Department of Economics and Finance
Master Thesis in Equity Markets and Alternative Investments

# *"Recent transactions analysis of investors' appetite for FinTech and payments companies"*


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## Introduction

Recently "*Fintech"* has become one of the most searched words on internet, and it is common to have heard about this new phenomenon on newspapers, websites, and financial articles.

In the last few years, Fintech has started diffusing at a high speed, capturing the attention of policy makers, market participants, industries and consumers, by performing a real revolution in the way in which financial services are being provided and completely reshaping the financial industry status quo.

The First Chapter of this thesis will provide a general overview of the Fintech landscape, by describing the origin and history of the phenomenon, the value chain areas in which the Fintech Firms operates and by analyzing the increasing competition that these new firms (*the new entrants*) are creating with the traditional financial intermediaries (*the incumbents).*

The Second Chapter focuses on the sector most affected by the Fintech revolution: the payment services industry. The diffusion of e-commerce and new technologies has led to an increase in card penetration worldwide and to the born of alternative payments methods, translating into a strong growth in the payments industry worldwide.

The Fintech revolution reflected also in the Equity Capital Markets: from 2010 to 2019 Fintech and Payments issuance volumes worldwide grew at a compounded annual growth rate of ca. 35%, reaching in 2015 unprecedented record volumes of $18.7 billion globally.

The Third Chapter aims at analyzing the performance of a group of EU and US Fintech companies active in the payments landscape, in order to examine the post - Initial Public Offering (IPO) performances of companies operating within the Fintech sector.

Hence, the research question of this thesis is to evaluate the post-IPO aftermarket performance and the behavior of the payment companies' stocks in the short-medium term, in order to assess the investors' appetite for Fintech and payments sector.

At the end of the last chapter, a section is dedicated to the case of Nexi S.p.A., the Italian company leader in the domestic payment landscape, which listed on the Italian exchange (Borsa Italiana S.p.A.) in April 2019, representing the Europe's largest IPO of the year.

# Chapter 1 - The Fintech (R)evolution

## 1.1 Fintech: definition

The word Fintech comes from the union of Finance and Technology and refers to the provision of financial services, payment services, investment services, consulting and financial products through the most advanced information technologies (IT). Briefly one can say that Fintech describes the innovation sector that improves the financial services by means of technology.

Whilst being, in the recent periods, one of the most searched words on internet, there is still no academic consensus on a common definition of Fintech and the word does not assume a delimitated operational meaning. Indeed, in a broader sense Fintech can be defined as *everything* that is technology applied to Finance; moreover, the terminology commonly used indicates, in an indistinct manner, a set of companies that share the development of activities based on new information and digital technologies, which are applied in the financial sector.
In this sense, the definition of Fintech encompasses extremely heterogeneous firms in relation to the type of services offered: only a few actually offer financial intermediation services (exclusively or in addition to other types of activities), while others only offer functional or instrumental services to financial intermediation.[1]

The Financial Stability Board gives a more precise and detailed definition of Fintech as "*technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services*". [2]

In this view, Fintech is seen as a "horizontal" phenomenon within the financial services sector which encompasses different products and activities (such as peer-to-peer lendings,

[1] Schena, C., et al. "Prefazione alla collana dedicata al FinTech." (2018); "Lo sviluppo del FinTech. Opportunità e rischi per l'industria finanziaria nell'era digitale." Schena, C., Tanda, A., Arlotta, C., Potenz., G.
[2] Financial Stability Implications from FinTech, Sup. and Reg. Issues that Merit Authorities' Attention, 27 June 2017.

payments, crowdfunding etc.) and which is developing in the broader context of the *digital economy*.

Hence Fintech firms do not represent a 'new industry' nor a financial service but a way of providing financial services by innovating others: Fintech is a component of the financial industry that is questioning the traditional business models used by the financial intermediaries' subject to regulation (*incumbents*). [3]

On another perspective, more often the term refers to a *revolutionary* concept in the sense of providing innovative services and new business models for the financial industry that did not exist before.

In this sense, technological innovation is considered by many to be even a disruptive factor for the traditional financial industry, since in the last period the development of new technologies to improve financial services has started accelerating at a remarkable rate reshaping the industry's status quo.

Different other definitions have the aim to highlight its disruptive nature; for instance, PwC in his "Global Fintech Report" defines: "*Fintech is a dynamic segment at the intersection of the financial services and technology sectors where technology-focused start-ups and new market entrants innovate the products and services currently provided by the traditional financial services industry*".[4]

## 1.2 Origins and brief history of Fintech evolution

Whilst being a phenomenon that has captured the attention of policy makers, market participants, industries and consumers, especially from 2014 on, the concept is not of recent born.

Interestingly, heading back to the origin of the word Fintech, this can be traced back in early 1990s, when Citigroup initiated a project named the "Financial Services Technology Consortium" to facilitate technological cooperation efforts[5].

Hence the merger between Finance and technology has a long history and one can identify in the introduction by Barclays Bank, in London, of the Automatic Teller Machine (ATM)

[3] Schena, C., et al. "Prefazione alla collana dedicata al FinTech." (2018); "Lo sviluppo del FinTech. Opportunità e rischi per l'industria finanziaria nell'era digitale." *Schena, C., Tanda, A., Arlotta, C., Potenz., G.*

[4] PwC, Global Fintech Report, "How Fintech is Shaping Financial Services" (2016), https://www.pwc.com/il/en/home/assets/pwc_fintech_global_report.pdf.

[5] Marc Hochstein, Fintech (the Word, That Is) Evolves, AMERICAN BANKER (Oct. 5, 2015), http://www.americanbanker.com/bankthink/fintech-the-word-that-is-evolves-1077098-1.html.

in 1967 the beginning of modern evolution of Fintech; from that moment through 1987, the development of digital technology for communication and processing of transactions let financial services pass from an analogue into a digital industry.[6]

Hence we can say that technology has always played a central role in the financial landscape and the financial sector has always been an early adopter of innovative technologies. Since the introduction of the ATM, which allowed people to withdraw outside working hours and prevent visits to the banks, a lot of automated services such as second generation ATMs, cards, online services had been introduced in response to consumers' demand for immediacy and efficiency.[7]

In the 1970s with the establishment of NASDAQ in the US, there has been the transition from physical trading to today's electronic stock trading on exchange trading floors; in the 1990s Fintech has lived a strong acceleration with the internet and mobile era and the result was the introduction of online stock brokerage websites aimed at retail investors, replacing the phone-driven retail stock brokering model.[8]

During this period, the sector was primarily dominated by the traditional regulated financial services industry, while after 2008 new start-ups and established technology companies have begun to deliver financial products and services directly to businesses and the general public. [9]

The Global Financial Crisis of 2008 represents a turning point since Fintech has started evolving into a new paradigm as it is today: the Financial Crisis allowed financial technology to take over and starting from that moment many users understood the slowness of the classic banking system and the speed instead of the Fintech sector.[10]
The crisis indeed had an impact first on the general public which developed a distrust in the traditional banking system, and secondly on financial professional who lost their jobs

[6] Arner, Douglas W., Janos Barberis, and Ross P. Buckley. "The evolution of Fintech: A new post-crisis paradigm." Georgetown Journal of International Law, vol. 47(4),: 1271-1320. (2015)
[7] Panetta F. (2018), Fintech and banking: today and tomorrow, Harvard Law School Bicentennial, Annual Reunion of the Harvard Law School Association of Europe, 12 May.
[8] Desai F., "The Evolution of Fintech", Forbes,
https://www.forbes.com/sites/falgunidesai/2015/12/13/the-evolution-of-fintech/
[9] Arner, Douglas W., Janos Barberis, and Ross P. Buckley. "The evolution of Fintech: A new post-crisis paradigm." Georgetown Journal of International Law, vol. 47(4),: 1271-1320. (2015)
[10] Caparello A., "Fintech: cos'è e definizione", Wall Street Italia,
https://www.wallstreetitalia.com/fintech-cose-e-definizione/.

and found a new one in the financial technology industry. In addition, the new generation of highly educated fresh graduates, who were facing difficulties to find a job after the crisis, were more able to deal with financial markets, thanks to their educations, and could well apply their skills in the new Fintech era.[11]

### 1.3 Value Chain Areas

The term Fintech is not confined to a specific sector or business model but it covers different areas of development such as banking, asset management, insurance and financial education.

But who are the "Fintechs"? The *new entrants*, firms not subject to regulation, basically offer all types of financial services, entering in competition with the *incumbents*, i.e. traditional financial intermediaries within the regulatory framework.

First of all, given the variety of *new entrants* which characterize the sector, it is possible to provide a first classification, originally made by Zetzsche et al. (2017), by distinguishing the new operators in two categories:

- The Fintech firms (*Financial Technologies* companies), which are born with the aim of providing exclusively financial services;
- The TechFin firms, which are companies originally born in the technology and e-commerce sector but have subsequently developed instrumental activities for financial services;[12]

Hence the new actors in the Fintech landscape are not only small *start-ups*, but also global Big-Techs such as Google, Apple, Facebook, Amazon, Alibaba, which are Tech firms that have started to expand their businesses in financial technologies services.
The difference between the two categories is that the TechFin represent a bigger threat for the *incumbents*, especially banks, due to their competitive advantages.[13]

[11] Arner, Douglas W., Janos Barberis, and Ross P. Buckley. "The evolution of Fintech: A new post-crisis paradigm." Georgetown Journal of International Law, vol. 47(4),: 1271-1320. (2015)
[12] Zetzsche, Dirk and Buckley, Ross and Arner, Douglas and Barberis, Janos, SSRN Electronic Journal "From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance" (2017).
[13] Panetta F. (2018), Fintech and banking: today and tomorrow, Harvard Law School Bicentennial, Annual Reunion of the Harvard Law School Association of Europe, 12 May.

Indeed, the TechFins, with respect to the Fintech, which are often new born, have the advantage of possessing a consolidated customers' base deriving from their preexisting activities of non-financial nature, and can exploit the acquired customer-specific information to provide financial services.[14]

The areas in which these firms operate are different; the Financial Stability Board organizes Fintech activities in five broad categories:

- payments, clearing and settlement;
- deposit, lending and capital raising;
- insurance;
- investment management;
- market support.

*Figure 1 – Value Chain Areas*


*Source: Personal processing*

Now let's analyze the fundamental elements from the value chain areas.

- *Crowfunding:* this term indicates the financial support that is given by a group of

[14] Schena, C., et al. "Prefazione alla collana dedicata al FinTech." (2018); "Lo sviluppo del FinTech. Opportunità e rischi per l'industria finanziaria nell'era digitale." *Schena, C., Tanda, A., Arlotta, C., Potenz., G.*

people to a specific project. Generally, this type of investment goes to finance start-ups in which the investor hopes to make a profit in the long run. In this context, however, there are also numerous "non-repayable" activities whose ultimate goal is to finance charitable or public utility activities.
Crowdfunding is consequently considered a branch of alternative finance, this because for the realization of a specific project we try to disintermediate some of the traditional actors such as banks.

- *Peer-to-peer lending:* the Peer-to-Peer Lending (P2P Lending) or Social lending is a form of crowdfunding based on peer loan through an online platform managed by professional operators. It was born in 2005 in the United Kingdom when the founders of Egg (British online bank) had the idea of disintermediate the loan disbursement process by opening the website *Zopa* (acronym of Zone of Possible Agreement), the first virtual platform for direct lending between private.
After the success of Zopa, the phenomenon then spread throughout the world, partly modified and extended in its operational modalities, opening up for example to business financing (business lending).
In its essential form, however, P2P Lending is a personal loan between private individuals carried out without the intervention of a financial intermediary since the meeting between demand and supply of financing takes place exclusively through the virtual platform and at particularly advantageous conditions as the structure costs and intermediation are greatly reduced if not even canceled.
The cutting of intermediation costs was one of the strengths for the diffusion of P2P Lending, since on the one hand it allows those who lend money to receive a higher interest rate than either the one proposed by traditional financial intermediaries or that obtainable from the investment in bonds or savings deposits; on the other hand, it allows borrowers to pay a significantly lower interest rate than traditional consumer credit rates.
The characteristic that clearly distinguishes P2P Lending from other forms of crowdfunding is that loans disbursed through social lending platforms do not constitute finalized loans since the lender's interest is exclusively linked to obtaining a remuneration for the money lent to regardless of the purpose for which the loan was requested.

- *Electronic tools and mobile payments:* Among the financial activities most subjected to the changes generated by the technological evolution are the payment services. Since the

1980s, thanks to the development of electronics and its use in financial activities, a real revolution has begun in the payment services sector, with a gradual transition from payment services mainly based on paper instruments to methodologies of capital transfer based on electronics.
These electronic instruments were generally defined as EFTS (Electronic Fund Transfer Systems) and regarded as the fourth generation of payment methods succeeding legal tender, bank securities and credit cards.
In the following years the technological progress of the digital age and the continuous development of telecommunications have led to the birth of even more innovative and sophisticated services and products such as: electronic money, payment methods that can be used to purchase goods and services online, use of credit cards in contactless mode, the possibility of making payments via mobile phone and other mobile devices. It is precisely that of mobile payments, probably the most recent innovation in the field of payment services, given their very high growth rate due mostly to the widespread use of smartphones and other mobile devices.

M-payments can be configured as: *remote payments*, usually performed via the internet or with premium rate SMS services and charged to the payer by the mobile telephone operator; *proximity payments*, generally performed directly at the point of sale and based on NFC technology that allows you to recognize the phone when approached to a special reader.

Among the most important applications in the area of m-payments we include the so-called electronic wallets (digital wallets), which replace the actual wallets and physical cards.
Digital wallets allow you to transfer money between payment accounts for the purchase of goods and services and to make payments by debit on the cards or accounts connected to the service, without communicating the data relating to the payer to third parties (for the execution of the payment in fact it is sufficient to log in, without having to enter your credit card details).
Digital wallets bring considerable advantages to the payment services sector, as they allow for faster transactions and reduced costs, thus boosting economic activity. Furthermore, e-wallets (as in general all m-payments) have contributed significantly to financial inclusion, as they allow access to financial services also to those sections of the population that are not in possession of a bank account or residents in countries where the financial system is

not particularly developed.

- *Big data management in Fintech:* Among the main FinTech innovations is iincluded the so-called Big data, that is the new sector of information technology dedicated to the management of large databases.

In particular, the European Commission has defined Big data as those situations characterized by a considerable volume of different types of data produced by different types of sources, at very high speed, often in real time, thanks to the use of IT technologies.

The concept of Big data does not only refer to the data itself but also and above all to their re-elaboration through sophisticated techniques and the results of their analysis. In particular, the most important factor that characterizes Big data is the predictive one, namely the possibility, through a very large number of different data, to catalog and profile users according to an almost unlimited typological differentiation.

The Big data Analysis unlike other analysis systems, which allow to find an answer to a specific question, allows to find through special algorithms statistical relationships within a dataset in order to identify regularities on the basis of which to base useful models to develop a decision-making process.

The algorithm is among other things capable of identifying and improving the categories and factors of interest for the decision-making process based on the data that are from time to time analyzed[15], without the need for programmer intervention.

- *Digital or crypto currencies:* It is a type of currency available exclusively in digital format, not in physical format such as banknotes or coins. Obviously, being a payment system, it retains many of the functions of physical currencies, however electronic currencies allow their users to make instant transactions, also allowing transfers to any part of the world to any person who is equipped to receive that currency.

The most famous example of digital currency is the Bitcoin, which can be stored in Wallet online or in Ledger keys specifically created to contain cryptocurrencies.

Another peculiarity of digital currencies is that they can be both centralized and decentralized; in the first case they will therefore be controlled by a central authority, in the second case all transactions will be recorded in the ledger by Blockchain technology (a topic that will be dealt

[15] P. Domingos, "A Useful Things to Know about Machine Learning", 2012

with later in more detail).

- *Regtech*

In addition to these activities the digitalization of the economy has made necessary also a new type of regulation services known as *Regtech*.

RegTech is a contraction of the terms ‘regulatory’ and ‘technology’, and describes the use of technology, particularly information technology (‘IT’), in the context of regulation, monitoring, reporting and compliance.

RegTech can help operators correctly manage compliance and efficiently automate reporting operations. Further implementations of regulation technology refer to the use of artificial intelligence to quickly and automatically understand any new regulatory aspects.

Finally, a further aspect of regulation technology refers to the rationalization of controls, i.e. to determine if it is possible, through a single control operation, to respond to more regulations that would require multiple controls.

The emergence of regulation technology can be attributed to some drivers (Arner et al. 2016): increase in regulatory weight and additional data requested by supervisory bodies after the financial crisis; developments in the analysis of big data through artificial intelligence and machine learning; economic incentives for operators to minimize compliance costs and the tendency of regulators to improve the efficiency of supervisory tools.

