances (Steve Worthington, Peter Welch, 2011).

Nevertheless customers are mistrustful toward banks but also towards central banks. In 2016, the CEO of Bitcoin Exchange Coinfloor said, "People don't trust central banks (…) That's less of a problem in the Eurozone and it is huge problem in emerging market. In countries like Nigeria, Argentina, and Venezuela, currencies are going down by 10%, 20% and 80% a year in some cases. You don't trust the central bank in that scenario and you shouldn't." (Marketing week, February 2016).

Demands from customers toward financial services companies are multiple. They want an easy-use, automation, twenty-four hours access and more transparency (The Future of Finance, Part 3, Goldman, 2015). Regarding their relationship with financial services they are looking for a fast reactivity and a real personalization of the services they are offered (Klein, 2015).

According to the World Retail Banking Report (2015), the quality of the customers' experience is stagnating and customers' loyalty is deteriorating. Moreover, this report highlights that there is an increase on the percentage of customers' that have a negative experience with banks.

In 2009, Virgin Money (a branch of Virgin) decided to make a study on their potential to enter in the market of financial services. The research showed that customers were demanding and believed that Virgin Money would be seen as a trusted deposit taker and mortgage lender (Steve Worthington, Peter Welch, 2011). Companies like Virgin Money and Tesco are bringing a new approach to services and products. The best example would be the insurance pack; club cardholders can take a pack in store and check out with their spending. This approach for consumers is timesaving and it is easy to use.

Consumers' behavior is changing the environment of the financial services by creating new accesses. The globalization has also changed consumers' behavior by increasing their interaction with the "world". More and more customers are using the same products, technologies and networks for instance the software Windows made by Microsoft (Scheibe, 2015).

However the changing in customers' behavior has to be joined to technologies. The concept of technologies have been studied for many years, it "refers to all of the tools, techniques and procedures used by individuals to perform a specific tasks" (Reisman and Zhao, 1991).

The new technologies have been a facilitator to entry for fintech companies. The merger "of big data analytics and new distribution channels allowed technology start-ups to disrupt traditional banks" (The Future of Finance, Part 3, Goldman 2015), in fact new technologies are giving to new entrants the possibility to take parts of a market that is underserved by

banks. For instance, one underserved service is the international money transfers. World Bank Report (2015) shows that, in 2014, approximately $550bn was sent internationally and banks only handled $30bn.

Moreover, innovation has driven the evolution of these new technologies. Economic growths, progress in living norms are consequences of innovation in all industries. Innovations in the financial industry have been motivated by the desire to meet the needs of the changing society (The Role of Financial Services, World Economic Forum, 2015).

For instance, the payment method has tremendously changed over years in order to comply with the consumer trends. Between 2008 and 2014, the number of checks in circulation has decreased by 29%, underlying the fact that payment method is becoming more and more electronic (Cichowlas, 2015).

Another example is, through the EU integration, the appearance of the SEPA (Single Euro Payment Area). Electronic payment through Europe became as easy as cash payment. A customer has the possibility to make a rapid and secure transfer to any person located in the Euro area in just a single click.

Thanks to these technological innovations, finance has been democratized and has allowed customers to access to a broader range of services and products (The Future of Finance, Part 3, Goldman, 2015).

The new technologies have permitted customers to be more active and involve in their interactions with companies and with each other's. The value proposition and the customer experience are driven by the consumer itself thanks to his increase of knowledge in technologies (The Future of Fintech, World Economic Forum, 2015).

Consumers have become "prosumers" meaning that they have two functions: in one way, they are consumers of companies' offer and, in another way, they are also producers because they are doing activities previously reserved to producers (Scheibe, 2015). A new era is coming, where people are receiving the message but they are also creating it, this is the "cooperation area" (Kotler et al., 2010).

Internet has made notable progress for the last few decades. It has allowed customers to save time and effort by having access to many services and products (Takieddine and Sun, 2015). Furthermore, through Internet, companies have been able to do a better marketing product and distribution (Tih and Ennis, 2007).

The appearance of the self-service technologies (SSTs) has changed the way customers are seeing services. The self-service technology model can be seen as the “branch of the future” permitting customers to have an easy, fast and secured experience based on innovative technology (Tellervision and Mars, 2016). In the banking industry, the appearance of the automated teller machines, mobile and Internet banking have reduced human interactions. More and more services are digitalized and customers are granted value from it. It has been found that customers using SSTs are more pleased and spread a positive word-of-mouth around them.

Services such as self-checkout in supermarkets, internet check-in for a flight, are more “place and time convenient” (Klassen, 2008).

The early implementation of SSTs in the 1980’s or 1990’s has not been completely accepted by customers, as they were not enough mature to understand and to trust technologies. Nevertheless, nowadays customers are becoming more and more confortable with it. The popularity of the SSTs is also coming from conveniences given to parties, the customer and the supplier. With time, customers saw the benefit from it, they started using it and thought it was faster, easier and that it allowed them to have a better control on their activities (Meuter et al, 2000).

Traditionally face-to-face relationship is relevant in financial services. With the SSTs, face- to-face has been decreasing and now the customers’ impression of its financial services rely on its experience of the banks’ website (Eriksson and Maquardt, 2001).

Indeed Internet can reinforce client’s relationship nevertheless one major drawback is when the SSTs experience is unfortunate; clients become frustrated (Pujari, 2004).

Improvements in Internet technologies are shifting the architecture and the essence of financial services; it facilitates the entrance of new financial services providers (Shahrokhi,

2008). Overall, technologies changes are pushing the financial sector to increase their quality to customers, to lower their costs and to broaden the access to financial services.

The e-finance has been defined in two different ways. Allen et al. (2002) define e-finance as "The provision of financial services and markets using electronic communication and computation. E-finance activities include all types of financial activities carried out over the cyberspace or other public networks, such as online banking, electronic trading, provision and delivery of various financial products and services such as insurance, mortgage and brokerage."

Fight (2002) defines e-finance as "all which relates to the linking of business, finance, and banking via electronic means, encompassing information gathering, processing, retrieval, and transmission of data as well as the transmission, purchase, and selling, of goods and services."

E-finance has not been creating by the development of Internet by rather by the Western Union Corporation, which has been the first one to introduced the "distant money transfer"; in 1914 it proposed the first "consumer charge card" (Shahrokhi, 2008).

Even if the e-finance has existed for a long-time, the developments of the Internet and communication technologies have seriously changed it.

The e-finance is redefining the value proposition made to customers, the communication system between the finance services providers and customers. Indeed e-finance has broken the habits of doing business and has defined the new economy (Fight, 2002). The development of technologies has disintegrated the essence of what used to make banks peculiar (Shahrokhi, 2008). Moreover, it has constructed a global and competitive environment. This has permitted the development of talents ready to create new concepts and models. The evolution of the e-finance has benefited too global customers. It permits to customize and to develop sophisticated services improving the quality and the effectiveness of their quality (Claessens et al., 2000).

As said before, customers are looking for fast and less time-consuming services. In order to

answer to these requirements, new services using internet have appeared. There are platforms matching businessperson and risk capital investors according to the purpose, amount and business industry of the investment. These platforms create matches in a short time, which benefit both businesspersons and investors. This is a sound example of electronic fund.

WR Hambrecht & Company, an investment banking company has been an avant-gardist in electronic Initial Public Offers (IPO's). With the traditional method, clients gave the bid price and size interest to promoters in order for them to settle an allocation. With the electronic method, there are no longer promoters; clients put the bid price and size interest electronically (Shahrokhi, 2008).

The major improvement in these situations; either the platform or the IPO: is the speed of information. Thanks to Internet, in only a few clicks, accessing millions of information in few minutes is possible.

Over the years, the society has encountered a quick modification of its direction, going from an industrial to an information technology society (Howcroft, 2003). The customer has also changed, he is more aware of technologies and he requires more qualities in services. Even if these have shifted the financial services it is not the only reasons.

### 1.1.2 The Regulation driving the shift of the Finance Industry

The 2007-2008 financial crisis has underlined all the dysfunction of the banking sector and financial regulation. It emphasized the fact that the prudential regulation did not impede the disaster, because it did not focused enough on illiquidity risks and on the asset leverage level.

The market discipline did not show any signals and the Internal controls showed that suspicious dealings were going on across the world. Krugman (1999) said, "Societies are learning from crises and particularly from the financial ones. These crises are coming back over and over and they are coming from where we do not forecast them."

Until several decades, innovation in the financial sector was essentially on the financial

products, responding to the growing deregulation and the increase of the cost of risk. In fact, over the last decade, innovation was seen as financial creativity constituting major characteristics to the financial and banking sector showing its capacity to adapt (Gowland, 1991). Every bank was looking for innovation in their financial technics in order to remain an unavoidable actor of the finance sector.

However nowadays financial innovations are no more up to date, the structure of operations is becoming more standardized; innovations are mainly driven by the utilization of the digital in the relationship with clients.

The business model is shifting, going from vertical organizations (focused on the products) to horizontal (focused on clients). The utilization of the digital does not lead to the standardization but to a customization of the offer.

There are three types of regulation; the prudential regulation, the activities' regulation and the regulation regarding the relationship with clients. The term prudential means minimum capital requirement. The prudential regulation wants to ensure the good adequacy between the risks carried by financial institutions and their capital. It was in the late 80's that the prudential regulation has been settled in order to restrain risk taken by banks and not anymore in order to replace the market mechanisms. Banks have to deal with solvency requirements and in order to make banks adhere to this, regulatory jurisdiction have reached an agreement in the Basel Committee.

It created the Basel I, II and III regulations. These regulations tend to be more complex and more exigent about capital. The Basel I was created in 1989 and principally concerned the level of the Cooke ratio[1], it had to be higher than 8%. In 2004, the Basel Committee decided to implement a new capital adequacy framework, replacing the Cooke ratio, it is the Basel II. The Basel II planned a broaden cover of the banking risks and encouraged financial institutions to improve their internal management of risks. It came into effect on December 31st, 2006.