In these new regulatory approaches, a fundamental element is to test some aspects of regulation technology before an innovative tool is actually used.

In this regard, several authors claim that sandboxes, or separate testing environments, are needed to test new implementations of RegTech in parallel with the operator's daily operations.

Finally, in parallel with RegTech, the use of new technological applications by supervisory authorities is called SupTech, supervisory technology.

The difference between regulation and supervisory technology refers to the fact that the latter does not focus on assistance in compliance with laws and regulations, but is focused on supporting supervisory authorities in assessing this compliance (Bank for International

Settlements[16], August 2017).

The RegTechs are characterized by 4 basic characteristics:

- *Agility* - the goal is to "easily" organize and make sense of the amount of data available to companies;
- *Rapidity* - reporting generation and configuration in short times;
- *Integration* - the solutions offered have a high degree of integration with company systems, allowing for short implementation times;
- *Ability to analyze* - use of sophisticated analytics engines to process big data and develop its potential, also favoring a re-use of the same data for more analysis / objectives.

RegTech companies support the operators of the Finance world in Regulatory Management activities. The goal is to create standardized processes, tailored to the bank or insurance company: RegTech exploit innovative approaches and technologies starting from artificial intelligence, big data analysis engines, robotics process automation solutions, integrated applications and aligned with regulatory standards, in order to facilitate the efficiency of processes and a reduction in the execution times of the same. The solutions offered by these entities allow rapid adaptations to regulatory standards, and offer Banks and Insurance companies the possibility of rapidly, simplified and automated processing of the answers to be presented to the competent regulatory bodies (Central and Local) which, more and more often, require reporting and reporting activities at short intervals.

- *InsurTech*

The neologism identifies practically everything that is technological innovation in the insurance field: software, applications, start-ups, products, services. Borrowed from the term FinTech that belongs to the most properly banking world, InsurTech is also considered a child of this and is therefore very similar both to the impact it is producing on traditional companies in the sector and to the fundamentals and specific technologies (Blockchain, roboadvice, P2P, etc.) on which it is based, both for the speed with which it is affirming.

[16] The Bank for International Settlements (BIS) is an international organization with its registered office in Basel, Switzerland. Founded in 1930 in implementation of the Young Plan, it is the oldest international financial institution

The term comes from the merger between the words insurance and technology as it is, in fact, the meeting and the synthesis between these two worlds, the insurance one and the one of digital technologies.

Like banks, insurance has been one of the industries slower in adapting to digitalisation and in seizing the opportunities offered by this type of transformation.

*CBInsights*, a consulting and reporting company that has been following InsurTech for a long time, goes back in time until 2011 in identifying the first investments in the sector, but it is in 2015 that the real boom takes place internationally. What characterized the last two years in InsurTech was also the fact that, in different ways, traditional companies have finally begun to approach this world, to collaborate with InsurTech start-ups, often to finance them with their own funds venture capital firms or to acquire them. In addition, innovation labs, acceleration programs, incubators and events dedicated to this specific sector have arisen in recent years.

The digital transformation has allowed the insurance sector to implement solutions that allow greater transparency between the insured and the insurer, being able to lower the information asymmetries that characterize this type of business. Indeed, there are some innovations that are changing the way information and services are provided between the parties to the insurance contract.

Many applications that use big data are looking to improve the pricing of contracts by exploiting the value of information. These tools allow the transmission of driving data to the insurer, allowing the insurer to be able to control the behavior of the insured and further differentiate the prices of car insurance. As a result, low-risk consumers could benefit from easier pricing, as sensor data would confirm their low risk profile and consequently correspond to lower insurance premiums. Therefore, the technology is transforming the way in which the risk assessment is carried out by insurance companies, allowing a more personalized assessment of insurance products, as well as covering the tailor-made risks that were previously defined as uninsurable. At the same time, these technologies can have the effect of excluding high-risk consumers so far covered by the insurance market by making the premiums inaccessible if they reveal their substantially higher risk profile.

It should be borne in mind, however, that technological innovations contain critical points given their direct impact on people's daily lives, in fact they could reduce customer privacy and potentially endanger the protection of personal data with consequent repercussions on the stability of the sector insurance company itself.

- *Blockchain*

The Blockchain is the technology that regulates the operation of the most widespread and famous virtual currency, namely Bitcoin. The purpose of the Blockchain is to allow the safe and real-time exchange of virtual currency between multiple parties without the need for the transaction to be validated by a central authority.

The dominant principle underlying the Blockchain is in fact the elimination of the so-called middleman [17], that is to say those subjects that validate certain transactions, exchanges and registers at central level.

The Blockchain makes it possible to replace these subjects with a consensus mechanism based on cryptography that allows all network participants to trust the legitimacy of a transaction without the need for its validation by a central entity of a public nature.

In practice, the Blockchain consists of a distributed database, shared and based on cryptography, which serves as an irreversible and incorruptible register of information and stored data, not on a single computer, but on multiple machines linked together, called nodes.

The fundamental units of the Blockchain are the so-called blocks, each of which contains: a series of information related to a certain number of transactions; a link to the previous block in the block chain; the answer to a complex mathematical question used to validate and confirm the data contained in the block itself.

In particular, in order to validate a transaction within the Blockchain and then to add a new block to it, a consent mechanism is used, called Proof-of-Work. This means that certain computers within the network (the so-called miners) solve, as already mentioned, complex mathematical queries, while other network nodes verify that the solution offered does not correspond to another previous transaction within the chain of blocks.

The validation of the operations in the Blockchain occurs through an electronic signature system created through a specific hash function, which encloses all the transactions contained in a block in a single and immutable data string.

Finally, a copy of the entire chain of blocks is stored in all the computers on the network, which are periodically synchronized so that each of them has the same distributed register.

In the initial phase of the development of the Blockchain the miners were mostly single developers; currently we talk instead of groups of developers or real specialized companies since the growing success of Bitcoins worldwide has led in recent years to an ever greater

[17] Vinay Gupta, "The Promise of Blockchain Is a World Without Middlemen", 2017

complexity of the mathematical questions proposed to add blocks to the chain; this has led to an exponential increase in the computing power of the computers required for this operation.

Miners are encouraged to add blocks to the chain and then invest in computing power through a Bitcoin reward.

Some developers are exploring an alternative consent system to the Proof-of-Work in order to optimize the energy needed to add new blocks to the chain and to increase the level of transaction security.

This alternative system defined as Proof-of-Stake, unlike the Proof-of-Work, is not based on the resolution of mathematical questions but on different mechanisms based on the principle that each user of the block chain must demonstrate the possession of a certain amount of cryptocurrency.

The Blockchain will represent the technological infrastructure at the base of the fourth industrial revolution, as it allows to create, alongside an information network (internet), a network for the exchange of value and represents a functional tool for dialogue and integration of the systems of artificial intelligence and Internet-of-Things, destined to make profound economic and social changes to the current reality.

The Blockchain involves the replacement of certification and value exchange systems governed by central authorities, with decentralized systems, within which each member of the network can potentially validate a given exchange or status, using a technology that ensures compliance of some basic conditions

And it is precisely the elimination of the middleman (in fact the fundamental premise of the Blockchain) that from the legal point of view, represents the main critical point of this case, since it raises a relevant question, namely whether it can be sufficient to rely on technology, excluding the intervention of a central control authority.

All to ensure that the data entered in the distributed register are truthful and correct and that, as such, can have legal recognition and be binding for the participants in the register and not only.

This question can be answered in the affirmative on the basis of the characteristics of the Blockchain itself, which in effect make it a safe technology. These features are:

- *Reliability.* Since the Blockchain is a decentralized network, each member of the same can exercise a part of the control over the information and values kept and exchanged

but nobody can be able to modify or corrupt the network as a whole.
Therefore any attacks on one of the blocks of the chain will never be able to affect the full operation of the other blocks of the same. In this respect, the Blockchain is therefore safe and suitable for its structure, to solve some traditional problems related to network security. At the same time it proposes new challenges regarding, for example, the possible attacks on the consensus system used (consensus hijacking) which will require appropriate technological and regulatory interventions. Full transparency of exchanges.
All the transactions carried out on the Blockchain are visible to the participants of the network but at the same time the latter are assured anonymity, thus responding, at a juridical level, both to the need to ensure the privacy of network participants and to the need to guarantee the compliance with transparency rules, which are indispensable in sensitive sectors such as, for example, financial services.

- *The solidity and irrevocability of transactions.* The information and exchanges entered in the Blockchain cannot in fact be modified and are irrevocable, since once inserted a block in the chain this can no longer be removed.
These characteristics pose a legal issue regarding the legal nature of the transactions that take place on the Blockchain, ie whether such transactions are to be classified as merely executive acts of agreements that take shape elsewhere or as shops with their own autonomy and individuality, which arise and are fully realize within the Blockchain itself.

- *The fully digital character is dematerialized.* This structural characteristic allows a tendential speed of the exchanges that take place on the Blockchain and the natural transnationality of the same, but at the same time it involves the exclusion from the advantages linked to the adoption of this technology of relevant segments of the world population that do not yet have access to the technologies of the information (digital exclusion).

Ultimately, the development of the Blockchain and its success as a fundamental infrastructure for the fourth industrial revolution will be strongly conditioned by the level of penetration that it will be able to achieve in the near future, in turn also influencing the approach that the legislators will adopt to towards this technology.

## 1.4 Development and entity of phenomenon

Fintech as we know it today, is a phenomenon that is developing within the financial services sector, following the wider process of digitalization of the economy and that is radically innovating the way financial services are built and offered.

Using data collected by PwC (2018), in 2017 FinTech Startups attracted worldwide investments for a value of 25 billion dollars, a figure that however fell sharply compared to the previous year. The FinTech is therefore a sector capable of attracting numerous investments by those banks that pursue strategies aimed at innovating and digitalising the financial sector.

A study carried out in 2018 by PWC[18] on the geographical distribution of the investments collected shows that, globally, Asia and America attract the greatest amount of capital.

As for the investments made in the United States, the services of the FinTech world that aroused the greatest interest in the banks were those related to the InsurTech and the Blockchain.

Asia also continues to drive the rise of FinTech with 9 billion in investments, and although it ranks as the second in the ranking of capital raised, it proves to be a market with wide margins of development, unlike the U.S.A. who are going through a phase of maturity.

In Asia, China is the most performing nation in this sector, in fact it is important to remember that it is precisely in this country that the largest global investment was made; the object in question is Ant Financial, a company that has raised 5 billion dollars from investors.

Currently Europe is characterized by much more modest investments and therefore remains excluded from this two-way competition between America and Asia, the interest towards this continent is however becoming more and more consistent, banks and insurance companies have in fact increased their holdings in the Startups operating in this sector.

England and Germany are the European nations in which incubation centers support the FinTech ecosystem, an ecosystem that is based on the necessary collaboration between traditional incumbents and new entrants in order to better face the challenges imposed by the innovation.

[18] PricewaterhouseCoopers (PwC trade name)

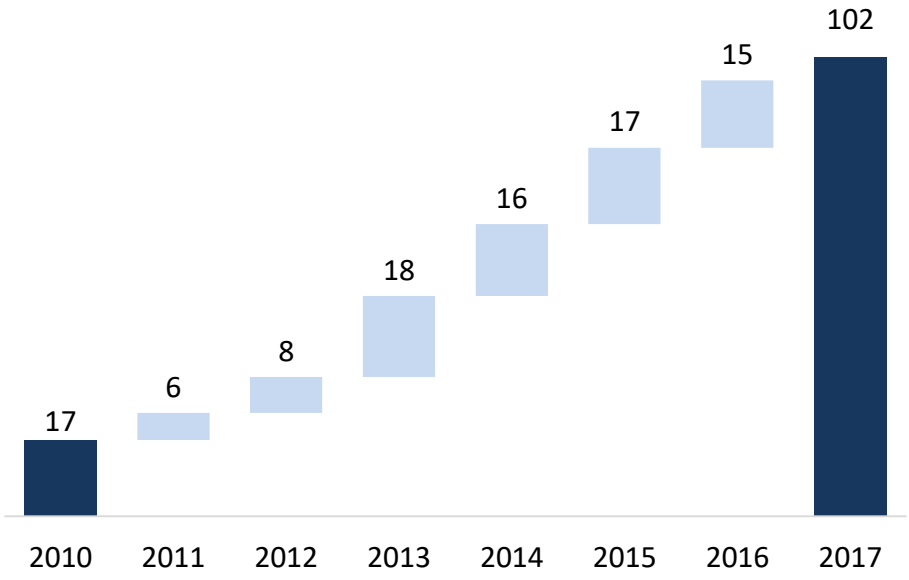
The United Kingdom appears to be the third nation for investments made after the U.S.A. and China, however, weigh the consequences linked to Brexit, which has led to a reduction in the amounts allocated to the financial digitalization sector.

As regards the geographical distribution of the various sectors related to the FinTech world, we can say that in Asia the leading sector is the Payment, in America the most successful companies operate in the InsurTech, and finally in Europe the area characterized by the greatest number of investments is that of Social Lending.

It is essential also to highlight the different degree of diffusion of the Fintech phenomenon in the single national contexts; for instance in Italy still today appears to be limited with respect to the other European countries and cannot be compared with the diffusion in the Britannic, American and Asiatic contexts.[19]

To date, no incubators or accelerators have been identified on the Italian market that direct their services exclusively to FinTech; rather, we are witnessing the emergence of specific programs or sections within generic start-up hubs and innovative companies, aimed at supporting also the FinTech companies.

*Figure 2 - Active FIntech company growth in Italy (2010/17)*




*Source: Own elaboration from https://fintech.global/2017*

[19] Schena, C., et al. "Prefazione alla collana dedicata al FinTech." (2018); "Lo sviluppo del FinTech Opportunità e rischi per l'industria finanziaria nell'era digitale." *Schena, C., Tanda, A., Arlotta, C., Potenz., G.*

Analyzing the main start-up hubs and incubators in Italy, among the most active in the FinTech field, Sellalab emerges: Banca Sella's digital reality incubator also indicated by Deloitte as the main Italian FinTech hub.

The Bank has recently structured a well-defined process internally to encourage the development of FinTech companies through an incubation process within Sellalab and acceleration (if any) in Sella Ventures.

Sellalab is also among the promoters of the recent Italian FinTech hub (FinTech District [20], based in Milan).

The FinTech District was created with the aim of allowing member companies, including start-ups and companies in the most advanced stages, to find the conditions in Italy to develop into a defined reference ecosystem.

Of particular relevance are also the activities put in place by *CheBanca*, which since has started a FinTech incubation and acceleration program in collaboration with the reference platform at a global level for Doctors.

From the study of the investment trajectories of Venture Capital operators, Dealroom[21] positions Italians far below European peers.

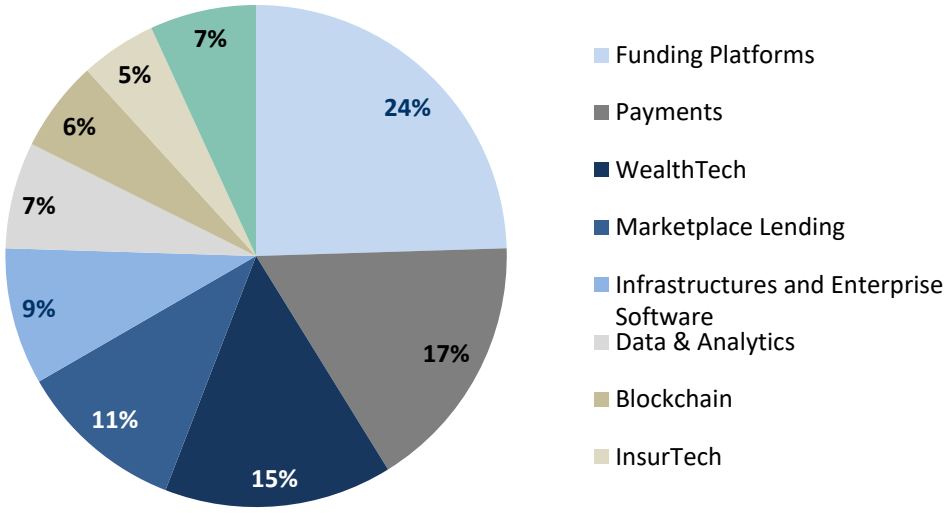
However, it emerges that, while the amount of capital invested is minimal compared to what happens in other EU countries (around 200 million in 2016), in 2016 there was a significant increase in the value of capital invested compared to the previous year (+ 20%).

In conclusion, it emerges that the FinTech market in Italy is on average less developed than in other countries, but the evolution shows that both the traditional financial realities and the FinTechs are starting a common collaboration path that can bring advantages to the market as a whole.