[1] Capital/risk-weighted assets

Thanks to these two Basel legislations, banks' solvencies have been enhanced over the time. Nevertheless they did not have enough to predict the insolvency issues that appeared in 2007.

In this context of managing risks, financial institutions hired experts in risks and in control. These regulations impacted in a certain measure the capacity of adaption of financial institutions.

After the disclosure of the systemic scale of the sub-prime crisis, the Basel III regulation proposed three major measures for banks in order to promote a higher financial stability and to support a medium-term growth.

The first measure is the increase of the banks' capital (reaching in 2019; 7% of the ratio of common stock and 8,5% of the ratio of equity funding). The second one is the improvement of the risk management of liquidity and the strengthening of the prudential requirements regarding the counterparty risk. Basel III implemented two ratios.

The first one is the Liquidity Cover ratio (LCR)[2]; this ratio is to assure the capacity of financing of Banks in order to resist a liquidity crisis and to respect its commitments during at least one month. The second one is the Net Stable Funding ratio (NSFR)[3]; this one concerns the capacity of banks to finance themselves at medium-term (one year). To finish, the third measure is the establishment of a 3% limit to the debt-authorized leverage (Couppey-Soubeyran, 2010).

In 2010, following Basel III, several institutions (OECD, BIS and the Institution of International Finance) tried to implement measures in terms of capital through global macroeconomic models (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015).

Regarding activities' regulation, it concerns the ones related to the activity of insurance of management. Finance is a regulated activity, it practices go through a license given by regulators (for instance in France; ACPR or AMF). Indeed only licensed companies can

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[2] LCR = stock of high-quality assets/net cash outflows over a 30 day time period > 100%

[3] NSFr = Available amount of stable funding/required amount of stable funding > 100%

practice bank's activities.

Nevertheless the license is not an impediment to the entry of new actors, they are not forced to choose the banking status. In fact less restrictive status exists, for instance in France the status of CIF (Advisor in Financial Investment) or IFP (Intermediary in Participative Financing). The common point of these statuses is the core of their activities; advising clients. The execution of the operations is left to traditional actors in order to avoid constraints from regulations.

Regulation on activities has permitted to these new entrants to focus on client's relationship.

More and more regulation regarding client's relationship has intensified and has become further intrusive in private life. Financial intermediaries are forced to find and check the real identity of the client, the source of the funds and wealth in order to make sure that products are corresponding to their financial profile.

The demand from regulation to have a better knowledge about clients has different roots. The event of the 11th of September in the United States has marked a shift in client's relationship. Now every client can be seen as a terrorist or a fraudster. A new era appeared, the era of suspicion. In fact, intermediaries are forced to inform an anti-financial crime organization if they have suspicions about their clients.

Moreover, after the financial crisis, American banks had to pay a record fine partially because of the default of information to clients (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015). For instance Bank of American paid more than $55 million since 2007 and JP Morgan $30 million.

The second root is the regulation for the consumers' protection (or in our case investor). This regulation's purpose is to think that customers must have access to information concerning an investment prior to buying it and as long as they hold it. Through the flow of comprehensive and accurate information given to him, clients must be able to judge if an investment is the sound one for them. In order to verify his knowledge the customer has to

answer to a set of questionnaire and once they have done it they will be able to do transactions.

When adding up the suspicion and the ignorance, clients can have the feeling that they are not appreciated. The financial advisor becomes more occupied by doing administrative activities than giving advices to clients.

Moreover there is a "zero default" tolerance in respect of compliance, either on anti-money laundering fraud or on the categorization of clients at the opening of the relationship. Clients are becoming case-ticker and do not look closely at what they are signing.

The consequence of these regulations and of this mass approach is that, every client is categorized in a box in order to satisfy the compliance and the risk analysis; resulting in a destruction of the proximity with clients and the ability to adapt to clients' expectations. Thus these actors lost their main strength, the customization of their client's relationship.

Through time, regulations will keep moving activities from traditional to non-traditional actors. Regulations' shift have caused lower returns for certain products and doing business has become more costly, pushing banks to increase their prices and to reduce their presence in some businesses (The Future of Finance, Part 1, Goldman, 2015). The increase of prices has permitted the appearance of new actors charging lower prices. For instance, traditional actors have put aside some commercial activities such as lending to small and medium enterprises because of their higher risks.

In the United States, the Securities and Exchange Commission (SEC) is the organization in charge of « protecting investors, maintaining fair, orderly, and efficient markets, and facilitating capital formation »[4]. Under the Security Act of 1933, the Regulation D purpose was to forbid issuers from general solicitation for transaction (for example, advertisements and public websites) if they were not involved in public offering and not registered at SEC.

Start-ups were not allowed to do advertisement campaigns. In 2013, the Regulation D was amended in order to allow general solicitation in some cases; now some companies can

[4] Sec.gov. 2016. SEC.gov | What We Do.

offer or sell their securities without being enrolled at SEC, if purchasers of securities « are accredited investors and the issuer takes reasonable steps to verify that such purchasers are accredited investors »[5]. Therefore in September 2013, AngelList post on its website more than a thousand of start-ups looking to raise money publicly.

The more a sector is regulated the more it is stuck in the regulation and the more the "disruptive" companies find their place. The goal of these companies is to propose to clients an innovative approach far from the traditional companies. Even if the modifications of the business model are coming from the regulation nevertheless it is not the only factor permitting to understand the success of innovative companies.

To conclude, by not being regulated the new actors have a competitive advantage, however it is a matter of time for regulators to implement regulations for them.

## 1.2 What does it mean financial technologies?

### 1.2.1 The appearance and the enthusiasm for financial technologies

The term fintech is a contraction of finance and technologies; it represents innovative start-ups that use technologies in order to redesign financial and banking services.

The fintech has 65 years old history; most people believe that fintech appeared when they discover the mobile application helping them to pay their shopping without using their credit card. It is not the case; the signs of fintech appeared in the mid 1950's with the credit card allowing customers to carry no cash.

In the 1960's, the appearance of the ATM (Automated Teller Machine) has permitted customers to withdraw money without going to the bank and also to change their way to deal with their assets (Barberis, 2014).

[5] Eliminating the Prohibition Against General Solicitation and General Advertising in Rule 506 and Rule 144A Offerings.

In the 1980's, banks experienced innovative computers and software; allowing for an easier data recording.

In 1990's, the explosion of Internet and the booming of the e-commerce have allowed technological innovation for financial services. For instance in France, Moneo, an electronic wallet allowed customers to pay purchases with a smart card.

Through these fifty years of development in financial technologies consumers did not necessarily realized that they were using it almost every day. This development benefits customers and banks, it permits to banks to grow overs years. A study made by the U.S.'s FDIC showed that in 64 years bank's branches have increased by 355%.

Nevertheless lately the fintech have known a huge booming. After the financial crash in 2008, more and more fintech have emerged in order to fill the gap left by major actors.

Nowadays, investors believe wholeheartedly that entrepreneurs of fintech can transform the sector thanks to their ambition and to their boldness. The atmosphere is at the euphoria.

According to the chart below, investments in fintech companies have increased by 300% in 2014 meaning that clearly the digital revolution enters in the financial sector.

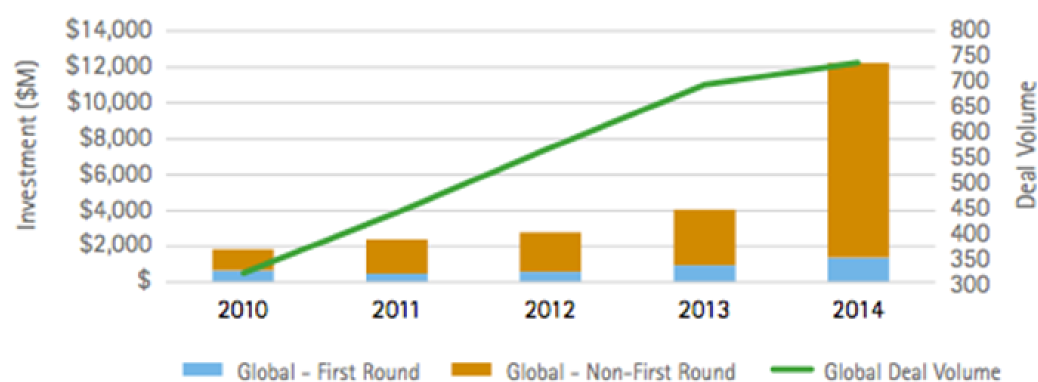


Figure 1: Global Fintech Financing Activity

Source 1: Accenture and CB Insights

This augmentation in fintech investments can be showed through two examples of success

in 2014.

The first one is the First Data Corporation, a leader in the provision of e-commerce and payment processing services to different actors across the world. They provide a customized service according to regional and local market requirements.

In June 2014, First Data Corporation has raised an historic $3.5 billion in private equity thanks to various actors; $1.2 billion from KKR (Kohlberg Kravis Roberts) a global investment firm and $2.3 billion coming from mutual funds, hedge funds and institutions.

The second success is represented by a peer-to-peer platform called Lending Club. At the end of 2014, Lending Club had raised almost $870 million on the NYSE (New York Stock Exchange) through its IPO valuating the company at $8.5 billion. This IPO was the first one for a lending platform and also the highest U.S. technological IPO of 2014.

The year 2015 was always a mitigate year for the fintech sector. On one side, this was a successful year thanks to IPOs of various fintech companies such as Square and First Data. These IPOs reached higher capitalization than most financial institutions. Nonetheless, this year has known the decline of relevant players.

The major crash was Powa technologies, a United Kingdom fintech company known for its mobile payment application. The company was once estimated to £1.8 billion and has collapsed into a bankruptcy administration, as the company was not able to meet its debts.