[20] Fintech District is *'the gateway to the Italian Fintech ecosystem and attracts the most relevant national and international stakeholders. The Fintech District community now has over 100 startups and numerous collaborations with public institutions, investors, professionals, financial institutions, international innovation hubs, universities and corporations'*. Source : https://www.fintechdistrict.com

[21] company specialized in the analysis of the main European Ventures and related investment operations

*Figure 3 – Active Fintech company in Italy (by sector)*




*Source: Own elaboration from https://fintech.global/201*

## 1.5 The relationship between *Incumbents* and *New Entrants*: friends or enemies?

In these days, Fintech is becoming increasingly popular and these new firms, which go from tech start-ups to giant of information technology and social media (Google, Apple, Facebook, Amazon), have been expanding very rapidly and, above all, they are investing in every segment of financial and banking services markets.

As said before, Fintech firms are in competition with existing regulated financial intermediaries, especially banks, since are offering financial services in an efficient and innovative way and are starting eroding banks margins.

However, despite the widespread of this phenomenon, it appears still difficult to precisely define the impact that Fintech will have on traditional financial intermediaries and in general on financial markets.

The crucial question that policy makers, regulators, supervisors, and international institutions are asking themselves is whether these new entrants will replace banks and other financial institutions and whether they will do this by enhancing efficiency in a market with high entry barriers, via a healthy competitive process, or rather cause disruption and financial instability, which, as seen in the past, often follows innovation.

The second question, that follows the first, regards whether and how Fintech firms should

be treated by regulators. Financial industry, especially the banking sector, is heavily regulated because of its central role in the economies while today Fintech regulation is still very poor.

Financial instability that can arise due to financial innovation is an issue and for this reason reaching an early understanding of transformations in the financial landscape introduced by Fintech is then substantial to an efficient evolution of the regulatory framework.

Fintech represents a serious challenge for financial institutions: online platforms are becoming the preferred customers' interfaces and the new entrants are threatening market shares and reducing profit margins of the incumbents in all business areas; the above presented classes of activities performed by Fintech firms, indeed, cover all the services provided by traditional banking institutions.

More interestingly these new companies, not only provide the same services as banks, but they do so in a more efficient way: the big promise carried by Fintech, indeed, consists in the huge cost saving to be translated to customers.

In this regard, it is important to remember that the development of Information Technology is not very recent but started several decades ago and the financial industry has been its forefront; however, the gain in efficiency derived by this innovation benefited only financial intermediaries in terms of cost reduction without being transferred to consumers.

Nowadays the challenge coming from Fintech appears to be different, since innovation relates not just to the provision of products and services but in the way in which financial services are produced, delivered and consumed.

As reported by Bofondi and Gobbi the more recent developments in ICT regarding data storage and processing, availability and transfer, may have radically improved the chances for Fintech firms to successfully enter in the financial sector[22].

Moreover, until now traditional intermediaries had the quasi-monopoly in the deposit market, which allowed them to offer to their clients also other services, discouraging them, in this way, to switch to competitors because of the high switching costs.

Today Fintech is trying to steal from banks, the profits deriving from the sale of value added products, by lowering switching costs through remote distribution channels.

Hence in a future environment it is possible to imagine Fintech firms to be the main providers of banking services but without being actually 'banks' and with very thin balance sheets which characterizes them.

[22] Bofondi, Marcello, and Giorgio Gobbi. "The big promise of FinTech." *European economy* 2 (2017): 107-119.

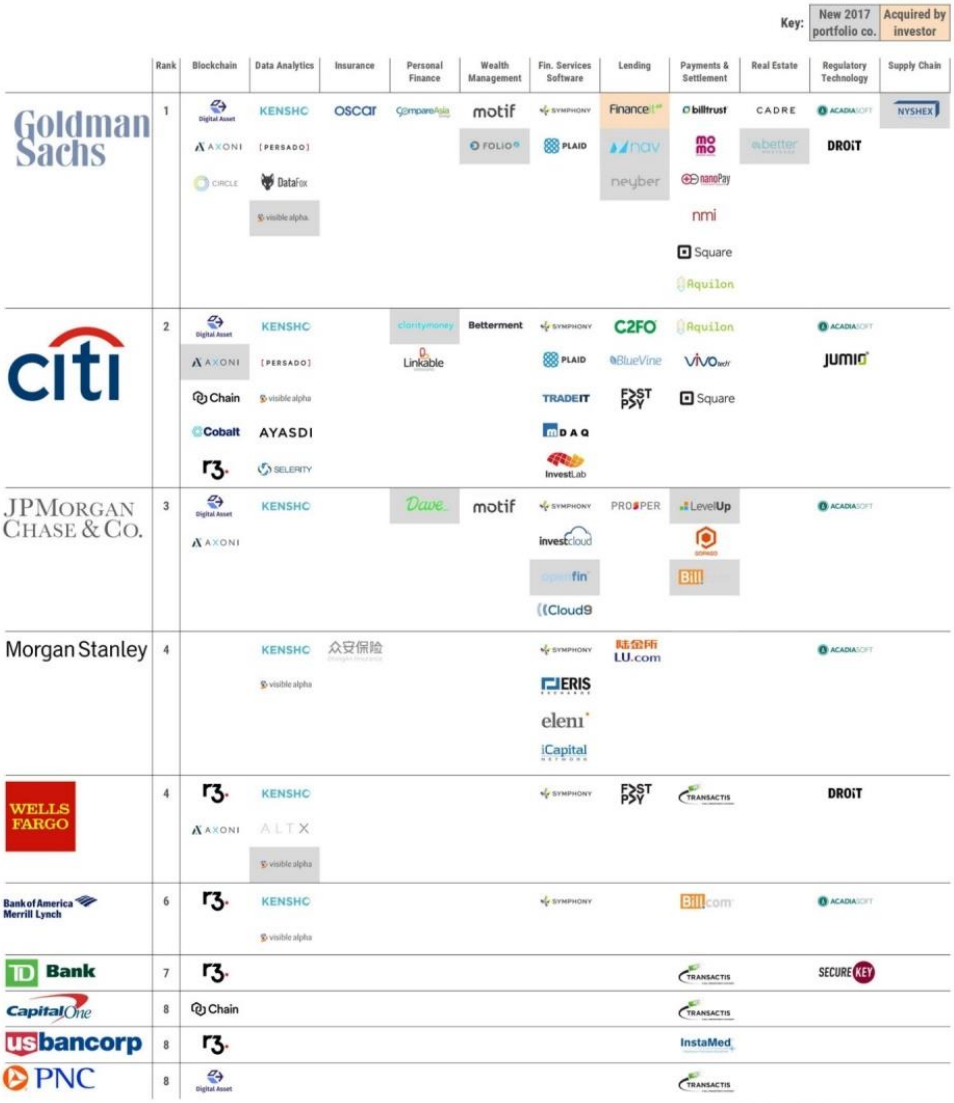
As reported in “The Big Promise of Fintech” there are two opposed way in which Fintech can deliver his promise; the first is a scenario that leaves unchanged the current financial industry: incumbents will adopt the new technologies and competition will drive down costs reductions to the consumers, with little disintermediation occurring; the other, on opposite, is a financial landscape dominated by Fintech firms which sees in an extreme prospect the extinction of traditional intermediaries.

However, more realistically in the near future it is possible to imagine a financial landscape where traditional financial intermediaries and new platform will coexist and compete.

Today, indeed, banks are actively reacting to Fintech revolution: some are trying to replicate Fintech models, for instance, setting up online lending platforms; some are making partnerships with new entrants to exploit the greater efficiency coming from Fintech and so on.

Anyway, the most likely scenario is the one in which margin will shrink and some of the products now offered by banks will also be provided by other firms.

*Figure 4 . Where the 10 tops US banks are investing in FinTech*




*Source: CBInsights https://www.cbinsights.com/research/fintech/*

According to Pwc (2016)[23], traditional financial institutions, particularly those operating in the payments and money transfer sector, will lose a 30% market share in favor of emerging Fintechs. In particular, according to the same source, some of the threats most felt by the incumbents are the following:

- *Pressure on the margins.* The Fintechs are more efficient, as thanks to the exploitation of technology and innovation, and the absence of the "legacy" typical of

[23] Pwc, Fintech Global Report, 2016

traditional banking infrastructure, they improve the management of operating costs. Thanks to this, they can promote the sale of financial products and services at lower prices than the incumbent, thus pushing the latter to lower their own.

- *Loss of market share.* The Fintech companies could take away incumbent income opportunities, as they could directly sell their products and services to consumers, and thus become an alternative to traditional players. This threat is real especially with reference to markets such as the domestic one: in fact, Italy holds the European record of "unbanked" subjects"[24], with 15 million people holding cash at home.
- *Increased customer churn.* "Customer churn" is defined as the removal of a customer / user from his product or service in favor of that of a competitor. The development of the Fintech could cause a strong increase in the churn out rates of the customers, with considerable expenditure of costs by the incumbents to limit the phenomenon.

Although on the one hand the threats posed by these new entrants are evident, on the other there are also numerous opportunities for the incumbents to seize, in terms of:

- *Reduction of operating costs.* The development of Fintech can be an opportunity for the incumbents to carry out a "review" of internal processes, in the direction of greater simplification and "rationalization" of costs, so as to reduce inefficiencies in their "operations" and significantly lower the cost to income ratio. According to Accenture analysts, this revision would allow the indicator to be reduced from 60% to 40%.[25].
- *Product / service differentiation.* The exploitation of digital platforms can allow the bank to expand and differentiate the offer, for example in the types of consultancy offered to customers, and in investment proposals. In particular, this may benefit SMEs, as these interactive platforms can better capture financial and non-financial needs in relation to different businesses[26].

- *Additional profits.* The Fintech constitutes an opportunity for the incumbent also from the point of view of the renewal of the products and services offered, through the addition of new products, also "complementary". For example, in the payments sector, the introduction of wallets can be an additional source of income for institutions that decide to develop their own. Furthermore, the exploitation of the digital ecosystem created by

[24] People who do not hold current accounts or deposit accounts.
[25] Accenture, Fintech and the evolving landscape: landing point for the industry, 2016
[26] Accenture, The rise of Fintech, 2014

Fintech is an opportunity for banks to introduce "complementary" products: I refer to "living services"[27], objects of everyday life (such as wereable) that become interactive and can be used to communicate useful information with the client.

- *Improvement of customer retention.* The new entrants undoubtedly have the merit of having "raised the level" in relation to the customer experience that the users of their products / services expect. This expectation now also extends to financial services: for the incumbent it is an opportunity to adopt an approach that puts the customer at the center, thus improving the level of customer experience offered. As a consequence, there will be a decrease in the churn out of customers.

## 1.6 Regulating Fintech

Fintech brings great opportunities and innovation which however always come with great risks that may trigger financial instability. Some of the traditional sources of financial risks such as excessive credit growth, leverage increase, exposure concentrations etc., maybe amplified by Fintech widespread, so financial regulators will be called to strictly cooperate with the authorities responsible for IT safety and security. In particular, *operational risk* may increase as financial institutions and markets rely on third parties as providers of services; moreover, the larger is the range and number of entry points that maybe targeted, the greater is the *vulnerability to cyber- attacks.* Hence, the challenge for regulators in the near future will be to build an efficient regulatory framework for the new entrants without hampering technological innovation.

Financial industry, especially the banking sector, is heavily regulated because of its central role in the economies while today Fintech regulation is still very poor. As reported in the Bank of Italy cognitive investigation, some factors may constitute a significant limit to the development of Fintech: privacy and personal data protection are necessary elements for Fintech activities, but the current regulatory framework regarding privacy safeguard would impose excessive constraints.

For these reasons, there could be a tendency to *over-regulate,* though a more pragmatic approach, that should be flexible, coordinated across jurisdictions and based on a continuous dialogue with the industry, as suggested by FSB, should be preferred.

[27] Accenture, Beyond the Everyday bank, 2016

What has been done until now, is not very consistent, although some initiative in this sense have been taken. The Bank of Italy, for example, has launched an innovation hub, called '*Fintech Channel*', to communicate and dialogue with market operators supporting innovation processes.

The most important global regulatory bodies, such as the Financial Stability Board or the Basel Committee just to name a few, try to contain the risks assumed by financial intermediaries, for example by raising safeguards to the capital of banks.

These institutions try to limit possible market failures (such as that of *Lehman Brothers* in the 2008 financial crisis), also containing negative externalities that often derive from excessive use of financial leverage or "easy credit" concessions to non-financial subjects deserving.

These failures and negative externalities often generate public bailouts that weigh on taxpayers and the community as a whole; the regulation of FinTech activities is still in its infancy and the regulatory framework differs widely from country to country.

In this context the main challenges for the authorities are on the one hand finding the right balance between the priority objectives of promoting innovation and competition, and secondly, preserving the integrity of financial markets, guaranteeing consumer protection; regulation should be designed to achieve these goals.

The objective must therefore be to create a balanced ecosystem, capable of responding simultaneously to the needs of the incumbents and those of the new competitors; in this regard the concrete experiences gained so far in the world are among the most varied.

According to the analysis of the AB.I.[28] (2018) the U.S.A. are generally endowed with an adequate normative apparatus, the criticism consists instead in the fact that in each of the fifty states a specific legislation on FinTech has been developed.

As far as Europe is concerned, the regulatory framework has encouraged the use of these new technologies in the financial environment, however even in this case the strategies adopted to ensure an "agile" environment differ from one country to another; in England for example, a nation characterized by a decidedly benevolent attitude, innovative start-ups can benefit from regulatory derogations for a specific period of time.

With regard to Italy, the FinTech Coordination Committee was set up at the Ministry of

[28] The Italian Banking Association (ABI) is a voluntary and non-profit sector association of the Italian banking world: it represents and seeks to protect the interests of banks, but without any executive or decision-making power towards any bank.

Economy and Finance, to which the Bank of Italy and the IVASS [29] (institute for insurance supervision) participate together with other institutions of the economic world.

As officially reported, this initiative launched in July 2017 consolidates the ongoing collaboration process between the authorities and public administrations in the context of the FinTech work table, aimed at the direct comparison with the operators of the technological sector and the financial sector .

The Bank of Italy has also expanded its web page by inserting a *FinTech Channel* inside it [30] for an exchange of opinions between traditional companies and start-ups, there therefore appears to be a dedicated space in which the operators propose financial projects with innovative features, the goal is to open a channel of dialogue with various economic actors to support the processes of innovation.

There are many debates that are still open, what is certain is that a great deal of care is needed on the part of all those involved in this process.

The roles between the different economic actors must remain distinct, the understanding of the new phenomena must instead pass through the sharing of ideas to achieve results that are as satisfactory as possible.

[29] The Institute for Insurance Supervision (known by the acronym IVASS) is an independent administrative authority that exercises supervision over the Italian insurance market, to guarantee its stability and protect the consumer.

[30] https://www.bancaditalia.it/compiti/sispaga-mercati/fintech/index.html

# Chapter 2 - Payment companies landscape

## 2.1 Brief Evolution of the Payment services landscape

A Payment Service Provider (PSP) is a company that integrates payment solutions into a web shop and executes, on behalf of its customers, payments of all kinds, with credit and debit cards or online procedures.

Using a Payment Service Provider facilitates the work and protects you from any missed payments. The PSP has contracts and technical connections with the individual online payment services and thus assumes a *trait d'union* between the merchant and the acquirer (merchant bank).

Basically, it is a third party that allows merchants to accept a wide variety of payments through a single channel. The PSP works with acquiring banks (payment processors) to manage the entire transaction process from start to finish.

This means that the PSP is responsible from the moment a customer inputs their credit card details, to the moment the funds appear in the merchant's bank account.

Merchants that work with a payment service provider will save money, as the fees for using a PSP are much less than the cost involved in integrating individual payment types. This is because the PSP receives bulk processing discounts and is already set up to deal with many payment options.

The payments and money transactions sector will be among those most affected by the ongoing technological revolution: the new players have introduced innovative solutions in the payments sector. In particular, there have been interesting product innovations with regards to the interface with the customer during the start-up phase of the payment, and of the process with regard to the internal processes of money transfer. To better understand the innovations in the field of payments developed in recent years mainly by non-bank entities, it is necessary to briefly review the technological innovations introduced[31] in the financial sector since the 1950s, the year in which the first credit cards were introduced in the USA.

[31] Ferrari, L'era del Fintech: la rivoluzione digitale nei servizi finanziari, GLF, 2016

- 1950s :

Introduction in the United States of the first credit cards, by operators outside the banking sector: Diners, American Express.

In 1986, *CartaSì* was introduced in Italy. These cards were "read" by a manual technology, called "knucle buster", which allowed to record and store credit card data, and transactions were authorized by telephone.