Even if some fintech companies failed, a report made by the Citi Group showed that the fintech sector is particularly active as it keeps growing. Indeed, in a study made by Goldman Sachs, it is showed that fintech start-ups could every year swipe up to $4,7 billion of the income and $4,7 million of the profit of established banks. Moreover even if fintech start-ups take 1% of the market it would be seen as a considerable affair.

Investors are investing billions in thousands of fintech start-ups in hope that such or such applicants turn out to be the “big winner”. According to a research made by Accenture, in

2010, 220 venture-capital companies invested in fintech start-ups while, in 2015, they were 900. The chart below highlights that between 2010 and 2015, the investments of venture-capital companies in fintech increased by 309%.

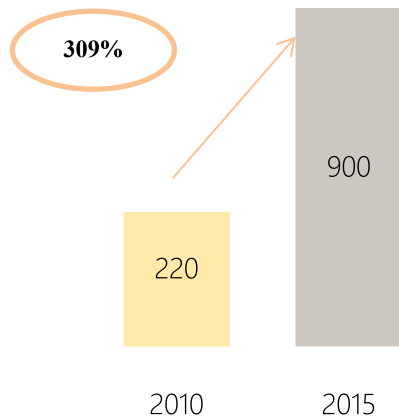


Figure 2 : Venture-capital companies that invested in fintech start-ups
Source 2: Accenture report, 2010

In the first quarter of 2016, fintech start-ups have received $5.3 billion of investment showing that investors are self-reliant in the sector. Investments have been made principally to two Chinese's firms. Indeed it important to note that 50 % of investments of the first quarter have been made to APAC (Asia-Pacific) countries.

Investments in fintech start-ups in APAC have incredibly increased over 2015, representing $4.3 billion. The North American region is the second largest for investments in fintech start-ups. In the APAC one, China is the country receiving the highest level of investments nevertheless India, Mumbai, Bangalore are growing fast. Most of the fintech investments are targeting the payment sector (38% of the total investments in fintech companies).

The first battlefield of the fintech is the payment sector, because this technology can drastically reduce costs of transaction by creating an innovative framework and an alternative to the transaction one.

Nevertheless, even if the payment sector has received more investments over the last 5 years, others sectors are growing more and more due to the maturity of the market. For instance, the Insurance sector is growing promptly and is seen as the future major branch of the fintech.

These new fintech are not reduced anymore to the banking sector, they are also present in others industries such as the protection of private data and the proof of existence (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015).

The fintech marks a new step in the banking disintermediation. In fact, fintech companies are trying to replace not only the products of banks but also the jobs people are doing at banks. For instance, they are pretending that they can replace a banker, secure the system of payment and grant loans; however they are doing it differently.

This new form of disintermediation concerns mainly the job of a banker and also all the different kind of jobs in the world of finance. For instance, activities of retail banking, of payment, of management, of financing and of insurance are concerned.

In 2015, CB Insights Company highlighted that it is possible to do on the web or via fintech companies every function banks used to do, for either particular or professionals (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015).

Thousands of fintech companies are ready to disrupt the integrated value chain of banks by rethinking the different elements of the chain. The main goal of the fintech is to reform the financial sector by making sure they have a part of the market. In order to do so, they are using a bunch of weapons as new digital technologies, algorithms, studies of data, new commercial models that are more effective and more advantageous, simplified financial services, custom-made and adapted to the needs of a new generation equipped with smartphones and tablets.

Nevertheless fintech companies can be separated in two categories; the competitive ones and the collaborative ones. The competitive can be defined as straightforward competitors to traditional actors. The collaborative can be seen as companies wishing to help traditional

actors by improving their actual position in the market.

Investments in collaborative fintech companies are higher than the ones in the competitive fintech companies. In fact, investments in collaborative fintech companies have known an increase of 138% in 2015, representing almost half of the total fintech investments. This raise underlines that on both sides there is a wish to collaborate.

Even if investments in collaborative fintech is globally higher than in competitive, it is relevant to notice that it can vary from one market to another. Taking the example of the city of New York, the percentage of investments in collaborative fintech has increased by almost 50% from 2010 to 2015.

However it is not the case in the United Kingdom, where the regulation has favored fintech companies that wish to compete with traditional actors. In fact in the United Kingdom, it is the opposite, compared to the United States, 90% of the total investments in fintech is going to competitive ones.

The chart below highlights the differences in fintech investments allocation between market.

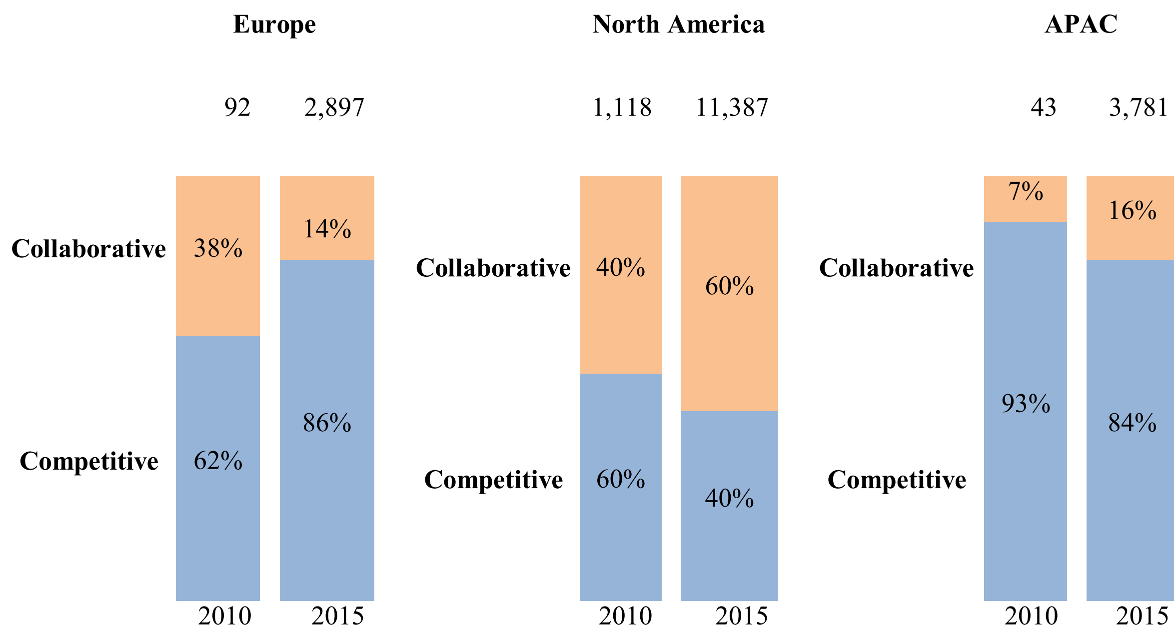


Figure 3: Collaborative Fintech Investment vs Competitive Fintech Investments, 2010 ($M)

Source 3: Accenture analysis on CB Insights Data

According to Urs Rohner, Chairman of Credit Suisse's Board of Directors, the collaboration is the most promising option. On both sides, there are advantages, on the first hand banks can reduce cost pressure and improve their efficiency of treatments and on the other hand fintech start-ups can maintain their activities on a long-term basis.

The enthusiasm towards fintech has been growing years after years and it is not going to stop for the moment. One interesting question would be what is making them so special?

#### 1.2.2 A different strategy from the traditional actors highlighting questions

The major difference is the relationship with clients; indeed clients' experience has been improving thanks to new technologies. The objectives of the fintech are to do differently and to do it cheaper than banks.

Their goals are not to create products but to propose a custom way of buying, relying on the clients' experience. Moreover they are differentiating themselves from traditional actors thanks to their simplicity, rapidity of execution and personalized process.

The business model of these fintech companies is completely different from banks. Indeed fintech companies heavily rely on the use of technology by levering data analytics. The development of data analytics has been possible thanks to the expansion of digital footprints, a better access and use of data (The Future of Finance, Part 3, Goldman, 2015).

Technologies are making changes possible, socials network (like Facebook), electronic and mobile applications permit fintech to offer a broader range of services. Particularly technologies have allowed customers using fintech to live a faster, easier and cheaper experience.

Additionally, fintech companies want to make services more accessible to customers. Taking the example of Yoyo Wallet, the Europe's fastest growing mobile wallet, its whole purpose is to “democratize” the mobile payment and loyalty services from businesses to customers.

The Yoyo wallet is based on the utilisation of a QR code, which let customers to scan their mobile at retailers in order to pay. In the United Kingdom, students from 40 universities use this application in campus' shops (Marketing week, February 2016).

In most cases fintech companies focus their activities on a single proposition, they offer only one product or service. It differs completely from large traditional actors, which offer a panel of products and services (A Paradigm Shift in Small Business Finance, World Economic Forum, 2015).

In fact more and more consumers and companies turn away from universal banks and go to individual specialists. For instance; in order to receive and transfer funds they use now the Internet or the mobile phone via fintech companies like Venmo or Stripe. In order to manage their personal finance they are going to use applications like e-Toro.

Even if there is comfort in the use of individual services it can also be seen as an inconvenient as users have to use several fintech in order to manage their whole monetary activities. However it does not seem to annoy customers, as they are used to have fragmented services on their smartphones.

The financial disintermediation is not only an increase in the competition between similar actors. The new model imposed by the fintech goes beyond digital innovations that banks should develop. It reconsiders the centralised model based on trust toward banks and states by creating a decentralised model where trust is based on the diversification of data (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015).

As explained before, new technologies have given to fintech start-ups the opportunity to enter in markets that were usually underserved by banks. Two major examples show how fintech fit into a breach.

The fintech has resolved for emerging countries the issue of cash. In China for instance, fintech start-ups have grown over the years and the country became a new place for some of the largest fintech companies in the world.

For instance, Alibaba the e-commerce company is one of the major fintech companies in the world (Kumar, 2014). In 2010, Alibaba created a micro-credit company called Alipay Financial. According to the ACCA (Association of Chartered Certified Accountants), Alibaba through its partnership with two banks (Commercial Bank of China and China Constructions Bank) is representing $2.1 billion of loans in China.