- 1960s :

In the mid-1960s there was the introduction of ATMs (Automated Teller Machines), automatic teller machines where money can be withdrawn through the use of the payment card. These devices spread globally thanks to the IBM company.

They responded to the need to have money available even when bank branches were closed.

- 1980s :

Establishment of the national “ATM” payment circuit and launch of the payment service for goods and services using electronic POS terminals.

- 1990s :

Birth and development of internet banking, or "home banking", i.e. the possibility of accessing payment services from your personal computer.

- 1990s-2010s :

Dissemination of internet payments, thanks to the birth of Paypal and the development of e-commerce.

The strong growth in internet payments, linked to online purchases, together with the development and spread of some new technologies, has favored the emergence of new payment "methods", which have the potential to profoundly modify what are habits payment systems that have reigned until today.

The reference is to technologies related to making payments through the use of mobile devices, in particular via the smartphone (m-payment): therefore, all those initiatives that enable payments or transfers of money through the mobile phone.

The consumer and retail payments sector is the one that moves faster in terms of innovation, and that is better able to capture and exploit the potential offered by new technologies.
The growth of digital payments, especially in the mobile segment, is undoubtedly driven by the growth of e-commerce, which has facilitated and encouraged the development of new "payment experiences": have an optimal payment experience, in terms of speed, convenience and multi-channel accessibility.
This new way of conceiving the payment experience is made possible by the development and dissemination of some new technologies, described below:

1. Mobile wallet.

A mobile "wallet" is a digital wallet that, through the exploitation of technologies described below, allows you to "take the place" of your wallet, making it "virtual".
This is generally an app that allows you to store credit or debit card data, thanks to which you can make payments. The considerable presence of smartphones among the population has led to the spread of mobile wallets.

2. NFC technology and tokenization.

The most used technology for wallet payments is called "NFC-Near Field Communication", a technology that, through the use of radio frequencies, allows a mobile device to transmit the data necessary for payment to the receiving POS.
The innovation in the field of mobile payments has also concerned above all security, as payment security is one of the main concerns of those who are about to make a payment: for this purpose, "tokenization" systems have been developed, which allow the user to transform the details of your card or payment account into temporary "tokens", allowing you to make the payment without having to share your data with the beneficiary.
These new technologies are, in different ways, applied to the various forms of mobile payment: proximity payment, remote payment and P2P payment.

## 2.2 Main players in the payment ecosystem

The payment ecosystem is characterized by the presence of various players such as institutions (banks and card schemes), retailers, consumers and a list of suppliers of payments and processing infrastructures.
The main players involved into a card transactions are the following:

- *Networks*: establish standards and rules and route payments between banks and processors (e.g. Visa, Amex, Mastercard, Discover); networks connect the entire payment ecosystem: they receive authorization from acquirer and routes it to the relevant issuer for approval

- *Acquirer*: is the financial institution (merchant bank or acquirer) that has a direct relationship with the merchants, enabling them to process credit and debt card transactions and sometimes provides the POS terminal; it can be a bank or another payment service provider such as: First Data, Ingenico, NETS, Wirecard, Worldline, Worldpay, Adyen, Nexi

- *Merchant Processor*: physically processes transaction from terminal or online payment gateways to front-end networks; many acquiring banks also provide processing services. Examples are: Firt Data, Global Payments, Ingenico, NETS, Wirecard, Worldline, Worldpay, Adyen, Nexi

- *Issuing Bank/ card issuer*: is the cardholder's bank, i.e. manages the consumer's bank account and/or provides him/her with a card on behalf of the card networks; Discover and American Express act both as the card network and issuing bank in the same time

- *Issuing Processor*: process and authorize transactions and provides settlement and clearing of card accounts (First Data, Global Payments, NETS, SIA, Worldline, Nexi)

## 2.3 Overview of the Payments Industry

Whilst cash still represents the most used payment method worldwide, consumers are accelerating the pace of change towards on-line and mobile payments due to an increasing proliferation of new payments options; internet and smartphones penetrations, the increasing use of e-commerce and the ongoing innovation in new payments solutions, such as introduction of mobile wallets have increased the demand for cashless payments over cash and the use of digital payments (according to McKinsey, the share of cash-settled transactions has reduced from 89% to 77% in the last five years).

The rapid shift towards the use of Alternative Payment Methods by consumers is boosting the growth of global payments industry at a high speed; the industry recorded extraordinary volumes in the last years, especially in 2017 where global revenues reached $1.8 trillion (according to McKinsey "the largest annual increase measured in the previous five years") with a 11% growth; following the unprecedented double-digit growth of 2017, in 2018 global revenues reached $1.9 trillion, returning to a more stable 6% growth rate.

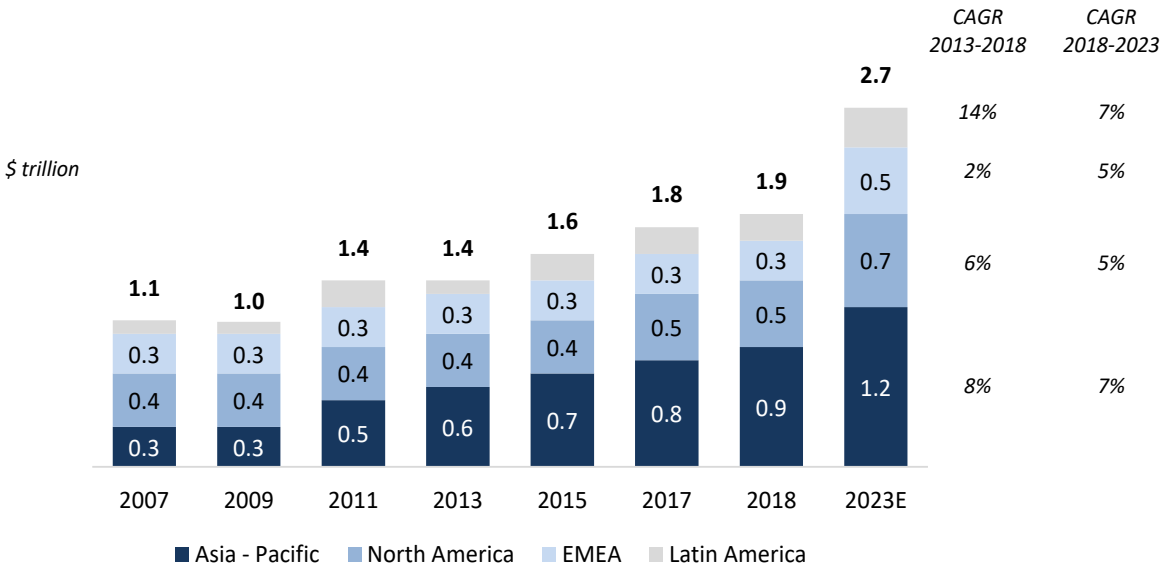
Analyzing the dynamics by regions, the majority of revenues come from the Asia-Pacific region, which grew sharply in 2017, thanks to the strong increase of alternative payments methods, pushed by the aim of regulators to reduce cash transactions.

In North-America a rapid growth of transactions led to an increase in revenues exceeding two or three percentage points the GDP in the past four years, and electronic payments transactions grew by nearly twice the GDP growth rate thanks to the spread of e-commerce and m-commerce.

In Europe, that accounts for ca. 90% of EMEA transactions, the pace of payments revenues appears to be slower with respect to the other regions.

By the way, Card and alternative payments solutions (such as mobile wallets) transactions recorded a strong increase from 2013 to 2018 (7.9% CAGR), favored by the progressively shift to electronic payments and especially by the introduction of the PSD2 and open banking.

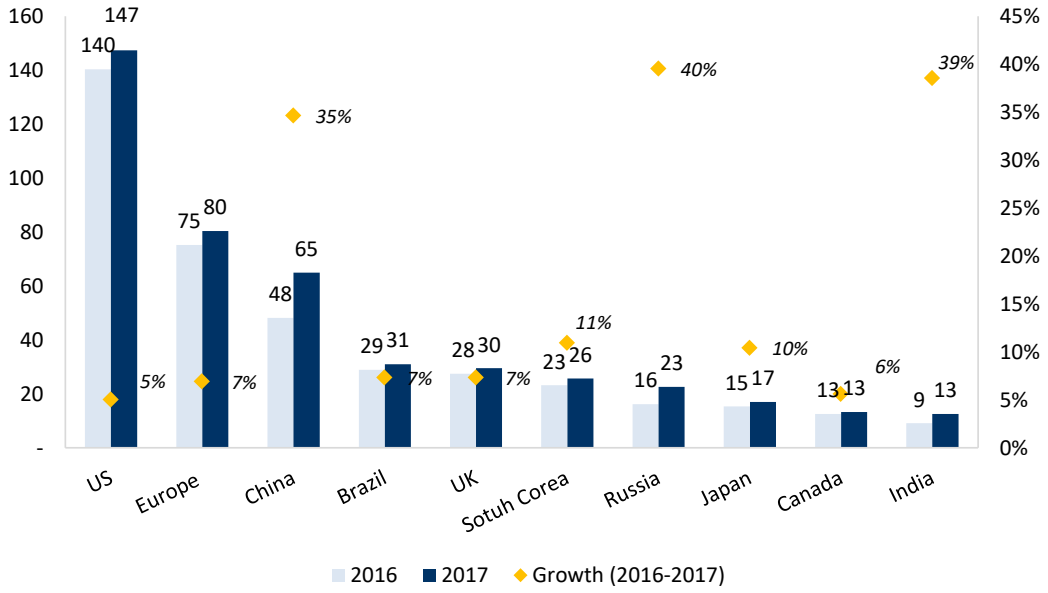
*Figure 5 - Global Payments Revenues*




*Source: Own elaboration from "Global payments 2019: Amid sustained growth, accelerating challenges demand bold actions", McKinsey*

Non-cash transactions reached approximately €540 billion globally in 2017 registering a growth of 12% in the period 2012-2017, the highest values in the last twenty years.[32]

*Figure 6 - Number of Non Cash transactions in the top ten market in 2016/17 (bn)*

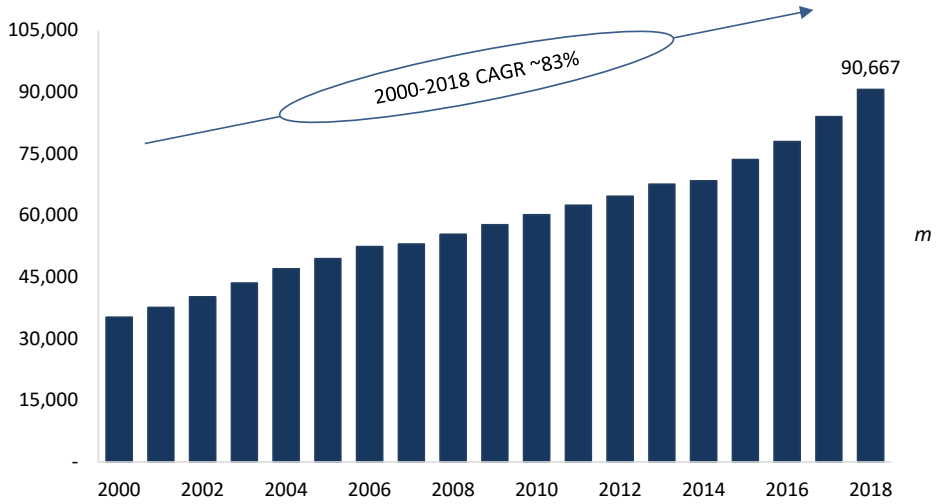



*Source: Own elaboration from World Payments Report 2019 (CAPGEMINI) data*

[32] World Payments Report 2019 (CAPGEMINI)

Regarding the Euro area, the total number of non-cash transactions, including all type of payment services different from cash reached ca. 91 bn in 2018, registering a growth of 7.9% with respect to the previous year (figure 7).

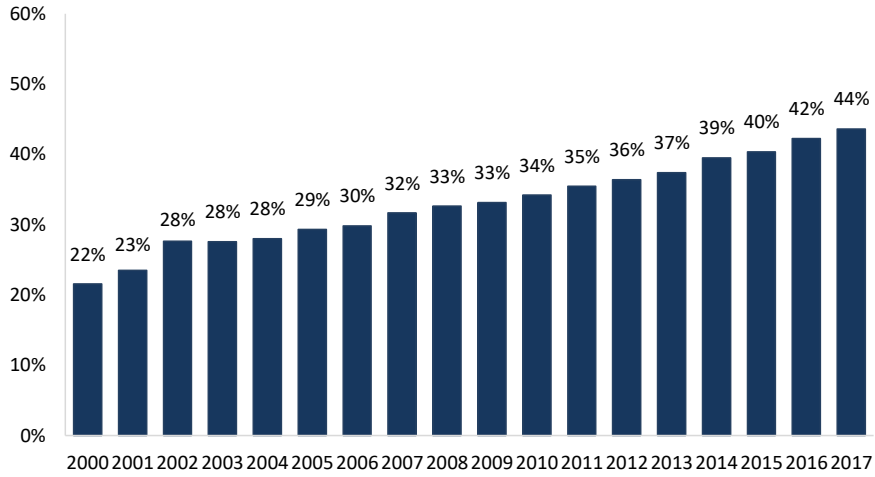
*Figure 7 - Total number of Non Cash payments in the Euro Area (m)*




*Source: Own elaboration from ECB data*

Among the total number of transactions settled via alternative payment methods, card payments represented approximately 44% of total transactions in the Euro Area in 2017 and approximately 44% in 2018 (figure 8).

*Figure 8 - Card payments in the Euro Area as a percentage of Non Cash payments (%)*

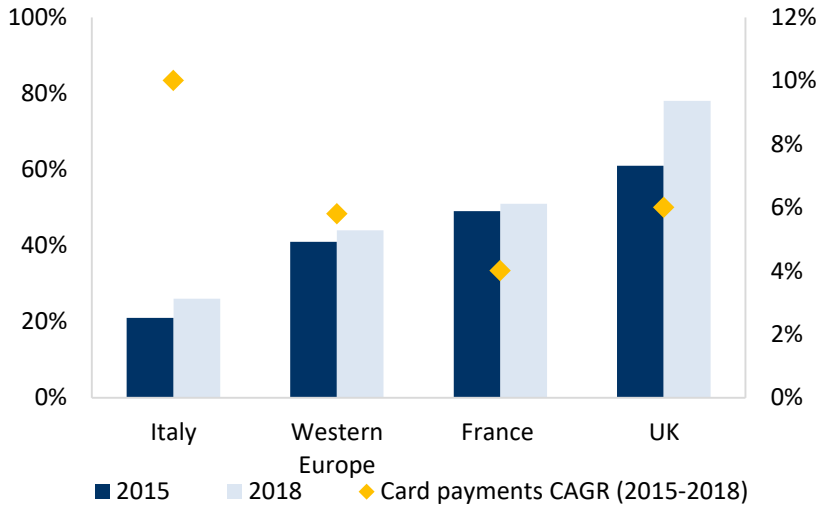



*Source: own elaboration from ECB data*

In 2018 penetration of card payments[33] as a proportion of consumer spending stood at ca. 45% in Western Europe countries, with a compounded annual growth rate of 5.6% over the period 2015-2018.

In Italy only 26% of consumer spending is settled via cards, a value significantly lower than the average of Western Europe and countries such as UK (69%) AND France (52%)

*Figure 9 - Card payments penetration by country (% of value, 2015 vs 2018)*




*Source: own elaboration from Euromonitor International consumer finance data*

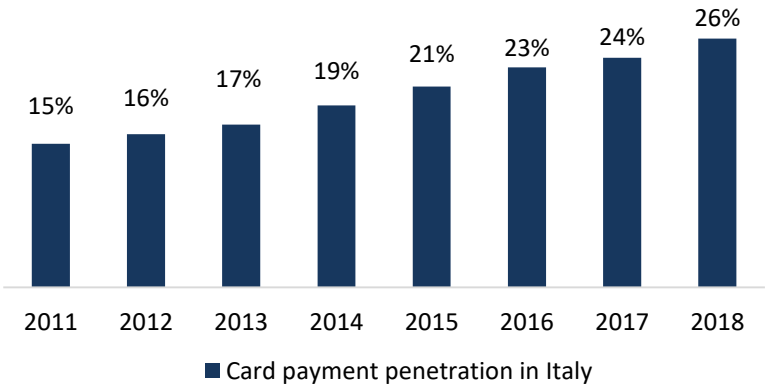
Penetration of card payments in Italy is now at levels seen in 2004 in countries like France, Netherlands and Sweden, which have experienced strong increase in card payments penetration.