Indeed fintech's development in China has been supported by technological changes (Lee, 2014) and also China's government policy (Barberis, 2014).

Furthermore, in Africa, 80% of the population does not have a bank account, consequently they do not have a credit card nonetheless most of them have a mobile phone. This is also the case in Asian countries, according to the World Bank, across the world, 2 billion of people do not have a bank account and almost 50% of them are in Asia. Moreover credit card penetration rate is very low in developing countries compared to develop ones.
In Asian countries; like China, South Korea, Singapore, it goes from 2% to 50%. However the mobile penetration rate in Asian countries is high, 80% in India, 99% in Indonesia.

Fintech in emerging countries have focused on mobile applications. A mobile application is software developed to run on a mobile terminal (smartphones and touchpads). The application must be downloaded by the user to become usable from the mobile's operating system exactly like on a classic computer.

In Africa, mobiles became, thanks to the fintech a relevant tool of e-inclusion, permitting in the absence of banking infrastructures to receive or pay salaries. In Kenya, almost 75% of the population are paying their common life's invoices; electricity bills, tuition fees; via the application M-Pesa.

This application launched in 2007 is a mobile money system and one of the most successful applications in money transfer service. Thanks to their mobile phone, people with limited or restraint access to bank accounts have the possibility to send or receive money and even pay their bills.

The principle is simple, customers have to register to a registered agent; usually it is a mobile phone store. The customer is depositing cash against electronic money that they can send from their mobile phone. Once the customer has done its transactions, both parties are going to receive a SMS recapitulating the amount of the transactions and confirming it by entering a PIN number ensuring safety. If the counterparty wants to withdraw the money then he just has to go to a registered agent that will give him cash money.

Another example concerns the financing of SMEs (Small and Medium sized enterprises). A report made by FINECO of Paris EUROPLACE (2013) highlighted difficulties for the traditional model to finance the French economy. Indeed, the crisis of liquidity (2007-2008) and the crisis of the Sovereign debt in Europe (2009), have impacted as much banks as the European bond market. This showed the limitations of the financing model of the SMEs, depending almost exclusively on banks.
In this context, the SMEs have for first priority the diversification of their source of financing. Moreover, these companies are looking for solutions adapted to their needs in terms of accessibility to these financing (Lendix, 2015).

The fintech have given SMEs an alternative way to finance themselves. The main reasons for this are multiples. For traditional actors, financing SMEs needs more expertise compared to other consumers indeed it is seen as a complex and low scale financing and due to their small loan sizes it is also seen as too costly.

Actually, funding SMEs for banks or financial institutions requires a complex decision making process, for instance they need to collect a range of information in order to determine if they are going to be a “good” or “bad” applicants (John K. Ashton Kevin Keasey, 2003). Collecting information on the SMEs can be difficult and even impossible in cases of young SMEs.

Furthermore due to the enforcement of regulation, traditional actors have dropped the financing of SMEs even if they are seen as a dominant actor of economic activity in many developed and developing countries.

Finding appropriate funds for SMEs is critical for their success. The fintech companies have improved their access to funding by responding to their needs. Taking the example of alternative lenders, McKinsey & Company in 2013, made a research and showed that one third of the SMEs borrowers using marketplace-lending platform were persuade that they would not have been able to finance somewhere else.

Thanks to the marketplace-lending platform, it is easier for SMEs to have a loan and especially the process of getting it becomes uncomplicated. The SMEs can complete the loan application at its premises, no need to visit the company. Moreover SMEs do not have to complete hundreds of papers making the process more pleasant.

In 2014, according to a study made by the International Finance Corporation and McKinsey & Company, banks are lending to SME's across the world; approximately from $14 trillion to $18 trillion. Even if peer-to-peer platforms are still restrained in size, they are growing at a fast pace. Indeed a study made by Morgan Stanley (2015) predicts that by 2020 the global peer-to-peer lending market will increase by $150 to $490 billion.

Causes for the fintech's success are multiples, the rigidity of the traditional structure, the weight of the hierarchy, of the habits, of the culture of the risk free and the lack of decision- making by individuals. Traditional companies cannot adapt themselves as easily as these innovative companies (Revue Banque, September 2015).

In fact these fintech are benefiting from a flexible hierarchy, a capacity of taking risks and of reconsideration. It is important to keep in mind that the objectives of these fintech are not to avoid the law or regulation but to stand themselves outside of these constraints. If they are enable to avoid them they are going to choose a status that is less inconvenient or they are going to do partnership with existing licensing companies in order to use their different licenses.

All the new platforms know how to integrate the characteristics of clients in order to propose them tailor-made solutions. They are not a model "production-distribution" but a model "adaptation-distribution".

The first concern of the increase of the disintermediation is economic. Several questions are still unresolved, in ten years what will be the place of banks, financial companies and also the start-ups in the financing of this economy?

The second concern is the economic and fiscal sovereignty. Indeed the fiscal sovereignty has an increased risk of "Base Erosion and Profit Shifting". The BEPS is "a term used to describe tax planning strategies that rely on mismatches and gaps that exist between the tax rules of different jurisdictions, to minimize the corporation tax that is payable overall, by either making tax profits "disappear" or shift profits to low tax operations where there is little or no genuine activity.

The BEPS is used in the decentralized model of checking transaction of crypto-currencies and of new usages, which permits to develop new payment framework that are cheaper and more adapted to the needs of consumers. Nevertheless this new framework is unusable on a large scale and out of a country's control. A basic example is a company that decides to pay its employees through a payment framework that uses crypto-currencies, how would a government be going to debit taxes?

The financial industry is one of the most regulated industries. The future of the fintech and its possibility to take over the traditional actors heavily relies on the role of governments, regulators and international organizations.

However Fintech find themselves in an ultimate predicament. On one hand, fintech companies are developing a new model responding to the demand of customers and that is beneficial for them. On the other hand, regulators have to maintain their directives, which include, "financial stability, prudential regulation, conduct and fairness, competition and development".

One sound example of a country where the government and regulators have succeeded to establish a constructive path is the United Kingdom. Indeed the United Kingdom is the first financial centre of the world and over the years it became a relevant place for fintech companies wishing to evolve globally. As George Osborne, former Chancellor of the Exchequer, explained « I want the United Kingdom to lead the world in developing fintech. That's my ambition – short and sweet ».

The United Kingdom Trade & Investment (UKTI) has permitted a fruitful environment for fintech start-ups and entrepreneurs. In fact it is trying to bring more and more investments in the United Kingdom's fintech sector and it is helping United Kingdom's fintech in their desire to grow internationally (United Kingdom trade & Investments. 2014. EY, Landscaping UK Fintech).

Moreover the Financial Conduct Authority (FCA), the financial regulator in United Kingdom is the leader in figuring out the balance between the development of the fintech industry in United Kingdom and the maintenance of a competitive and stable banking industry.

Even if it is relevant for regulators and government to be supportive, fintech companies have to be committed to build a helpful environment. Indeed, concerning compliance, fintech companies should satisfy suitable standards. When they are doing so, it will allow them to avoid doing valuable modifications to their business model in the future and more importantly it will show to regulators their disposition to collaborate.

A sound example underlying that fintech companies should satisfy suitable standards is the marketplace lender Prosper. For almost two years, Prosper has issued loans in form of securities, which have breached different sections of the Securities Act. These sections concern the prohibition of offering or selling securities that are not registered.

In 2008, the SEC (Securities and Exchange Commission) has sent to Prosper a "cease and desist" letter requiring it to take actions and to register under the Security Act. Prosper has done it successfully and set a jurisprudence for other players.

Indeed taking marketplace lenders as an example, the increased in the volume of granted loan is a relevant indicator of the success of the fintech. Nevertheless this increase can also grow concerns from regulators concerning their credit quality. In order to reassure regulators, marketplace lenders should supply enough information to the regulators showing them that they have high quality portfolio.

Each country has a particular regulation regarding the fintech industry. However it would

be beneficial to have a more collaborative approach at the international level, this would permit to transmit consistent directives thanks to international forums such as the Basel Committee.

The development of the fintech companies also brings fears. For instance, a study made by the CFA institute underlines that the automated advised knows fears, mainly regarding default from the algorithm of automated advises (46%), the drift regarding errors in advises (30%) and data protection (12%).

Even if some people can be reluctant to fintech services, these are attracting billions of dollars and are also challenging banks.

# 2. The fintech companies' services. Are they a challenge to Banks?

## 2.1 New ways to fund ourselves

### 2.1.1 The crowdfunding, a participative approach

The crowdfunding is one of the most disrupting models that the Finance industry has known. Indeed it is changing the way things are funded, developed and raised.

The crowdfunding was born in the financing in the cultural environment, for artistic projects. In 1865, after the civil war in United States, Edouard de Laboulaye launched the idea to offer to the United States a statue representing the liberty. With Auguste Bartholdi, Edouard de Laboulaye created the Committee of the French-American Union. The objective of it was to raise funds in France for the financing of the Statue and in the United States for the base. This was the first crowdfunding project.

The crowdfunding is a purposeful financing alternative for people like artists, small businesses permitting them to come up over the years. The expansion of crowdfunding is seen as a relevant opportunity for inventive projects that would not necessary see the light without it.

Over the years, thanks to the emergence of Internet and the increase in the collaborative economy, crowdfunding has been evolving. At first it was a donation, charity and reward fundraising platform and then it became also an equity investment platform and lending platform.

Contrary to the crowdfunding origin, the two last forms of crowdfunding are submitted to restrictive legislation depending on the countries.

The crowdfunding consists of crowdfunding platforms (CFPS) based on the Internet. On a crowdfunding platform there are two actors, the funders and the fundraisers, the platform represents the link between them. Indeed many fundraisers are agreeing to put a particular amount of money in order to fund a specific campaign or project.