Despite the low card payment base, in the period 2011-2018 penetration of card-payments in the domestic landscape has been on an upward trend, outperforming growth in Western Europe.

Card payments growth has also outperformed Italian GDP growth and overall consumer spending growth, making it reasonable to believe that there is a long runway for growth in Italian card payments.

[33] Card payments penetration is defined as the ratio between card payments transactions and total consumer spending, where the latter is defined as the sum of card payments transactions, cash transactions, other paper payment transactions and electronic direct/ach transactions

*Figure 10 - Card payments penetration in Italy (2011 - 2018)*




*Source: own elaboration from Euromonitor International consumer finance data*

## 2.4 Invisible Payments Impact

Cards revolutionized consumer payments. However, there are some drawbacks to this infrastructure: cards are not particularly secure, they are expensive, and their physical nature hampers innovation.

It is therefore unsurprising that this infrastructure has lost share thus far in the online migration, and will continue to do so, as payments become less visible.

This trend is beginning now with the current mobile transition and will accelerate with the upcoming smart machine era[34].

This digital transition is resulting in many new entrants: new providers are offering P2P transfers, wallets and buy buttons, which reduce friction and improve the user experience.

In mature payment markets, the card is often used as a funding mechanism however, in emerging payment markets the card era is being skipped altogether and either a bank account is used or, for the under-banked especially, the payment method has its own stored value.

Payments are in essence a "financial handshake", whereby financial details and identification are exchanged in return for goods or services.

A two-step process was called for as non-cash transaction methods, such as card and cheques, were not secure and therefore ID or PIN verification was needed.

[34] Fintech & Payments primer vol. 12 (BARCLAYS), pp.6,7.

Invisible payments are transactions without any such explicit financial handshake. Whilst it sounds futuristic, there are increasingly examples of such transactions taking place, including when payment details are on file (Uber, Amazon, etc) and in grab-and-go retail experiences such as Amazon Go.

The invisible payment trend is amplified by the transition to marketplaces.

This is not only for online, but also for physical experiences that are increasingly being booked or ordered in advance via platforms that have payment details on file. Payments will become part of this booking process and no separate payment is needed after a taxi journey (Uber), meal (Just Eat, OpenTable, Deliveroo), travel (Expedia, Booking.com), yoga class, etc. These physical transactions are now becoming invisible payments on a large platform.

The mobile transition has been the catalyst for many new APMs with an improved user experience, mainly wallets and P2P methods.

Again these tend to be domestically led, like Venmo and Zelle in the US, Revolut in the UK, WeChat Pay in China and many more. In addition, the high consumer interaction and the data generated are also attracting attention from large-tech.

Neuromarketing[35] and buy buttons are also particularly important in this process.

The leap in quality between a successful online store and an eCommerce that struggles to disentangle itself in the web's "jungle" are the few essential elements. One of these is as trivial as it is difficult to achieve and consists in understanding what the consumers of an eCommerce site really expect and want. This seems more and more to be the goal to reach in order to raise the conversion rate [36].

Here to answer this simple but complex question, neuromarketing comes to the rescue.

[35] Neuromarketing is a reference branch of the so-called neuroeconomics and indicates a recent discipline aimed at identifying more direct communication channels for purchasing decision-making processes, through the use of methodologies linked to neuroscience discoveries. It is a discipline that merges traditional marketing (economics) with neurology (medicine) and psychology (behavioral sciences) and aims to illustrate what happens in people's brains in response to certain stimuli relating to products, brands or advertising with the aim to determine the strategies that lead to the purchase. The involvement of the central nervous system, and in particular of the brain areas active during the execution of the decision-making process, are at the origin of the composition of the name, coined by the Dutch researcher Ale Smidts in 2002.

[36] In web marketing, the conversion rate is the percentage of unique visitors who have carried out the specific action that the advertiser has defined as the objective of the campaign.
The desired action can be: subscribe to a newsletter, make a purchase, conduct a sale, observe a key page of the site, or other measurable actions.

As highlighted by Patrick Renvoise [37], in the brain of the consumer there are "buy buttons" that can be exploited by companies in terms of web design and content.

The human mind sets in motion the new brain, the seat of rationality, then the middle brain, in which the emotions reside, and finally the old brain, or primitive brain, which is the area in which one's decisions are processed and in which the consumer makes the purchase choices.

Most decisions are made at an unconscious level and therefore adopting neuromarketing strategies can help create uses, offer ways to stimulate the imagination, also contribute to significantly reducing effort and creating multisensory attention, generating emotions. In this sense, online platforms are an excellent tool since they are interactive: a perfect combination of emotion, logic and instinct, thanks to the support of images, texts and evocation of personal experiences.

Buy buttons aside, there are other elements that go hand in hand with neuromarketing and are strongly linked, such as the target audience, the gender and culture of origin.

The strategy of a winning eCommerce is that allows to provide an immediate and as unidirectional response as possible to the needs of the user, and which at the same time is not characterized by any element that disturbs him: according to some studies, in fact, users use about 90 seconds to process a judgment on a brand.

The creation of product data sheets associated with the creation of innovative digital content and services relating to products for sale on e-commerce sites are factors that guarantee a greater impact on the effectiveness of conversions.

From the technical point of view, simplicity and uniqueness are two parameters that are rewarded: the immediacy in finding information and ease of navigation are essential, because the brain remembers better if the choices are few and in particular if the products are arranged in boxes of 3-4 segments.

Few options are better than many, to reaffirm the concept that "less is more".

The price then plays an important role: better if the prices are aggregated and are not arranged by individual component, with an emphasis on offers and their limitations (the famous mental accounting that gives the consumer the impression of “having made a deal " and to be one of the few to have that article).

Furthermore, the signaling of the best choice is very much appreciated by our mind, that is to say we must give evidence: through certifications, certificates, but above all testimonies of peers and also of influencers and / or trend setters (so-called halo effect[38]).

[37] P.Renvoise, *Neuromarketing: Understanding the Buy Buttons in Your Customer's Brain* , (2007)

All this makes the brand more credible since the language is authentic.
Finally, it is increasingly important to make users not only protagonists of the purchase but also an exchange of opinions and opinions, in a word, to give the opportunity to express one's opinion and user experience.
Humanizing brands and bringing them closer to the user's life experience, this is one of the great challenges of eCommerce.

## 2.5 Regulatory framework: from PSD1 to PSD2

Payment systems, characterized by highly standardized transactions, are the sector in which technological and digital innovations have always had a significant impact in terms of operations.
The current regulation of payment systems bases its foundations in the PSD I (Payment Service Directive) of 2007, or the first European directive focused on payment services, which has created a new category of providers of this service, payment institutions (Banque De France).
The central objective of the PSD was to harmonize the different European regulations or practices regarding payment services, with the aim of gradually implementing a SEPA (Single Euro Payments Area), making it possible to transfer funds on the same conditions in the various Member States of the euro area.
An essential element in the PSD is the transfer of money through transactions on a payment account, or an account used by one or more payment service users for the execution of payment transactions (Ascoli et al. 2015).
Over time, operators not covered by the scope of this directive emerged, such as third party payment service providers (Payment Initiators, *PIS*) that allow the direct connection of the online transaction between consumer and merchant via API (Application Program Interface) or information providers that allow users to view aggregated information on accounts (Account Information Service, AIS).
In an attempt to broaden the scope of the payment services directive, the PSD II was issued in 2015, which was then implemented by our system on January 13, 2018 with the aim of

[38] The halo effect is a cognitive bias for which the perception of a trait is influenced by the perception of one or more other traits of the individual or object. An example is to judge a good-looking individual as intelligent, at first sight.

raising the level of transparency and security of payments online in Europe. The Payment Service Directive II, in fact, has added new categories of service providers defined Third Party Players (TPP), or services for accessing the accounts offered by third parties (which do not coincide with the bank where these accounts are held) subject to the reserve for payment services (Cameda et al. 2016):

- Payment Initiation Service Providers (PISP): they offer payment services, authorized by customers to carry out transactions on their behalf, in which the seller's website (merchant) and the bank's online platform are connected.

Therefore, these operators outside the banking world carry out their payment functions directly interposed between the seller and the customer's online account.

- Account Information Services Providers (AISP): they offer a service in which the payer can have access to a complete information regarding the latter's payment accounts thanks to an online platform. In this way, customers will be able to use AISPs to get an overall view of their financial situation, analyze their future financial needs and spending habits.

- Card-based Payment Instrument Issuer (CISP): they offer a service to check the availability of funds in the payment account.

Third Party Players must be authorized to carry out their activities by the competent authorities, which will supervise these new operators, and insert a special list.

Under the new directive, banks and other payment service providers (PSP, Payment Service Providers) must allow access to the payment accounts of their customers to the PISPs, giving way to third parties to have a huge amount of information.

The PISPs must, on the other hand, assume specific responsibilities for unauthorized transactions that were under their responsibility (CEPS-ECRI Task Force, 2017). Furthermore, PSPs must give access to the accounts they manage on behalf of a client to AISPs, if the client has provided an "explicit consent" for such access.

The AISPs, in turn, can use the customer's information provided that there is consent from the user of the service and that the use of the data falls within the scope of the service offered by the provider.

This shared use of customer data between various operators will certainly have an impact on credit institutions, which previously did not grant access to information stored in their customers' accounts.

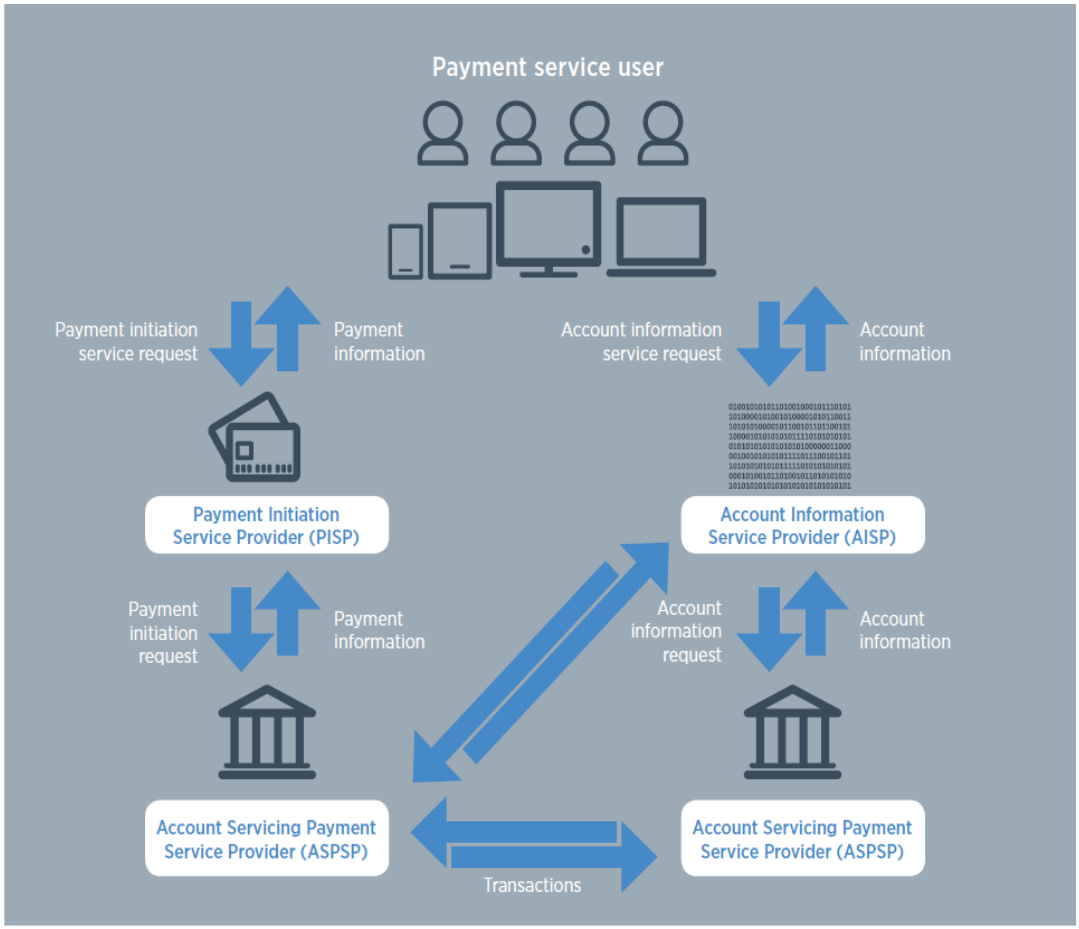
Furthermore, the PSD II imposes strict rules on safety with regard to all PSPs, including banks and TPPs.

In fact, these operators must demonstrate that they have adequate security systems to guarantee the safeguarding of information and the correct finalization of customer payments.

In this regard, the operators will have to carry out an annual independent assessment of the risks in the safety of operations, also describing the activities for the reduction of these risks.

The EU directive, in addition to requiring the adoption of appropriate security measures to protect customers' information and credentials, obliges operators to strong customer authentication and to use open standards for the interaction of various operators in the performance of their activity as payment service providers (Cameda et al. 2016).

*Figure 11 - The new service providers introduces by PSD II*




*Source: https://www.treasuryxl.com/news-articles/psd-2*

The strengthened client authentication process is based on the use of two or more authentication factors, independent of each other and unrelated to each other (Pwc, 2016):

- Knowledge: something that is known only by the user, for example a PIN or a password.
- Possession: codes relating to an instrument in possession, for example a card or a token.
- Inherence: something that only identifies the user, such as a fingerprint.

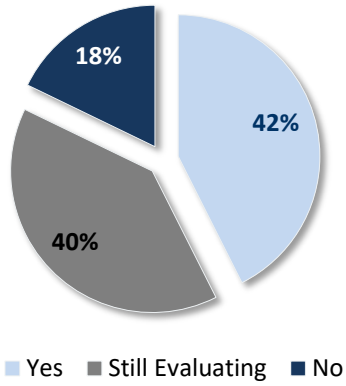
In any case, Strong Customer Authentication will be required if the customer accesses their account remotely, activates an electronic payment process or performs any type of remote action in which there may be a risk of fraud (Deloitte, 2016 ).
Indeed, the PSD II poses many challenges for the incumbents.

From an interview carried out by Deloitte (Deloitte, 2017) carried out on 70 operators, of which 89% are banks, it emerges as the question "What do you think is the biggest challenge for developing a third-party access solution?", heterogeneous answers have been provided reflecting how the answer depends very much on the specific characteristics of the institution.

In particular, the main concerns for the advent of PSD II refer, first and foremost, to security in terms of authentication of customers and TPPs (36%).
Furthermore, the lack of clarity in the RTS specifications (22%) and the development of the infrastructure to interconnect the various operators are critical elements for the incumbents (11%).

To the question "Do you intend to change your authentication techniques to date in order to respond to PSD II?" (Fig. 12), 43% of respondents intend to make changes to authentication techniques, in particular to approaches based on software and / or new applications (Deloitte, 2017).

*Figure 12 - "Do you intend to change your authentication techniques to date in order to respond to PSD II?"*




*Source: Deloitte, 2017*

From this analysis it is evident therefore the need of the international authorities to provide regulations that guarantee the development of the system, expanding the possible applications of the technologies declined to the finance and the banking activity, but protecting the final customers from service providers who do not have adequate prerequisites.

In recent years the European payment system has been affected by an unprecedented evolution: the progress of technology has in particular determined the need to adjust the reference regulatory framework also on the basis of the significant acceleration of commercial transactions and increase in the *dematerialization* of cash transfers[39].

The growth in the number of non-cash transactions worldwide is not expected to stop and by 2020 it has been estimated that the number of digital transactions will reach 20% more than in 2015[40].

The need to update the reference legal framework has led to a review of the regulations issued on payment services and, in particular, Directive 2007/64 / EC, the first true regulation wanted by the European Union in this area.

The Payment Service Directive (PSD) regulated the information requirements, the rights and obligations of the end users, as well as the prudential requirements for market access

[39] Dematerialization (DEMAT) is the move from physical certificates to electronic bookkeeping. Dematerialization applies not only to stocks, but also to other forms of investment such as bonds, mutual funds, and government securities. The use of dematerialization and DEMAT accounts is comparable to using a bank and bank accounts to maintain one's assets rather than personally storing and exchanging paper money each time a transaction is made.

[40] Pillola di PSD2 n°5, PWC (2017)

of the persons authorized to provide these services, the payment service providers or the so-called PSP (Payment Service Provider).

These new operators, who have placed themselves in direct competition with domestic banks, have had different origins: those who are banking or financial, from a subject that operates in transnational transfers or in large-scale organized distribution, from private post offices or from an entrepreneurial subject active in the social lending, but also in the management of terminals and others, going to intensify the rivalry in this business and the offer for customers.