In order to be successful a project or campaign needs to have multiples funders, crowdfunding platforms are proposing one to many matching and not a one-to-one matching (Belleflamme P. et al., 2015). The motivation of funders can be dramatically different from one crowdfunding platform to another and so are the motivations of the fundraisers.

Crowdfunding platforms are relying on the network effects and the eWOM (electronic word of mouth). Thanks to these, there can be a "social buzz" enhancing the value of the platform though the increase of funders and campaigns. Indeed, Mollick (2014) underlined that the number of Facebook connection a fundraiser has, can be a sound gauge of the success of a fundraising.

This can be seen as a virtuous circle of growth because by leveraging social network they are appealing more funders and consequently more campaigns. This leverage is helping them to reach their fund objectives.

Through social networks, crowdfunding platforms have now an important social and economic impact. Thus crowdfunding enrolls into a trend of disintermediated exchanges via short cut with particulars while being professional.

Donation and charity fundraising platform give more transparency to customers on how and where they are going to use their money compared to large charity companies where customers can have trust issues.

The purpose of the donation and charity crowdfunding platform is to offer support to humanitarian campaigns or projects. Indeed this type of financing is similar to a crush financing; investors are seduced by the idea and decide to make their contribution. In this kind of platform, funders can be identifying as benefactor because it is based on voluntary donation, in fact funders will receive gratitude rather than returns on their investments.

An example of donation based crowdfunding platform is gofundme. This platform raises funds for specific campaigns or projects. On this platform, family or friends of the fundraisers can originate the project (Belleflamme et al., 2015). When people access the website suggestions appear relying on categories or geographic localisation and so on…

One evolution of the donation-based crowdfunding is the reward-based crowdfunding. In this type of platform donations give the right to a non-pecuniary remuneration. This model of financing has made the success of renowned platforms like Kickstarter in United States or Kisskissbankbank in France.

A sound example is the financing of the movie Veronica Mars by Kickstarter in 2014. At the beginning Veronica Mars was a TV show and not a movie with a strong fan base community. The film director, Rob Thomas was trying for years to create a movie based on this character and said that crowdfunding was his last chance. In four hours thanks to 90 000 donators, the crowdfunding for the film had already raised $1 million. The goal was $2 million and it had been reached in twelve hours. It ended at $5.8 million, almost triple the objective.

The prosperity of these two types of crowdfunding platforms relies on perfect matches between the aspects of the project and the funders' wishes.

Another type of crowdfunding is the equity crowdfunding; it is a financing concept in which entrepreneurs open their capital to particular investors ready to get involved not only

financially but also personally (Ahlers et al., 2015).

Consequently the equity crowdfunding allows companies to raise funds towards Internet users through digital platforms without passing by the traditional circuit of financing. The mechanism of the equity crowdfunding relies on the presence of three actors, the digital platform, the Internet users and the company supporting the project in search of investors in stockholders' equity.

Each actor has to satisfy a number of conditions fixed by the prescription and the decree. For instance, in France, the digital platform proposes unquoted shares to investors on Internet. The platform is in charge of controlling the project to be financed. In order to protect the Internet users, its activities are regulated under the status "active in participative investments" requiring the prior agreement of the Authority of Financial Markets (AMF).

Otherwise the company exploiting the digital platform will have the obligation to subscribe to professional liability insurance and to join an association approved by the AMF. Furthermore, the platform must comply with rules of good behavior in the delivery of advises that it gives to the Internet users in particular regarding warning risks and information about expenses and its remuneration. Internet users are able to register on the platform no matter where they are in the world.

For companies or start-ups supporting the project, in France, only limited company or simplified stock company have access to equity crowdfunding. More particularly for simplified stock company they have to comply with specific rules, publishing its accounts, conditions of modification of status and so on.

It is an important leverage permitting companies or start-ups whose size is too small to interest traditional actors of the private equity, to reach investors in stockholders' equity. This type of financing will help these companies, particularly during their early stage.

In order to say if a campaign or project fundraising is successful, most crowdfunding platforms have established a minimum and maximum threshold. If the funds have not attained the minimum threshold, funds are not going to fundraiser and the financing has

failed. However when the funds have attained the maximum threshold, in some cases no more funders are accepted and in other cases further funding are accepted until the deadline.

Crowdfunding platforms have at least different ways to make revenues. Earning interests on the money dedicated to the projects, handling payments fees and transactions fees depending on the successfulness of the campaign. According to Massolution, a consultancy firm, in 2014, several hundred active platforms in the world gathered $16,2 billion invested meaning an increase of 167% since 2012[30]. In 2015, Massolution predicted that the industry was going to double reaching $34,4 billion in few years.

In 2014, the increase in investments was due to be done in the Asian region. In fact the volumes of crowdfunding in Asia have incremented by 320%. According to crowdfunding volumes, the Asia region is now the second largest continent ($3.4 billion). The first largest region is North America, recollecting $ 9,46 billion, expanding by 145%.

According to crowdfunding category, it is relevant to underline that business and entrepreneurship are the main category gathering in 2014 $6.7 billion (41,3% of the total volume of crowfunding). After this category there are social causes, films arts and real estate.

Regarding the type of crowdfunding, equity and rewards crowdfunding are one that attracts most of the attention. However it is the crowd lending that leads the market ($11.08 billion in 2014).

### 2.1.2 Crowdlending and Peer-to-Peer platforms

Lending is a subsector of the fintech Industry. The crowdlending or peer-to-peer is another form of crowdfunding.

A study made by Santander Innoventures (2015) underlines that consumer lending and business lending represents 44% of the total investment in fintech companies.

Consumer lending can be represented by companies like Lending Club, SoFi and companies lending are OnDeck, MarketInvoice.

One definition of the peer-to-peer can be the process of lending money to individual (peers) without using traditional financial intermediary like banks (The Future of Fintech, World Economic Forum, 2015). The borrowers are using a web-based platform and are borrowing money from other platforms users (Rosenblum et al., 2015).

Mainly loans offered by peer-to-peer lenders are fixed-rate loans, term based with a maturity going from 36 to 60 months, completely amortized (the loan will be refund by the end of its term), sizes of loans are around $30K. Nevertheless it is possible for SMEs to have higher loans, for instance Kabbage is offering credit up-to $100K[31].

In these platforms, the lender, as for any kind of loan, refunds his loans to the borrower according to repayment schedule and a fixed interest rate. Private individuals, thanks to the crowdlending, are becoming bankers of the companies they are financing. The investors are looking for upstream-analysed project indicating the level of risk (Lendix, 2015).

The role of the lending platform does not stop here, unlike other types of crowdfunding platform; they have to handle the management of the loan and of its refund during its lifespan.

In fact, they have to handle, in addition to investments, the regular reimbursement of the borrowers and the distribution of this reimbursement to the different lenders. With the technologic evolution and the development of Internet, it has permitted to facilitate the management of financial flows.

At first, lending fintech were focusing on the business to customer segment (B2C). Nevertheless, over the years they have focused on the business-to-business segment (B2B).

In 2005, the first platform marketplace or peer-to-peer (P2P) has been launched. In fact, it exists various business model and huge estimated profit for the lending sector. Over the years it has grown into an international market.

As explained before fintech companies' goals in the lending sector is to fill the gaps left by banks.

There are five factors that make peer-to-peer lending platform a success. First of all, the most frequent form of peer-to-peer lending platform is unsecured loans as in this kind of platform customers do not need to have a collateral.

Secondly, market place lenders have a different way to fund themselves compared to the traditional actors. Indeed, they are looking for funds from retail or institutional investors, which have a high-risk appetite.

Thirdly, as said before, traditional actors have to comply with a high level of compliance, whereas market place lending platforms do not. For instance, they do not have capital requirement or they will have a KYC (Know your customer) process with fewer paperwork.

The fourth factor is that peer-to-peer platforms are using a new model to score credits. This new model relies on leveraging unusual data like business's rating on platforms, information on social networks like LinkedIn.

More precisely, it relies on a different model of risks' valuation, a semi-automated one. Market place lenders are above all technological actors the ones capable of quantifying the quality of credit's file by analyzing massive data. Furthermore these platforms are sharpening their risk instrument more regularly in order to consolidate it with factual analysis (The Future of Financial Services, World Economic Forum, 2015).

The use of massive data in the credit scoring is already a reality in the United States. For a loan to companies, fintech companies like OneDeck and Kabbage are doing an analysis of files, a mix of heterogeneous data issued from selling figures, elements of the balance sheet, and feedbacks from consumers on social networks. The analysis of data and their exploitation in real time is a key element for these platforms.

Finally, peer-to-peer platforms have a special business model which includes a lower task

force in order to approve the decision. They are relying on a "lean operational set-up" (The Future of Fintech, World Economic Forum, 2015), meaning that the process is backed up by automatic control technologies improving the speed of the process and limiting human implications.

The business model of the peer-to-peer lending platforms is diverging from one platform to another. In point of fact, a platform like Kabbage is going to take the credit risk by lending on its capital base. This model is the same as banks, the loan is funded through the deposit of the bank and they held the credit risk.

Nevertheless a renowned platform like Lending Club does differently. It is going to enhance the match between the two parties (borrowers and lenders) without the intervention of the traditional institution. In this system, lenders are taking the credit risk at their charge leaving the platform with no credit risk (The Future of Finance, Part 3, Goldman, 2015). Whereas a platform like Kabbage is going to take the credit risk by lending on its capital base.

Thank to market place platforms, the process of being granted a loan is easier and faster for a customer. In a few hours, a company can complete the application and does not need to visit his banker at the bank.

Usually banks are releasing the funds within two or three weeks even more in some cases nevertheless peer-to-peer platforms are taking seven days or even less. For instance, Funding Circus (previously Zencap) has the objective of giving an answer to the customer in 48 hours.

In that sense, a Chinese fintech Company has decided to add to its application (Tencent's WeChat, a smartphone messaging application) a personal loan element. This new feature will allow customers to borrow uncollateralized loans up to $31,350 and they will have an answer in less than one minute.[32]

Theses platforms have improved resulting in an improved lending experience of consumers, as it becomes simplified. This point is one of the major distinctions of peer-to-

peer platform. When the consumer provides primary information he will be able to see the interest rates that will apply to his loan in few minutes. Many platforms have put in place an online chat in order to provide a customer's service and also tools for lenders in order to supervise their portfolio (PWC, 2015).

In addition, it gives more transparency in processes and the risk profiles to parties, borrowers and lenders.

The chart below made by PWC in 2015 shows the P2P process.

Figure 4 : P2P Process

Source 4: PWC. 2015. Peer pressure, how peer-to-peer lending platforms are transforming the consumer lending industry.

The signature of the contract is made electronically and consequently consumers must agree to be bounded by its electronic signature and have to understand that its whole relationship will be based on electronic documents and notices (Rosenblum et al., 2015). In fact, market place platforms have to comply with the regulation that dictates the rules for secured online transaction and customer privacy.

Moreover, these platforms, in certain circumstances, have minor cost structure and they rely on data permitting them to calculate a precise price risk. Thanks to these, they are capable to do credit with lower interest rates. However, in 2015, a Goldman Sachs report points up that, in 2014, the platform OneDeck changed an average annual percentage rate on loans of 51,2%.

In order to set the interest rates, platforms like Proposer and LC (Lending Club) are using a "fixed rate loan model". This model has been chosen for its easiness. Investors are willing or not to invest in loans offered at a rate, which is imputed by platforms' algorithm. When the loan is completely funded, it is removed from the platform. The purpose for investors is to invest in modest proportion in various loans in order to benefit from diversification and consequently disseminate risks.

The P2P lending market has developed at a high speed in United States and in Europe. Thought its loan volume, United States is the biggest market. In 2014, thanks to a study made by PWC, the US P2P market has reached $5.5 billion, an increase of 84% since 2007. Europe is the second largest market reaching in 2014, $3,9 billion. In France, the SME's P2P loans has raised to $10.6 million, an increase of practically 4000%.
Fintech start-ups have open new possibilities to customers to fund themselves but also to use money differently.

## 2.2. New ways to use money

### 2.2.1 Fintech: a new way to make the world cashless

Through the evolution of technologies, a lot of innovation regarding the payment sector has appeared allowing customers to have a faster and easier experience with payments. Indeed most companies are leveraging mobile devices and connectedness (The Future of Financial services, World Economic Forum, 2015).

These innovations are going to make the world cashless or at least they are going to diminish the need of having cash. Moreover it does not only concern the cash payment but also the credit card payment. More and more payments permit customers to pay without using their credit card, for instance customers can upload directly their credit card to their mobile application.

The mobile or Internet payment or wallet is a kind of e-commerce characterizing financial service transactions through the use of mobile and Internet technologies (Wessels and

Drennan, 2010) and especially their networks such as Bluetooth, UMTS (Zarifopoulos and Economides, 2009).

When a customer is paying without using cash or credit card, he might forget the payments that he has done.

Over the past few years, innovation in the payment sector has been a success thanks to the simplicity of use, the possibility to use different credit card or bank accounts for different transactions and also it allows merchants to distribute value to their services.
A research made by AlixPartners underlines that the percentage of people using their mobile phone for doing money transactions have been increasing of 11% from 4Q2011 to 2Q2014. This percentage has particularly increased for the age group 18 to 25 (The Future of Finance, Part 3, Goldman, 2015).

Indeed social payment platforms exist. For instance the company Venmo, it is a peer-to-peer payment platform. With Venmo it is possible to send money to anyone using our Venmo account or via our bank account or our debit card. Moreover it is possible to contact friends and to talk with them. With Venmo, the customer has a safety, easy and free payment experience with its friends or other people. In fact it takes 5 clicks to send money via Venmo whereas with a traditional bank it would be 15 clicks (The Future of Finance, Part 3, Goldman, 2015).

The expansion of peer-to-peer payment platform is due to social networks like Facebook and also to referrals, indeed in order to promote the word-of-mouth, a bonus is given to referrals.

Moreover there is a progression of payment functionality in different applications. Using the application Uber, a car services company, as an example, it is possible to split the price of the Uber ride through our friends but also with unknown persons (using the application UberPool). This payment functionality allows users to restrict frictions thanks to the social interactions Uber can grow, a friend can ask another to download the application in order to use the service.

Another relevant example of a consumer application is OpenTable. It is a service for

restaurateur and public at large. The restaurateur is paying a monthly subscription in order to manage his reservation, but also his clientele and the disposition of his dining room. For the public at large, OpenTable allows it to find restaurants and book a table easily.

At the beginning, OpenTable was only in charge of the choice and the booking of the restaurant. In 2014, the application decided to extend its service by creating a mobile payment service called Pay Your Check. With this functionality, the user is able to have a look at his bill during the meal and at the end of the meal he has the possibility to pay the bill including taxes and tips. There are no fees for these transactions.

In fact, once the meal is finished the user, who has previously registered his credit or debit card in the application, only has to indicate the tip he desires to leave and swipe his finger at the bottom of the screen in order to pay. The user will receive a receipt by e-mail.

International money transfer is a desired sector for fintech companies. The Belgium cooperative SWIFT (Society for WorldWide Interbank Financial Telecommunication) counts 10 000 members in approximately 200 countries, of which 7000 banks. SWIFT permits banks to exchange automated and standardised financial information at a lower cost. This system still represents a relevant part of the International interbank payments between countries in need of foreign currency, whether payments to companies or individuals.

However this position has been hard to maintain since several years because the new technologies have considerably changed the expectations of final users of SWIFT and moreover they are used to see many of their demands to be completed almost instantly with a simple slide of the thumb on the screen of their smartphone, they no longer understand that sending money abroad takes 2 to 5 days, when it is not 10 days to some countries.

This period of time can be annoying for individual customers but problematic in the field of international trade. In 2016, it is not easy for a supplier to admit that his payment might take longer to cross the seas than the ships responsible for moving cargo.

Furthermore the final users of SWIFT are asking for more transparency in the rates in order to know exactly the amount the beneficiary will receive and they want a better traceability of transactions between their trigger and the moment where the account of the beneficiary is credited.

These new requirements from the users push the emergence of fintech companies like TransferWise. This company is focused on the international money transfer between individual customers nevertheless it is only a matter of time for it to go on the B2B segment. According to the global bank, the global market of international money transfer between individual customers should raise 636 billions of dollars in 2017.

In 2011, the concept of TransferWise was born; the concept is based on the exchange of currencies online between individual customers. In this system, the money does not go through the boundaries and TransferWise does not bear the cost of an agency network.

The start-up is authorised by the FCA (Financial Conduct Authority, British Financial Regulator) to charge its clients commissions up to nine times lower than the ones charged by banks. Four years after its creation, this fintech allows customers to send money in 36 different countries and displays 700 millions of transfer every month.

Another proof of the potential of TransferWise is the fact that among its shareholders there are investors like Xavier Niel (the director of Free), the billionaire Richard Branson or yet the US venture capital funds Andreessen Horowitz.

The payment sector is one of the most explored by the fintech industry. Indeed digital supports are allowing payments through different channels. The stake for the payment is its integration in this new environment with the necessity to favour the easiest utilisation while bringing the necessary level of security (André Cichowlas, 2015).

### 2.2.2 The block chain, a decentralized and coherent protocol of payment

The last few years have seen the emergence of what we can call digital or virtual money. This innovation came up from the private sector in 2009 thanks to a research made by

"Satoshi Nakamoto" (Jeffrey Simser , 2015) and no one knows for the moment where it will lead.

The block chain is getting out of the shadow gradually and suffer from the confusion that the press makes from it. Indeed the bitcoin is using the block chain technology conducting the jumble between block chain and bitcoin. However the bitcoin is crypto money and the block chain is the protocol on which relies the functioning of this crypto money.

This protocol is an open source, it can be traduced by "block chain" or more precisely "sequence blocks" and has two major characteristics: first it is a decentralized (as most of the protocol, its goal is to communicate between engines without using a centralized engine) and more over it is coherent.

The primary goal of the Bitcoin was to resolve a particular issue: how can we create reliable money that is decentralized? The solution brought by the Bitcoin has the merit of being innovative and the significance of this innovation can back up the primary goal (François R. Velde, 2015).

The fact that this protocol is decentralized and coherent means that instead of consolidating information in one single point that would be the central authority, all the information is available on each node of the network. It does not need any more an open central book in order to validate all the information. For instance, in the case of the bitcoin, all the transactions are recorded after having the confirmation of each node of the network (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015). It can be seen as a peer-to-peer system because the network links the users (Annette Nellen, 2015).

In fact a central authority is not needed anymore in order to ensure that there are not frauds or double expenses.

The Block chain is a protocol of communication, meaning that a number of rules have to be accepted and followed by users in order to send and receive data.

An easy way to explain how the protocol works is to use a basic example. Imagine Mr

Kervarec has Bitcoins managed by a portfolio software and he wants to give some to Mrs Faucheux. Mr Kervarec gives to his portfolio software the address of Mrs Faucheux. The software creates a message containing the address of Mr Kervarec, the one of Mrs Faucheux and the amount of the transaction and then it transmits all the information to the network.

Every node of the network receives the information and evaluates the validity of it. In particular it checks that Mr Kervarec is the owner of the Bitcoin by consulting the list of all transactions that went through the nodes. If the information is validated, the node is adding it to the memory zone and transmits it to the next node.

All information is spread to the entire network and is part of the collective memory of the network that contains all transactions waiting for approval.