The Directive, which provides uniform rules for Member States, has therefore favored the creation of an internal market for payments in the Union.

From its in-depth analysis, however, it emerged that developments in the sector have given rise to challenges that are not easy to deal with from a regulatory point of view: significant branches of the payment market, in particular payments by card, internet and mobile devices, remain fragmented in the several national realities and many innovative products do not fall, entirely or in large part, within the scope of the PSD.

Furthermore, in some cases the possibility of applying the same directive of 2007 and, in particular, the elements excluded from it (the so-called *negative scopes*[41]), such as certain activities connected to payments, have in some cases proved to be too ambiguous or generic with respect to to changes in the European scene.

The European Banking Authority has published its own Regulatory Technical Standards[42] (RTS) at the beginning of 2017 as well as the Guidelines that will serve to show the challenges and to guide the choices to which the banks will have to cope.

The RTSs have been drafted in accordance with article 98 of the PSD2 and concern an articulated series of fundamental topics: without presumption of completeness they address issues such as the Central Contact Point, a fundamental topic in the fight against financial

[41] In contrast to the positive scope, the term "negative scope" refers to the non-application of the legislative text to some cases. The importance of this provision is evident, in fact it is precisely in Article 3 of the PSD2 that there are the perimeters of the exceptions that delimit a free space, a 'safe harbor' within which it is possible to lend a series of activities, without the obligation to operate in the supervisory regime envisaged for payment intermediaries.

In other words, an activity that is found in the negative scope is not reserved for payment service providers (PSPs) and, consequently, a non-banking company can exercise the service:

- without the authorization required to operate as a PSP, ie without the obligation to be or constitute a payment institution or electronic money institution (IMEL);
- without the obligation to resort to partnership solutions with lenders authorized by the supervisory authority (banks, post offices, payment institutions and IMEL).

[42] These draft regulatory technical standards (RTS) and implementing technical standards (ITS) on the electronic central register under the Payment Services Directive (Directive (EU) 2015/2366) (PSD2) respectively set requirements on the development, operation and maintenance of the register and the information to be contained in it. https://eba.europa.eu/regulation-and-policy/payment-services-and-electronic-money

crimes, Passporting Notifications & Compliance, for a correct communication of transnational transfers, as well as the Register Monitoring.

The *EBA* [43] has also been called upon to prepare Guidelines on the subject of Insurance Policies, authorizations and security measures, as well as methods for assessing the relevance of fraudulent transactions.

We will not specifically analyze the individual though important provisions of the standards and guidelines issued recently as we did for the PSD2, but it is still important to give indications on the main changes that these measures will determine for the payment and information service providers on the accounts.

Studies and analyzes carried out by the banking authority have led to the introduction of some of the exceptions required for the application of strong customer authentication, both for remote payments and for the access methods to third party TPP bank accounts, given that many of the players in the sector, in the face of a possible increase in safety standards, feared the worst and hastened to send requests and proposals for derogation, for "lightening" of the very stringent terms provided for in the draft directive initial.

## 2.6 Introduction to International Payment Platforms

The Payment platforms act as intermediaries, processing the information entered during the payment process and facilitating the authorization or execution of payments made to an e-commerce.

The platforms generate a series of important advantages: for example, they take care of the most difficult tasks related to the purchase: the encryption of sensitive data (such as credit card numbers) and compliance with certain standards with which to guarantee data security, ensuring secure transactions between the customer and the store.

In addition, the channels save time and work, eliminating the need to manually enter the information received.

They also offer flexibility in the types of payments that customers can use. And payment flexibility increases conversion.

[43] The European Banking Authority (EBA) is a body of the European Union which, since 1 January 2011, has the task of overseeing the European banking market. All the EU banking supervisory authorities participate in it. The Authority replaces the Committee of European Banking Supervisors (CEBS) and is based in Paris.

In fact, customers are likely to abandon the cart due to the lack of electronic payment options.

Having the right payment channel is definitely a victory.

But how can you be sure you've found the right one? When considering the choice of a third-party tool, it is necessary to evaluate the individual characteristics of each of them and make a choice based on the needs and characteristics of your website.

Here are five important factors to consider:

1. Security

Fundamental. People will not give confidential financial information to websites that seem suspicious. You need a reputable payment channel that offers secure payment experiences for your customers.

And keep in mind that the quality seal is very important: over 80% of consumers feel safer when they see the secure electronic payment seals on a website.

2. Cost

As with almost all services, there are costs associated with the use of third-party tools, such as payment channels. For transactions processed on behalf of your company, you will have to pay commissions, so pay attention to the costs and research well before integrating a channel into your e-commerce.

These costs may include transactions, returns, fixed costs for opening an account and probably even more (as commissions to customers for using a particular payment method).

3. Accepted payment methods

In reality, the easier it is for customers to shop, the more likely they are to do so. By equipping your website with a payment channel that offers a wide variety of electronic payment methods, you are expanding your sales network - 50% of regular online shoppers say they would avoid making a purchase if they could not use the method preferred payment method.

Through web analysis, you will be able to see from which countries buyers come to your website. Preferred payment methods may vary by country.

4. Compatibility

Of course, an important consideration is how to integrate the payment platform with your web platform, both from a technical and design point of view. If you need to invest a lot of time and money in synchronization and customized solutions, maybe it's not worth it.
Many channels (like Stripe, for example) can be customized to fit the image of your website.

5. Place of payment

Some payment channels allow customers to complete a transaction within their website, while others take users to another site to complete the purchase. Some channels offer an API that is integrated directly into your website, others redirect visitors to third-party sites. Regardless of what you choose, keep in mind what will provide the best user experience for your customers: if customers trust your site, they probably don't care about further distractions.

After this brief introduction on the Payment Platforms, it is useful to provide a brief description of some among the important payments service providers, namely: ***Adyen, Ingenico, PayPal, EVO Payments, NETS A/S, Square Inc.***

- **Adyen**

Founded in 2006 by Pieter Van der Does and Arnout Schuijff and designed to meet the changing needs of global commerce, Adyen is a Dutch fintech that has launched an omni-channel technology platform capable of simplifying and speeding up the flow of payments thanks to the management of in-store, online and mobile transactions in a single solution.
The global infrastructure, technological excellence and ease of integration with the main payment methods have made Adyen a strategic partner for a growing number of companies all over the world: from tech and e-commerce leaders, up to the most important retailers, for a total of 3,400 client companies worldwide.
Adyen is the only provider in the world able to manage the entire payment process in a single technological platform that connects directly to over 250 local and international payment methods - including Visa, MasterCard, American Express, Sepa Direct Debit, the Chinese WeChat and Alipay - and accepts more than 150 currencies on the four continents.

From payment processing, to risk management, up to the acquiring phase: for the first time a single system directly performs all functions, even those normally delegated to third parties.

*"Adyen stems from the belief that traditional payment technologies, which involve different intermediaries in the management of complex and expensive procedures, are obsolete and inadequate for the new globalized trade model. This is why merchants from all over the world come to us to take advantage of a simpler and more effective payment platform "* (Pieter van der Does, co-founder and CEO of Adyen).

With a volume of payments by card that reached 220 billion euros in 2017 - up 10% compared to the previous year and increasingly on mobile (+ 60%)[44] - Italy is a particularly interesting market for Adyen.
The establishment of Adyen in Italy will also allow Italian companies to take advantage of its innovative services to accelerate international expansion and the transformation of business towards a Unified Commerce system, which puts the customer experience at the center of the purchasing process the final.

- **Ingenico**

All vertical markets can benefit from innovative high-performance terminals, which can provide secure payment functions and Value-Added Services [45] (VAS).
Ingenico has developed a "One Stop Shop" strategy offering whereby each product can offer secure transactions and integrated services in the infrastructures of all the most advanced operators on the market and is aimed at meeting the needs of all traditional types of sales (shops, large-scale distribution, mobile sales, freelancers, etc.) and all vertical markets[46] (banking, retail, petrol, transport, health, tourism / Horeca, small businesses on the move, etc.).

[44] https://docs.adyen.com/
[45] Value Added Service (VAS,) is a typical term of the telecommunications industry that indicates all services outside basic services, ie standard voice calls and fax transmissions. This terminology has extended over time to other economic sectors.
[46] Essentially, this is a market that is composed of a subset of suppliers and customers that conduct operations based on particular needs. Generally, a vertical market will appear as a small group within a larger industry, with the supplier providing products and services that directly affect the customer that is considered part of the industry itself. A vertical market is different from a horizontal market in a fundamental aspect. While this type of market addresses the specific needs connected with the market sector, a horizontal market will have a wider appeal.

Ingenico proposes payment solutions for the banking world, for Retail, Petrol, Telco, Service Companies and Public Administration and collaborates with all Customers for the realization of specific projects, the dissemination of new payment instruments (contactless / Nfc / wallet) and the development of electronic payments in new contexts, including mPayments.

- EMV CB2 : Electronic payment application for Ingenico terminals compliant with EMV standards [47].
  "Central" application of the entire Ingenico offer, certified *Consorzio Bancomat*[48] in the two versions "CB1" and "CB2", including a series of options and additional features requested by the market;

- mPayments: Complete solution for mobile payments. Suitable for mobile micro-payments, but also for the retail world for home delivery, personal assistant, sales corner and other applications.
  Ideal for allowing electronic collections to all professionals and technicians who work with the support of their own tablet or smartphone;

- Open Payments in transport: Ingenico Italia promotes innovative ticketing solutions for the benefit of public transport operators and their users.
  The solution called "Open Payment" is spreading among many public transport operators around the world, thanks to which it is possible to access public transport (trains, metro, trams) without necessarily buying a paper ticket or a pass, but simply paying "at the turnstile" with your contactless credit card (or smartphone, if it has a virtualized card in its memory);

- Alternative Payment Methods: Ingenico is committed to making these alternative payment systems usable, safely, even at traditional stores, already equipped with POS.

[47] EMV is an acronym that stands for Europay, MasterCard and VISA, and represents a globally recognized standard for the use of smart cards, POS terminals and ATMs for the authentication of credit and debit card transactions.
[48] The Bancomat Consortium is the Italian entity that owns the registered trademarks Bancomat and PagoBancomat, as well as the operator of the circuits marked by the same brands.
It has its main office in Rome.

The objective is to simplify the merchant's approach which is enabled to accept the new payment method through the "trusted" device already used for all other electronic payments (the POS), and also to favor the enlargement of the network of acceptance of new systems, to the benefit of users who have already joined the new initiatives.

"Alternative Payment Methods" include P2P (Person-to-Person) payments, which, when they involve the merchant, become P2B (Person-to-Business). In this case the order of debit of the "wallet" of the paying customer turns into a credit of the merchant's wallet with an immediate notification on the same POS of the shop.

The notification operation on the POS is possible thanks to the systems and protocols specifically designed by Ingenico.

Second alternative payment method managed by Ingenico is *ApplePay*[49].

It operates by "virtualizing" the credit card inside the iPhone (versions 6 and up) and is based on the contactless / nfc technology for transmitting the card number to the POS present in the "physical" store (which can then execute your normal transaction).

Finally, Ingenico is engaged in a close collaboration with Alipay, the most widespread Chinese wallet, with the aim of widening the acceptance of this new payment method to Italian stores (in particular those of luxury, hotels and cruise ships) ), giving them the opportunity to intercept the substantial expenses made by the millions of Chinese tourists who visit Italy each year.

From the technological point of view, Alipay is a wallet that is based, for user identification and expense authorization, on bar-codes displayed on the customer's smartphone or on the display of the store's terminal. In both cases, the Ingenico technology allows you to collect transaction data, send them to the authorization in China and receive the transaction clearance in a few seconds, to the complete satisfaction of the tourist and the merchant.

- **PayPal :**

[49] Apple Pay is a non-instantaneous, mobile payment tool created by Apple Inc. that allows you to make contactless payments using an iPhone 6 (and above) or an Apple Watch (of any generation) in physical stores via the integrated NFC sensor, or you can use it with online payments on websites and apps that also support it via Mac and iPad Air 2 and above.
In Italy, the service works with debit cards, credit cards and prepaid cards of the most used circuits, therefore American Express, VISA, V Pay, MasterCard and Maestro and supported banks. For a complete list of banks, apps and affiliated businesses visit: https://www.apple.com/it/apple-pay/

PayPal is an online payment system that allows any company or consumer who has an email address to send and receive payments.
By registering for free, you can open your account that allows you to make payments using the email and the related password.
Your account can be associated with a credit card (up to a maximum of eight), or a prepaid card, or you can top up without charge from your bank account.
The basic idea is to carry out transactions without sharing the card data with the final recipient of the payment: in fact, the system does not transmit the sensitive data of the cards connected to the account.
The sending of money is free, while the reception is subject to tariffs. As for the withdrawal, it is free if the amount is over 100 euros, while you pay 1 euro if it is lower.
From the PayPal account it is also possible to transfer funds to your current account or to your card.
PayPal, as explain for the e-wallets, is a service that allows to make payment online, it was founded in 1998, even before the word "fintech" existed, by Peter Thiel, Max Levchin and the well-known to the public Elon Musk, the founder of Tesla and many other green/ electricity projects.
As a first comer, the success of PayPal was immediately recognizable, so eBay Inc., the famous eCommerce marketplace, acquired the company in 2002 for 1,4 billion, a record amount for that time.
Due to the huge success in the next decade, PayPal started in 2014 to unbundle from eBay and PayPal Holdings Inc. was founded, the company that would be listed on the stock exchange the following year (summer 2015).

The PayPal basics fundamentals are three:

1. The first idea of PayPal is that the user should be allowed to purchase online without sharing his own data or his credit card/bank account details with the receiver of the payments.
   In fact, while purchasing with PayPal on an e-commerce he doesn't need to insert any data except for his password in order to login to PayPal.

2. One other fundamental concept is that the payment should have be as easy as it was on physical store.
   Elon Musk's team idea was that if people were used to pay in store by giving the credit card password, why online they should have insert the number of the card, the holder name, the CVV etc.
   It acts as a third party trusted by both user and merchant, as well as banks and circuits act for credit card payment.

3. Last but not least, it grows financial inclusion. The service is for free, the user has no setup fee, monthly fees or transaction fees, people just need an email in order to create an account.
   Moreover, the wallet can also be recharge with credit card or bank accounts, by simply transferring funds from some PayPal wallets to another one.
   The cost is completely charged on the Merchant.

The following realities are very interesting and useful to continue the analysis that this paper aims at:

- ***EVO Payments***

EVO Payments International is a leading payments service provider of merchant acquiring and processing solutions for merchants, Independent Software Vendors (ISVs), financial institutions, Independent Sales Organizations (ISOs), government organizations and multinational corporations located throughout North America and Europe.
A principal member of Visa and MasterCard, EVO offers an array of innovative, reliable and secure payments solutions and merchant services, backed by an uncompromising commitment to exceed the expectations of our customers and partners.
EVO Payments International GmbH ("EVO") is the European subsidiary of the "EVO Payments International" group with headquarters in New York, USA.
As Principal Member of the Visa and MasterCard circuits, EVO offers international solutions for the acceptance and processing of debit and credit card transactions in fixed-line shops, e-commerce and mail order business, as well as at ATMs.

The full service offer is supplemented by additional non-cash payment methods, risk reduction systems and additional services.
A team of competent specialists and an exceptional technical platform guarantee excellent solutions for the simple, rapid and safe execution of payment procedures.
It is therefore no coincidence that EVO is the exclusive provider of card acceptance services for leading financial institutions, such as the Global Transaction Banking (GTB) business division of Deutsche Bank in Europe or Postbank, and has been confirmed as the best supplier for merchants operating internationally.

Main customers / partners: *Bosch, Esprit, Grohe, Illy, Media-Saturn, Mercateo, Opodo, Shell, Travelex.*

- ***Nets A/S***

Nets A/S provides digital payment processing solutions. The Company offers card payment, invoice handling, credit transfer transactions, and merchant services. Nets serves customers worldwide.
Directly from the 2018 report[50] we can discover the development of the group's numerous activities.
In detail :

*Merchant Services* : Merchant Services provides the merchant customers with payment acceptance solutions across channels (in-store, online and mobile) and with the broadest range of payment methods in the Nordic region, including Visa, MasterCard, JCB, Diners, Discover, Union Pay, AliPay, and local payment brands.
Merchant Services manages and simplifies merchants' payments flow.
Nets A/S enables merchants to accept payments, easily and without friction regardless of channels, receive the settlement in their bank account and get detailed reconciliation information and statistics, all in different currencies and frequencies depending on merchant needs and their customers' preferences.
They also offer merchants value-added service for electronic receipts and loyalty solutions, all with simple and fast set-up.

[50] https://investor.nets.eu/~/media/Files/N/Nets-IR/documents/nets-annual-report-2018.