The confirmation of the information is done through the network in which certain nodes are doing a mining activity. This activity consists of taking all transactions waiting for approval, putting them in a same block and adds this block to the list of the previous transactions.  Every node contains a copy of this list and updates it by adding a block. Nevertheless this block can be added to the previous one only if it has a particular characteristic. It must have in its header the solution of a mathematical problem.

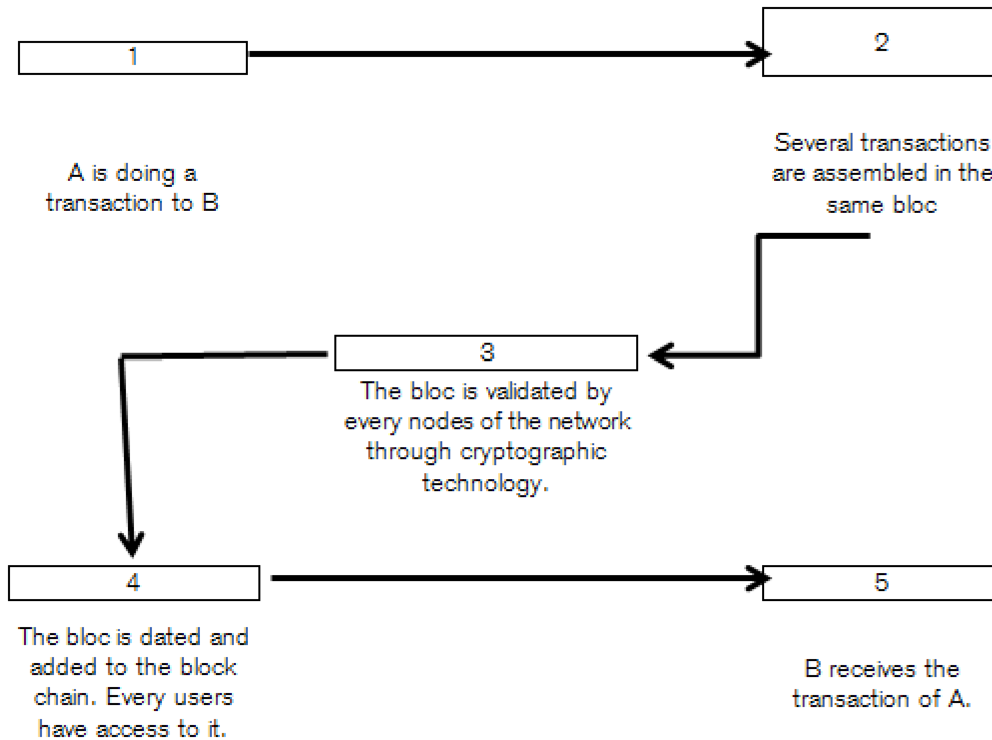


Figure 5 : Summary of the block chain process

The mining activity consists of looking for the solution of the mathematic problem and every node is able to do so. The mathematical problem is at the core of the protocol. It relies on a hashing function, a function containing a sequence of letters and figures x of an arbitrary length.

Every minor is trying to solve this mathematical problem and the first one that solves it tells it to the network. They can easily checks if the proposed solution is the right one and adds the block to the past block chain.

Two major aspects of the protocol are regulated the minors. First, the hashing’s condition changes every 2016 blocks. The new condition is adjusted according to the time needed in order to add these 2016 blocks.

Secondly the “wining minor”, the one that solves this issue wins a reward. This reward stays fix until 210,000 blocks had been added (it takes approximately 4 years), then it diminishes of 50%. The reward begun at 50 Bitcoins and is actually at 25 Bitcoins, in 2016

it is going to diminish once again. It will continue to diminish until the limit of the divisibility of the Bitcoin.

The mining activity is the only source of new Bitcoins, the total quantity of Bitcoins is going to grow more slowly and will approach but never reach the total of 21 million (Velde, 2015).

A sound example is the Apple Pay. In September 2014, Apple launched the Apple Pay permitting to users to pay with their credit card through contactless payment (the Near-Field Communication) of their iPhone 6 or their apple watch.

When they launched the product, Apple become partner with a range of brands in order to ensure the compatibility of the system, for instance Visa, MasterCard for credit or debit card emitter and also Sephora or Starbucks for big merchants.

To ensure the security of the system, Apple Pay uses the “tokenization”. This technology prevents from the theft of card number, as the iPhone does not transmit the card number but a token; that the merchant will communicate to the emitter of the credit card.

The card number will never be registered on the smartphone, as soon as the customer has used it for the first time, the card number will be replaced by the token system. This technology permits to Apple to distinguish itself from its competitors that are using the Near- Field Communication in order to send the card number. The “tokenization” does not exist in France for the moment, as the infrastructures are not totally settled.

Nowadays, the digitalized version of the credit card is an application on the iPhone, the presence of emitters is marginalized, when a client is paying via his iPhone, the intermediary of trust is more Apple Pay than Visa. As soon as Apple has created new ways of dematerialized payment with higher level of security as digital footprints, it becomes easier for Apple to convince clients to adopt these new systems of exchanges.

Another company that uses the block chain technology is Everledger. It uses the block chain in order to fight against the fraud in the luxury sector.

The first market that Everledger decided to attack was the diamond sector. Frauds in this sector represent at least $ 50 Bn by year to Insurance companies. Indeed it does not exist a reliable centralized data based permitting to track the origin diamonds and the follow up transactions (Croissance Plus, Fintech 2020: reprendre l'initiative, 2015).

This start-up proposes to use the block chain technology in order to build an open book of transactions that shows all information identifying correctly diamonds (the 4C's: clarity, color, cut and carat).

As a way of payment the Bitcoin has considerable advantages, indeed the payments are relatively fast, a transaction can be confirmed in an average of ten minutes. The payments are done from one person to another; there is no need of intermediary.

Nevertheless the utilization of the Bitcoin remains marginal and the demand for the Bitcoin is essentially speculative. Investors are betting on its potential success and a strong capital gain. Its exchange value towards official money (dollars or euros) fluctuates a lot and the sellers that accept the Bitcoins do no draw up their prices in Bitcoins.

Its use as a way of payment is limited for the moment; due to different facts. Risky as a store of value, unused as unit of account, the bitcoin is far from being money. Nevertheless, this protocol has been functioning for several years and has known big shifts and it may know even much more important ones in few years.

## 2.3 How banks are taking the challenge of the fintech?

### 2.3.1 Either the concept of Open innovation

The last few years have seen the increase of fintech companies attacking banks activities in order to disrupt the banking world and moreover going beyond the traditional system either in the financial world or in the global economy.

Now, banks have to react in order not to let these young companies nibble all their activities, until their remains the monopoly on the pure management of "the core banking

system"[6].

The start of the fintech has been slow nevertheless it is catching a part of the market. However the global consequences on the banking market can be considered for the moment as negligible as the impact cannot be well characterized even if the newspaper are talking a lot about this topic (Fintech 2,0 Paper).

The traditional actors are not condemned to disappear; they have important advantages compared to fintech start-ups; a brand name, higher financial means, well-trained staff and established relationship with clients. The key for a company, no matter its size, is to adapt itself to its environment.

Established financial services players are starting to take bold steps to engage with emerging innovations.

It is time for banks to change and to find innovations based on IoT ("Internet of Things"), data-driven, effortless payments and loans in order to provide new propositions to customers.

In addition, banks are doing lots of checks on a client's however they are made manually needing the physical presence of an employee for some steps, when it is possible for those to be automatized.

Banks have admitted that in order to be winners in the digital disturbance they need to deal with the heritage of the technology and to understand and maintain the new entrant of the market.

There are two ways for banks to be impacted by the digital disturbance. These two ways do not apply to all kind of banks; they still have the guidance of their futurity (Accenture, 2015, The Future of Fintech and Banking.)

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[6] Fredouelle, A. 2015. Comment les banques réagissent face à la vague fintech.

The first way is the fact that banks can be digitally disturbed. More and more banks are enrolled in a virtuous circle of regulation and reduction of costs. Due to this phenomenon, banks cannot compete with new entrants of the market acclimatized to the digital and which propose digitalized financial services and products. Banks are staying in “production-distribution” model instead of focusing on the customer experience in order to propose tailor-made solutions. In this way, banks believe that their model is the most effective one and that they will follow the tendency of the market and it will work.

In the second way, banks are digitally redesigned. Indeed their focal points are to make the customer’s experience easier, to collaborate with customers by proposing them a different business model. In the short term, it will have a substantial benefit for them however on the long-term it will be a need.

Indeed with this way, banks really understand the need for them to adapt to the digital age on the long-term; even it is a desire. The digital age has imposed a new framework and a new playground to banks. Step by step banks are analysing the possibilities of the digital, nowadays it is only the beginning of the overall impact that the digital will have in the future.

Overall, banks have to be open to the new environment around them. The concept of open innovation is at the core of the digital and technological revolutions. This concept for large companies means a process of “opening up the organization’s own intellectual property (IP), assets and expertise to outside innovators to help generate new ideas, change organizational culture, identify and attract new skills, and discover new areas for growth” (Accenture, 2015,The Future of Fintech and Banking).

This concept is attracting more and more established banks looking for an open path to innovation. In a survey made by Accenture, almost half of the interviewed banks said that they have already done some activities regarding the open innovation and the other half is going to do it in the next few years.

Nowadays it is more frequent for banks to create co-working and innovation center in the bank itself. Even if sometimes they are not dedicated to fintech start-ups, these general

places allow banks to be at the core of the ecosystem.

The incubator of start-ups created in the summer 2014 by Crédit Agricole is a relevant example, it is called the “Village, collaborate to innovate”. This new innovation center is designed to accompany approximately a hundred of start-up in various fields, like the energy, the environment, the accommodation, the health, digital services.

Through the incubator, the start-ups have access to a network of experts, workshops, training courses and conferences, as well as the possibility of sponsorship; partner companies already sponsor 75% of them (Debise, 2015).

The village is not dedicated to fintech’s start-ups, firstly because Crédit Agricole’s partners have to find its unique value in it, secondly because the bank is step by step turning into the digital and is looking for new ideas in order to transform each of its businesses and not only the ones of finance.

For instance, Crédit Agricole is working on different recruitment method with the start-up Coxibiz. This platform has been created in June 2014 and allows enterprises to choose their future employee through tests based on their competencies rather than on their curriculum vitae.

By using this tool, Crédit Agricole has developed the “Louise Tallerie” challenge, (corresponding to the name of the first managing woman of one of the Bank’s regional office), whose third edition was in February 2015. The applicants are female students doing either third year of Bachelor or in first year of Master.

In 2015, ninety “Louisettes” divided in twenty teams, have been working on a topic for the Group: “The digital innovation at the service of employees for a better performance of the Group. What project could you imagine?” Each team was accompanied by an expert in order to prepare an innovation project and to expose it to the Jury.

The “winning team” can win a personalized support for one year by a manager of the Group and proposal for internships or work-study contracts.

Co-working and innovation center are becoming common nevertheless accelerators are rare as banks are reluctant to take the plunge.

A sound example of a bank, which decides to take the plunge, is a French bank, BNP Paribas. It has tried to build a digital culture by proposing support services to fintech start-ups and by encouraging its employees to develop intern initiatives. Indeed the bank launched last November its own accelerator of fintech.

Four months after the selection of eight promising start-ups, the accelerator of fintech of the “Atelier BNP Paribas” is starting to bear fruits. Indeed the bank has showed the first result of its program willing to improve the customer’s experience and to develop new offers while simplifying the process. More than 50% of the fintech start-ups that BNP Paribas had supported had signed a contract with them. Some developments made by these fintech start-ups could enrich the bank’s offer in six months.

There is another example of a British bank, Barclays. Thanks to the partnership with the accelerator Technstars, it launched two programs dedicated to fintech start-ups in New York and London.

In the retail banking, there are plenty of banks that have decided to integrate this concept of open innovation. Nevertheless, the payment sector has also relevant examples, such as Mastercard that has been founded in 1966 by a group of banks in order to release interbank card payment.

The area that can have huge opportunities of open innovation is the Blockchain. In fact, this sector is pretty young and represents many opportunities for early players as it is a subversive way of payment (Accenture, 2015,The Future of Fintech and Banking).

2.3.2 Or collaborate, compete or invest

The essential themes for banks wishing to gain in power through new types of products, services and processes are the open innovation, the collaboration and the investment.

Indeed, fintech companies and banks have to make a choice, either compete against each other or collaborate in order to create something bigger with their both potential or invest in financial technologies. According to a study made by Santander (in collaboration with Innoventure, Oliver Wyman and Anthemis group), the collaboration is fundamental as it is based on the knowledge of two firms that can be complementary.

In fact, Mark Tluszcz , the CEO of Mangrove Capital, a venture capital firm, underlined that the fintech is going straight into the wall, for instance fintech companies targeting peer-to-peer loans market are too small and do not have the expertise to compete with banks. Moreover he says, “we underestimate the psychological barrier that stands in the case of transferring to another person the money earned by the sweat of his brow”[7]48.

Moreover a collaborative approach makes business sense as through the collaboration between both firms; the bank and the fintech start-up; is accelerating the innovation and is creating a more competitive market. According to a study made by A.T Kearney Survey, 25% is the expected percentage of revenue produced thanks to collaborative innovation (Collaborative Innovation Transforming Business, Driving Growth, World Economic Forum, 2015).

A model of collaboration approach relies on three main points; prepare, partner and pioneer. Prepare consists of choosing the right partner and preparing both companies (culturally and also employees). Partner can be defined as setting-up a partnership that is a win-win for both companies. Pioneer can be seen as the matter of regularly adapting common projects in order to always see for both parties the benefits of this collaboration.

Moreover the life of a start-up can be “hard”, indeed either it grows promptly and last for a long time or it dies. If a start-up collaborates with a bank it will have access rapidly to a huge amount of customers and demands. Notwithstanding, there are fintech targeted to become a Unicorn (meaning a company valuated at $1 billion).

[7] Moshinsky, B. 2016. *VENTURE CAPITALIST:* Fintech is about to go 'pear-shaped'. [online] Business Insider

Financial services companies have always been convenient to do partnership with others companies of the same industry. However, today, it has to go a step further as traditional financial companies have to collaborate with companies coming from different sectors in order to create value.

As a matter of fact, collaboration with fintech start-ups turns out to be very trendy. For example, the fintech Innovation Lab Model made by Accenture is pushing banks to collaborate and to support fintech start-ups that may complete their businesses.

It is relevant to notice that the approaches of collaboration can fail due to cultural differences; to the flexibility of start-ups and the heaviness of large organisations. Moreover in certain cases, large organisations do not succeed to capitalize on these experiences. The collaboration model is not going to give results if the actors wishing to do it are not well prepared.

The most important challenge in collaborating is to overcome the different culture and to adapt to the other company. Beside Accenture did a survey underlying that the organizational culture is the most important sector of banks' businesses that must be changed so banks and fintech start-ups can productively work.

In 2015, a bank named Wormser Frères decided to collaborate and to lend money to Lendix, a fintech start-up specialized in peer-to-peer loans. The bank was the first institutional moneylender of Lendix at the opening of the platform and decided to lend €5 million. It will invest in all the loans superior to € 40,000 in the same economic condition than private investors. Through this loan, the bank and the fintech will be able to share their experiences concerning the analysis of loans' risks.

Banks have the choice to collaborate but they can also invest in fintech companies. Venture investing has constantly been a relevant component of the start-up innovation model. Nowadays, traditional financial companies are catching this path in order to provoke innovations for their own businesses. Taking the example of American express or HSBC, they have developed during the last four years "corporate investment vehicles" with a minimum of $100 million to spend. Venture investment is one of the riskiest

investments.

Inventive start-ups and traditional financial firms are complementary in need, the start-ups have a relevant innovation potential but lack of capital whereas traditional financial firms have capital but have a deficiency in their capability to innovate.

There are few examples in France of banks that have decided to invest in fintech. The first one is Crédit Mutuel Arkea, indeed it is the most active bank in the fintech sector. It is renowned for investing directly in fintech start-ups, for instance Leetchi.com, a jackpot online, bought for € 50 million last September. Moreover the bank has set up support services for these fintech start-ups and took participations in funds that invest themselves in innovation.

A second example can be Société Générale, which is one of the leaders in financial innovation in France, with the creation in 1995 of Boursorama, an online bank. In March 2015, the bank bought the start-up Fiduceo, a specialist in Personal Finance Management (PFM). This operation allowed Boursorama to accelerate its development and to build the future banking relationship, either digital or tailor-made.

In fact, with Fiduceo, Boursorama has been able to propose a unique banking space in France, thanks to the richness of its functionalities and the accessibility regardless the terminal used. Boursorama’s clients can benefit from added-value services like the aggregation of external bank accounts and invoices, automatic categorization of expenses and a digital safe.

Marie Cheval, the CEO of Boursorama said “the acquisition of Fiduceo demonstrates the will of Boursorama to accelerate its development in capitalizing on the unique technological expertise of this fintech, to offer to our customers innovative features that will simplify their lives”.[51] This sentence underlines the return on investment that Boursorama obtained by acquiring the fintech Fiduceo.

More and more, large established banks have decided to launch banks that are 100% online. In 2013, BNP Paribas has launched Hello Bank, the first European mobile bank, 100% digital. Hello Bank operates in France, Belgium, Germany, Italy, and Austria, and

defines itself as a simple, smart, human and safe bank. The headline of Hello Bank on its website is: “Clear, effective, Hello Bank is available when you are, wherever you are »[8].

Hello Bank is based on its parent agency network. For instance, a customer of Hello Bank may deposit his checks in any branch of BNP Paribas, which is a real advantage. The fact that BNP Paribas is a renowned bank that has a strong bank image and an important network is crucial for Hello Bank as it can rely on it. Moreover for BNP Paribas it underlines that it has understood the needs of customers for digitalization, personalization of the service and a bank more closed to its customers.

Slowly banks are taking over challenges launched by fintech start-ups. The loss of market shares for banks will depend on their abilities to answer to the specific needs of their customers, to have a better transparency toward their consumers, their ability to adapt to their new technological environment and to choose the perfect business fit for them.

[8] Boursorama. 2015. Boursorama acquiert la FinTech Fiduceo et renforce son leadership dans l'offre de banque en ligne.

# Conclusion

The first apparition of the fintech was in 1950's nevertheless with the 2007-2008 crisis it has expanded on a proportion never seen before. This expansion has been driven by technological innovation, consumer's shifts, higher level of regulation for established financial companies. All together a breach has been open-up and fintech companies have decided to take it. Over the years, the appetite for fintech start-ups has pushed investors to invest billions in numerous fintech start-ups but also accelerators, incubators in order to find the one that could be the "big winner".

The fintech start-ups have attracted a lot of attention from investors thanks to their completely different business model, focused on a single product or offer and dedicated to customers' needs. Even if technological innovations in financial services and products have been welcomed in overall it has also brought concerns to regulators that have the obligation to regulate the financial environment.

The fintech start-ups have attacked not only many jobs of the banks by bringing new ways to fund ourselves and to use money. Moreover they have challenged the business model and the attitude of banks. Through all of that fintech have revolutionized the Finance Industry.

Banks have three different ways to take over the challenge, either do open innovation or collaborate or invest, some of the banks did it with success. According to the point of view that a person takes on the fintech, he will have different thoughts. Media are making a lot of noise regarding fintech and the possibility for its expansion, although these startups are dusting operation modes, banks still retain a largely dominant position, sometimes overwhelming

The expansion of the fintech has been fast over the last decades and has revolutionized the finance industry, consequently the expected growth could be even more important in the next few years, and this could be a subject for a future thesis.

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