Acquiring revenue is primarily driven by transaction fees. Terminal revenues are primarily monthly subscription fees for POS terminals or revenues from sold POS devices. Our e-com business generates both transaction fees and monthly fees.

*Financial & Network Services* : Financial & Network Services provides processing services for issuers of payment cards (primarily banks) and merchants, offering a complete end-to-end service and full life-cycle management of cards from both international and domestic card schemes.

Besides being a card processor for customers across the Nordic and Baltic countries, Financial & Network Services also offers complementary services, including Consumer Management Services (CMS) and Risk Management Services (Fraud & Dispute solutions).

The business segment also operates and/or processes the national debit card systems in Denmark and Norway, branded Dankort and BankAxept respectively.

These schemes have been instrumental in the establishment of a modern Nordic electronic card payment infrastructure.

The revenue model for Financial & Network Services is primarily transaction-based combined with additional volume-related fees for additional services.

*Corporate Services* : Corporate Services offers a leading ecosystem consisting of electronic invoicing and payments, instant payments services, e-identity services, as well as digitalisation solutions to banks, corporates and their customers.

The business segment's solutions enable banks and corporates to invoice their customers electronically and receive payments in due time, with the benefit of reduced churn. More than 90% of Danish and Norwegian households use services from Nets to pay their bills.

At the same time, instant payments solutions from Nets are gaining momentum in Europe. In 2018, Nets won a contract and implemented the instant payments solution RealTime 24/7 in Hungary.

This came in addition to contracts already won in Denmark, Italy and Slovenia. Corporate Services also offers national-identity solutions in Denmark and Norway.

For the majority of its revenue, Corporate Services' revenue model is transaction-based and built upon a strong network of payees and payers featuring recurring payments as the core value proposition.

In Norway, the services are sold to the banks, which sell them to their business customers, while in Denmark the services are sold directly to corporates.

- ***Square inc.***

Square, Inc. (SQ) was founded in 2009 by Jack Dorsey and Jim McKelvey, two entrepreneurs who shared a dream to create a company that could aggregate merchant services and mobile payments into a single, easy-to-use service.
Less than a decade later, Square has been downloaded over 33.5 million times and small businesses accept credit cards, track their sales and inventory, and even obtain financing.
Square's product line includes Square Cash, which allows users to send and receive money for free using a mobile application, and Square Point-of-Sale, a free application that allows merchants to process payments via smartphone.
Square Inc. released Q3 2018 earnings on November 7, 2018. The peer-to-peer payment processor reported $431 million in revenues this quarter, a 68% increase from $257 million over the same period last year.

Square received seven rounds of private funding before the company went public in November 2015.
The last round of funding before its IPO was a Series E financing in October 2014 from Acequia Capital, but other investors in the company include Sequoia Capital and Khosla Partners.
On November 19, 2015, Square's shares began trading on the New York Stock Exchange at $9 per share with a company valuation of $2.9 billion.
As of November 8, 2018, Square's market capitalization has grown to $31.15 billion, or a 974.14% increase in price from its IPO.
In November 2017, the Square Cash App announced a trial that made bitcoin trading available to some of its users.
The stock price rocketed to a record high of $48.86 per share following the news.
On March 12, 2018, the stock reached $54.89 per share, its highest level since its IPO, on positive news about extending its bitcoin trading services to Wyoming. On April 27, 2018, Square announced its acquisition of San Francisco-based Weebly, a website construction service and web-hosting service company.

Square acquired food delivery service Caviar in August 2014 and became the first company to own both a food delivery company and a point-of-sale service when it launched Square for Restaurants in May 2018.

Square charges merchants 2.75 percent of the sales price of any transaction they process via swipe, insert, or tap, and 3.5 percent plus 15 cents for every transaction that is manually keyed in.

Square POS enables customers to pay, tip, and sign on a merchant's mobile phone or tablet, and merchants can use it to process payments made with credit cards, gift cards, and cash.

Business owners can also use the app to send and track invoices, customize products, email receipts, apply discounts, administer refunds, access real-time sales data, and track inventory in real-time.

Square POS is typically used in conjunction with Square Reader, a small device that can be installed on a smartphone or tablet that reads credit and debit cards.

Users can access this information and engage in these activities by logging onto the app's dashboard.

The money from the merchant's transactions is typically deposited into their bank account in one to two business days.

Other products offered by the company include Square Analytics, a set of free tools that can be applied on top of its POS products, and Square Appointments, an online service that allows users to book appointments.

Square Stand, one of the company's few physical products, allows users to turn an iPad into a complete point-of-sale tool.

The company has also expanded into financing small businesses with products like Square Capital, which provides cash advances to merchants without a limit on when they need to be paid back.

The firm also now provides complete payroll services to businesses in 38 states with Square Payroll.

Square released a new version of Square Reader in 2015 that is compatible with Apple Pay and other digital payment systems.

Some of the companies that Square has acquired include *Storehouse, Fastbite, Kili, and Caviar*, in addition to a partnership with e-commerce platform *BigCommerce*.

The company's major competitors include *Google Wallet* , Intuit Inc. , and PayPal-owned *Venmo*.

The company now has offices in several countries including the United States, Canada, and Japan.

Square has more than 2,000 employees and its board of directors includes former U.S. Treasury Secretary and Harvard University President Lawrence Summers, and former CFO of Goldman Sachs David Viniar.

# Chapter 3 – Payment Companies and ECM: recent transactions analysis

## 3.1. Introduction: aim of the Chapter

The large and fast growth registered in the payments landscape has made the payment market highly attractive from an investor perspective.

In the last 5 years there has been a particularly high volume of transactions showing growing investors' appetite and interest for Fintech and in particular payments sector companies: from 2015 to 2019 there have been more than a dozen of initial public offerings in the EMEA market.

From 2010 to 2019 Fintech and Payments issuance volumes worldwide grew at a compounded annual growth rate of ca. 35%, reaching in 2015 unprecedented record volumes of $18.7 billion globally (of which more than half were Initial Public Offerings), with an increase of ca. 297% with respect to 2014.

In 2019 global issuance amounted to €18 billion, (+8.4% vs 2018), confirming a new record from 2016, second only to the record year 2015.

In the EMEA market, total follow-ons and IPO issuance volumes amounted to €11.9 billion in 2019 (+283% vs 2018), accounting for 66% of total issuances worldwide.

*Figure 13 - Fintech and Payments Global Issuance ($bn)*

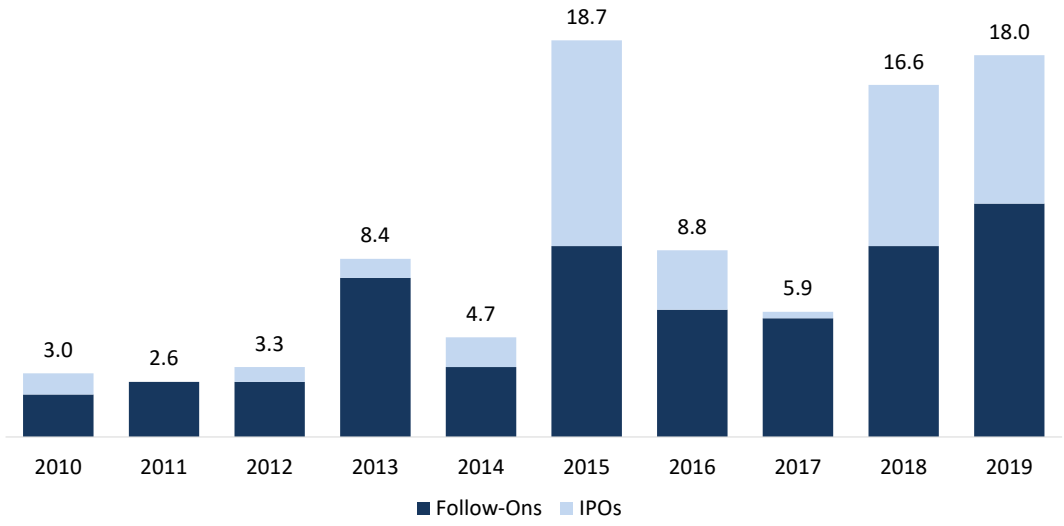
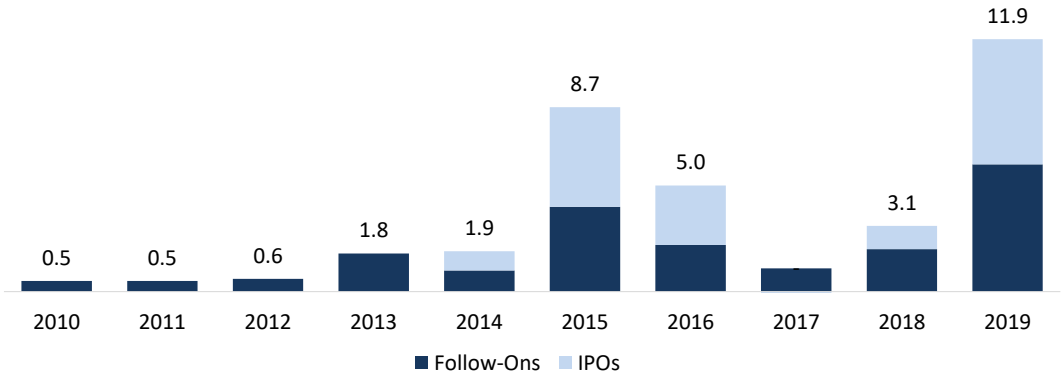


*Figure14 - Fintech and Payments EMEA Issuance ($bn)*




Although the IPO performance of the companies has been extensively researched during the years, less research has been conducted on the performance of the IPO of Fintech companies, due to the fact that the sector has seen its major growth only in the recent years.

The purpose of this chapter is to analyze the stock performance of a group of EU and US Fintech companies active in the payment sector, providing new insights into the IPO performance of Fintech companies.

The research question of this thesis is to examine the aftermarket IPO performance and the performance of the companies' stocks in the medium term, by considering the share price movements in the first day of trading versus the first week and after one, three and six months.

At the end of the chapter, a section will be dedicated to the case of Nexi S.p.A., the Italian company leader in the domestic payment landscape, which listed on the Italian exchange (Borsa Italiana S.p.A.) in April 2019, representing the Europe's largest IPO of the year.

The research period considered is the last 5 years, in particular from 2015 to 2019, that is the period in which the Fintech and payment industry sector emerged, thanks to the growth of digital payments especially in the mobile segment, undoubtedly driven by the growth of e-commerce and the widespread of the Fintech revolution.

## 3.2. Selection of the peer companies to analyze

In order to choose a group of peers to form the data sample, a set of companies operating worldwide in the payment services sector, which were subject to an Initial Public Offering (IPO) in the period 2015-2019, was considered.

In the choice of the companies to be included in the sample, no geographical or dimensional distinction was made as it has deemed to be not significant to distinguish the companies by territorial affiliation and size for the purpose of this thesis, but it has been considered as main criteria for the choice of the peer companies only the sectoral membership.

All the companies to form the sample, indeed, operate in the payment landscape providing payments services and solutions to merchants and/or financial institutions and business, enabling electronic payments acceptance, and processing services (route transactions data from payments terminal or online payment gateways to front-end networks); some companies in the sample are also active in providing issuing processor services, i.e. authorizing transactions and settling/clearing card accounts (Nexi, NETS, First Data).

The selection ended up with the choice of twelve US and EU companies: Nexi S.p.A., Adyen, EVO Payments, Pag Seguro, NETS, Resurs, Square, Equiniti, FirstData, Worldpay, CPI Card Group, Collector.

### 3.2.1. Business Description

Below is provided a table that summarizes the nationality, key financials and a brief business description of the selected companies, as of today:

*Table 1 - Peers Group Business Overview*

| Companies | Country | Market Cap (€/m) | Business Description | Key Financials |
|---|---|---|---|---|
| nexi |  | 8,123 | EU company providing payment technology solutions which enable banks, merchants, and consumers to make and receive digital payments. It operates through the following business units: Merchant Services and Solutions; Digital Payments and Cards; Digital Banking Services; and Other Service | Revenues '18: €931 m<br>EBITDA '18: €424 m<br>Net Debt 18': €2,454 m |
| adyen |  | 25,847 | EU company that allows businesses to accept e-commerce, mobile, and point-of-sale payments, serving more than 3,500 customers. It operates through Europe, North America, Latin America, Asia-Pacific, and Rest of the World | Revenues '18: €1,652 m<br>EBITDA '18: €191 m<br>Net Debt '18: -€54.9 m |
| EVO |  | 2,139 | US company offering payment solutions to merchants ranging from small and mid-size enterprises to multinational companies and organizations across the globe | Revenues '18: €478.7 m<br>EBITDA '18: €54.3 m<br>Net Debt '18: €328.2 m |
| pagseguro UOL |  | 10,447 | Online or mobile payment-based e-commerce service for commercial operations, part of Universo Online, Brazil's largest Internet portal | Revenues '18: €1,005 m<br>EBITDA '18: €313.5 m<br>Net Debt '18: -€623.6 m |
| nets |  | Private Company | EU company provider of payments, card, and information services for financial institutions, businesses, and merchants | Revenues '18: €1,021 m<br>EBITDA '18: €265 m<br>Net Debt '16: €887 m |
| First Data. |  | Private Company | US provider of commerce-enabling technology and solutions for merchants, financial institutions and card issuers, operating through three business units: (i) global business, (ii) global financial and (iii) network&security | Revenues '18: €8,051 m<br>EBITDA '18: €2,553 m<br>Net Debt '18: €14,910 m |
| worldpay |  | Private Company | US Company engaged in payments processing technology and services, operating through two main business units: (i) merchant solutions and (ii) financial institution services | Revenues '18: €3,327 m<br>EBITDA '18: €1,341 m<br>Net Debt '18: -€6,743 m |
| Resurs Holding |  | 1,031 | EU company engaging in the provision of banking and financial services. It operates through the following business segments: Payment Solutions, Consumer Loans, and Insurance. The Payment Solutions segment comprises of retail, finance, credit cards, and factoring | Revenues '18: €419.2 m<br>EBITDA '18: € m<br>Net Debt '18: €782 m |
| Square |  | 31,135 | US company that provides mobile payment solutions, develops point-of-sale software that helps in digital receipts, inventory, and sales reports, as well as offers analytics and feedback. Square also provides financial and marketing services. | Revenues '18: €2,796 m<br>EBITDA '18: €99.3 m<br>Net Debt '18: -€226 m |
| collector bank |  | 332 | EU company providing financial services, credit management and payment solutions. It operates through the Retail segments, offering personal loans, credit cards, and retail financing solutions for e-Commerce and retail chains, as well as savings accounts through online services, and the Corporate segment, which involves in factoring and corporate lending to SMEs | Revenues '18: €207.3 m |
| EQUINITI |  | 955 | UK company provider of sophisticated technology, administration, processing and payments services, delivered by over 5,000 employees worldwide | Revenues '18: €600 m<br>EBITDA '18: €137.6 m<br>Net Debt '18: €339 m |
| cpi card group |  | 8,151 | US company engaging in the provision of financial payment card solutions, operating through two segments: U.S. Debit and Credit and U.S. Prepaid Debit. The former segment produces Financial Payment Cards and provides integrated card services to card-issuing banks in the U.S. The U.S. Prepaid Debit segment provides integrated card services to Prepaid Debit Card program managers in the U.S. | Revenues '18: €216.8 m<br>EBITDA '18: €19.5 m |

*Source: Companies' websites, annual reports, Facset*

*(1) Market cap of the companies in €/million as of 24/01/2020, Source: Facset data*

*(2) Key Financials as of 31/12/2018, Source: Facset data*

### 3.2.2. IPO Description

In the following paragraph a brief overview of the Initial Public Offerings of the companies composing the sample will be provided.
For the Italian Nexi, the last company which went public within the group, a paragraph will be dedicated at the end of the chapter to further highlight the Italian case and compare the share performance post IPO of the companies with respect to the others.

- ***Adyen***

Adyen N.V. ("Adyen") offered its shares on Euronext Amsterdam on 13th June 2018.
The company is a Dutch fintech that has launched an omni-channel technology platform capable of simplifying and speeding up the flow of payments thanks to the management of in-store, online and mobile transactions in a single solution.
The Offer Price was set at €240, implying a market capitalization of €7.1 billion based on the number of Shares outstanding. The Offer price was set at the high end of the price range which was originally set at €220 – 240.
The Offering was multiple times oversubscribed at the Offer Price with strong demand from institutional investors globally.
The Offer was 100% secondary and the proceeds were mainly used to provide the Selling Shareholders with an exit opportunity for part of their shareholding.
In addition, the purpose of the listing was to create a possibility for the investors to participate in the future of the company, supports Adyen's ability to maintain, promote and enhance its brand among merchants.
As part of the offering, 3,537,754 existing shares were placed with institutional investors in various jurisdictions, including the Netherlands, representing approximately 13% of the company's issued and outstanding share capital.
The total size of the Offering amounts to €849 million.
Morgan Stanley & Co. International plc and J.P. Morgan Securities plc acted as joint global coordinators for the Offering, together with ABN AMRO Bank N.V., Merrill Lynch International and Citigroup Global Markets Limited as joint bookrunners for
the Offering.

- ***Evo Payments***

Evo Payments, a payment service provider operating throughout North America and Europe, offering payment solutions to merchants ranging from small and mid-size enterprises to multinational companies and organizations across the globe

The company listed on US Nasdaq on the 23th May 2018 with the ticker EVOP.

The company completed its Initial Public Offering on 22th May 2018, with an Offer Price of $16.0, which was set at the high-end of the projected price range of $14-16.

The offering was made for 95% of newly issued shares, with the aim of using primary proceeds to acquire ca. 20% of a parent company EVO Investco LLC, through which the firm will operate and control all of the business and affairs of the parent.

Company shares on the stock market started trading at ca. $20, that is ca. 25% higher than the company's initial public offering price, implying a company market valuation of $1.54 billion, and closed at $19, recording a performance of +19% in the first day of trading.

After the first week of trading, shares raised up to ca. 29% of the offer price and to ca. 32% and 38% respectively after one and three months respectively.

- ***Worldpay Group***

Worldpay, leader in global payments and with a long history of over 30 years in the payment industry, is listed both on Nyse and Lse-London Stock Exchange with a market capitalization of €27.102 million.

In the last years the company has been subject to an intense activity of acquisitions: on 16th January 2018 has been object of company acquisition from the United States company Vantiv, one of the most important international players in providing technology platforms and solutions for acceptance and processing of digital payments in favor of merchant customers. The company is listed respectively on Nyse from 22 March 2012 after being issued by Vantiv and from 2015 on the Lse, issued by Worldpay through an IPO process.

The company Worldpay Group, listed on 13th October 2015 on the London Stock Exchange, confirming the transaction as the largest EMEA Sponsor Ipo and the largest EMEA Fintech Ipo ever. The Syndicate pool was leaded by BofAML Merril Lynch, Goldman Sachs and Morgan Stanley as Joint Global Co-ordinators and Joint Bookrunners.

Bain Capital and Advent International bought Worldpay from Royal Bank of Scotland in 2010 for £1.7 billion and has chosen the IPO as exit strategy expecting to make about four times their initial investment in the company.

Net primary proceeds to the company are ca. £984m used for de-leveraging purposes, in particular, to reduce leverage to ca 3.75x net debt/Underlying Last-Twelve-Months Ebitda.

Early stage investor meetings, including site visits, started in June 2015, reaching 40 institutional investors globally; 32% of final demand came from early look accounts with a 78% conversion rate.

On July 2019 Worldpay Group has been taken private by Fidelity National Information Services (FIS), which acquired the 53% of the company with a valuation of $43.6 billion in terms of enterprise value.

- ***Square Inc.***

Square Inc. is a financial services, merchant services aggregator, and mobile payment company based in San Francisco, California. The company was founded in 2009 by Jack Dorsey and Jim McKelvey and launched its first app and service in 2010. It has been traded as a public company on the New York Stock Exchange since 18th November 2015 with the ticker symbol SQ.

The Offer Price was set at $9, implying a company value at $2.9 billion. The Offer Price was set at the bottom end of the price range which was originally set at $11-13.

The IPO structure was made up of existing shares for 5% (sold by PE funds Sequoia Capital, Khosla Venture and Citi Ventures), while the 95% was new right issues.

During the market debut, the shares raised over 45%. However, the share price dropped by the end of January due the disappointed first-quarter result. Furthermore, 2017 was an excellent year for the company, the investments led to strong revenue growth. In fact, Square accelerated its adjusted revenue growth in each quarter starting from 39% year-over-year growth in the first quarter to 47% growth in the fourth quarter.

- ***Pagseguro Digital***

Pagseguro Digital is a Brazilian based payment company that provides online and in-store payment services, including mobile services, for small business in Brazil. The company launched in 2006 the online platform to provide the digital payment services for e-commerce.

It has been traded as a public company on the New York Stock Exchange since 24th January 2018 with the ticker symbol PAGS.

The Offer Price was set at $21.5, implying a company value of $2.3 billion. The Offer Price was set above the indicative range set at $18-21.

The IPO structure was 95% of new shares issued and the other 5% was existing shares.

On its first day of trading, the shares raised over 35%, the rally continues during the whole year PAGS closed the year with a performance of +54.7%

- ***NETS A/S***

Nets Group is a Nordic-based payment service provider. The company has been known as Nets since 2010, but it has a history that goes back to 1968. The headquarter company is in Copenhagen, but also in Oslo, Stockholm, Helsinki and Tallinn. The customers of Nets are banks, businesses, merchants and the public sector.

It has been traded as a public company on the Copenhagen Nasdaq since 27th September 2016 with the ticker symbol NETS TEMP. Existing Nets shareholders sold between 37.7 million and 70.6 million of their shares while managers at the company have been granted an overallotment option of up to 15.75 million shares.

The Offer Price was set at DKK 150 with an indicative range set between DKK 130 - 160, implying a company value of DKK 30 billion (4.5 billion in USD). The NETS IPO has been arranged by Deutsche Bank, Morgan Stanley and Nordea as Global Coordinator and joint bookrunners. The IPO comes only two years after its 17 billion crown acquisition by private equity firms Advent International and Bain Capital along with Danish pension fund ATP in March 2014.

On 2nd February 2018, Evergood 5 AS has exercised the right to complete a compulsory acquisition of the shares in Nets A/S held by the remaining minority shareholders. Consequently, Evergood 5 AS submitted the request of de-listing on official listing of Nasdaq Copenhagen (the 12th of February was the last day of trading as a public company for NETS).

- ***Resurs Holding***

Resurs Holding (Resurs) operates through its subsidiaries Resurs Bank and Solid Försäkring AB, as a leader in retail finance in the Nordic region, offering payment solutions, consumer loans and insurance products.

Resurs' operations are divided into three business segments: payment Solutions, Consumer Loans and Insurance. Resurs Bank was granted a banking license in 2001 and it is supervised by the Swedish Financial Supervisory Authority.

The company has been listed on Nasdaq Stockholm Large Cap since 26th of April 2016.

The indicative range was set between SEK 50 – 60, and the offering price for Resurs's initial public offering was set at SEK 55 per share.

The offering has been arranged in two different placements:

1. Domestic Market, offered to the public in the Sweden
2. Foreign Market, private placements to institutional investors, including US 'qualified buyers'

On the first day of trading shares of Resurs closed with a price increase of 0.2% with respect to the IPO Offer Price.

- ***CPI Card Group***

CPI Card Group Inc., a leading provider of financial payment card solutions in North America, closed its initial public offering of 17.3 billion of common shares at an initial offering price of $10 per share, for gross proceeds of $172.5 million. The company is listed on Nasdaq under the ticker symbol "PMTS".

On the first day of trading the shares closed registering an increase of ca. 22% with respect to the Offer Price.

On May 11th 2016, CPI Card reported disappointing financial and operational results of first quarter 2016 and significantly reduced its fiscal financial outlook. Following that earnings announcement the Company's shares declined $3.65 per share, or over 47%, to close the following day at $4.01 per share. The closing price of CPI Card's common stock on May 12, 2016 represented a decline of 60% from the price of the common stock sold to investors at the time of the IPO seven months prior.

- ***Collector***

Collector is a niche player in the banking and financial services sector that offers innovative financial solutions to private and corporate customers. The company operates through two business divisions: retail and corporate. The retail branch operates through lending to private individuals through personal loans, financing solutions to support e-commerce and retail chains and credit card services. The corporate branch relates to factoring and lending direct towards small and medium enterprises.

The company is listed on Nasdaq Stockholm exchange with the ticker "COLL" from June 10th 2015.

The Offering Price set at SEK 55 per share with a implying a company valuation of SEK 5.135 billion (€93.4 bn).

The Offering comprised ca. 18 million of shares in Collector, corresponding to 19.5% of the total number of shares (21% with full exercise of greenshoe), of which approx.. 7 million newly issued shares by the Company and 10 million existing shares which have been sold by existing shareholders: Ernström Kapitalpartner AB, Helichrysum Gruppen AB, Muirfield Invest AB, StrategiQ Capital AB and Styviken Invest AS (40% newly issued shares and 60% existing shares).

Primary and secondary proceeds from the offering were mainly used with the aim of strengthen the company's capital base and with growth purposes.

On its debut the company share price raised up to 10% versus the offer price.

- ***First Data***

First Data is a global leader in commerce-enabling technology and solutions,

The company listed on NYSE on 15th November 2015 with an Offer Price of $16, raising $2.56 billion proceeds.

The Offer Price was set at the bottom of the indicated price range of $18 - $20.

The IPO structure was 100% of newly issued shares with a plan of reducing the outstanding debt with the primary proceeds raised.

The company was controlled by the private equity firm KKR & Co LP which acquired the company in 2007 for $29 billion with a leveraged buyout.

On July 29th 2019 Fiserv announced that the acquisition of First Data Corporation has been completed for $22 billion in an all-stock transaction.

The combined company carries the Fiserv brand and continuing to trade on the Nasdaq Global Select Market under the ticker symbol FISV.

- **Equiniti**

Equiniti Group plc is a British-based outsourcing business focused on financial and administration services.

The company listed on the London Stock Exchange on 27th October 2015 with the ticker symbol EQN.

The group, is owned by a consortium including TPG, Goldman Sachs, Anchorage Capital Group and Strategic Value Partners, controls about 70% of UK retirements homes market.
The Offer Price was set at £1.65, valuing company at £495 billion. The Price was set at the bottom end of the indicative price range originally set at £1.65 - £2. The IPO structure was 99% of new right issues and 1% was existing shares.
During the market debut, the shares dropped low to £1.49 on the first day of trading, implying a negative first day performance.

### 3.3. Price Performance Analysis

This paragraph relates to the empirical analysis that has been performed on the share price movements post IPO of the companies selected.

#### 3.3.1. Methodology

Before discussing the main results, a description of the methodology will be provided in the following lines.

In order to analyze the performance of the companies' stocks on their debut on the stock market after the IPO, I considered the average first-day return, calculated as the percentage difference between the first-day closing price ($P_{i,1}$) and the IPO Offer Price ($P_{i,0}$):

$$1° \; Day \; Performance = \frac{P_{i,1} - P_{i,0}}{P_{i,0}}$$

In this way it will be provided a measure of the absolute short-term performance of the stock immediately after the IPO.

On the other hand, a Market-Adjusted price performance has been evaluated by comparing the share price movements of the companies with that of a Benchmark represented by a local market index, in order to compare the company's performance with the general performance of the local stock market. In this sense the First-day performance compared to the performance of the Benchmark has been evaluated in the following way:

$$1° \; Day \; Relative \; Performance = \left( \frac{P_{i,1} - P_{i,0}}{P_{i,0}} - \frac{I_{i,1} - I_{i,0}}{I_{i,0}} \right)$$

Where $I_{i,0}$ is the Market Index performance at the end of the first day of trading and $I_{i,1}$ is the Market Index performance recorded the day after.

The performance of the stocks has also been compared with the one of the local governments to provide a second measure of relative performance.
To do so, I considered the spread between the return of the local treasury bonds with ten years maturity and the return of the Germany bunds, considered as benchmark.
A proxy of the performance of local governments has been then evaluated considering the increase/decrease in the spread level with respect to the IPO date.
Then to obtain another measure of relative performance, the share price performance has been compared to the one of the local governments.
In this way for each company in the sample a measure of absolute and relative performance is provided.

This exercise is then repeated five times, in order to analyze the absolute and relative performance of the stocks at different time intervals since the IPO date: one week after, one – three – six months after and to date (as of 30/12/2019).

### 3.3.2. Main Findings

Below I provide a summary table resuming the key IPO details of each company; in particular the table shows:

- Market Cap: defined as the number of shares outstanding times the price per share; calculated in €/million to provide a measure of the size of each company

- Offer Price: is the price determined by the Company and the Selling shareholders, after consultation with the investment banks coordinating the offering, at the end of the offering period, set on the basis of the strength of demand, investors allocation expectations and equity market trends; the offer price will be reported in the local currency of each company

- Filing Range: is the indicative price range set prior the Roadshow/Bookbuilding and determined by the coordinators of the offering on the basis of the Investor Education activity, during which research analysts meet the investors globally to market the investment proposition of the company; the indicative price range reported below will be in local currency, in line with the offer price

- Free Float: is the percentage of the company sold during the IPO, with respect to the company's entire share capital

- New Issuance: is the percentage of the offer constituted by newly issued shares that means new cash raised for the company; primary proceeds are usually used by a company for growth or de-lever purpose

- Existing Shares: is the percentage of the offer constituted by existing shares sold by existing shareholders; secondary proceeds usually represents an opportunity for existing shareholders to monetize their stake

*Table 2 - IPO Details*

| Peers | Country | IPO details | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | Market cap[1] (EUR m) | Offer price (LCY) | Filing range (LCY) | Free float (%) | New issuance (%) | Existing shares (%) |
| NEXI | Italy | 16/04/2019 | 5,650 | 9.0 | 8.5 - 10.35 | 36.4% | 30.0% | 70.0% |
| Adyen | Netherlands | 13/06/2018 | 7,067 | 240.0 | 220 - 240 | 13.0% | 0.0% | 100.0% |
| EVOPayments | United States | 23/05/2018 | 207 | 16.0 | 14 - 16 | 20.0% | 95.0% | 5.0% |
| PagSeguro | United States | 24/01/2018 | 4,545 | 21.5 | 18 - 21 | 20.0% | 95.0% | 5.0% |
| NETS | Denmark | 28/09/2016 | 674 | 150.0 | 130 - 160 | 38.0% | 35.0% | 65.0% |
| Resurs | Sweden | 29/04/2016 | 1,195 | 55.0 | 50 - 60 | 35.0% | 0.0% | 100.0% |
| Square | United States | 19/11/2015 | 2,702 | 9.0 | 11 - 13 | 9.0% | 95.0% | 5.0% |
| Equiniti | United Kingdom | 27/10/2015 | 685 | 1.7 | 2 - 2 | 62.0% | 99.0% | 1.0% |
| FirstData | United States | 15/10/2015 | 14,590 | 16.0 | 18 - 20 | 20.0% | 100.0% | 0.0% |
| Worldpay | United Kingdom | 13/10/2015 | 6,430 | 2.4 | 2 - 3 | 52.0% | 44.0% | 56.0% |
| CPI | United States | 09/10/2015 | 605 | 10.0 | 16 - 18 | 31.0% | 0.0% | 0.0% |
| Collector | Sweden | 10/06/2015 | 19 | 55.0 | 55 - 55 | 21.0% | 40.0% | 60.0% |
| **Average** | | | **3,697** | **n.m.** | **n.m.** | **29.8%** | **52.8%** | **38.9%** |
| **Median** | | | **1,948** | **n.m.** | **n.m.** | **26.0%** | **42.0%** | **30.5%** |

*Source: Companies' websites, Prospectus, Facset*

*(1) Market cap of the companies in €/million calculated at the IPO date using relevant exchange rates, source: Company IPO Prospectus*

Comparing the IPO highlights, collected from companies' prospectuses, it is possible to say that on average the Offer prices have been set by the companies on the high end of the Indicative Price Range, implying that on average the companies received a good/strong demand by investors during the roadshows, thus showing the appetite for investors globally in investing in payment sector.

*Table 3 - One day, One Week and One Month Price Performance*

| Peers | Country | 1d-Price performance | | | 1w-Price performance | | | 1M-Price performance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Absolute | vs local index | vs local govies | Absolute | vs local index | vs local govies | Absolute | vs local index | vs local govies |
| NEXI | Italy | (6.2%) | (6.6%) | (6.0%) | (6.7%) | (6.6%) | (3.3%) | (2.9%) | +0.6% | +7.0% |
| Adyen | Netherlands | +89.6% | +88.9% | +120.0% | +73.3% | +74.9% | +78.2% | +145.9% | +146.6% | +128.5% |
| EVOPayments | United States | +18.9% | +19.1% | +15.9% | +28.6% | +28.9% | +31.7% | +31.9% | +31.1% | +32.3% |
| PagSeguro | United States | +35.8% | +35.8% | +34.8% | +30.0% | +30.4% | +29.0% | +50.6% | +53.7% | +56.0% |
| NETS | Denmark | (3.3%) | (3.3%) | (15.9%) | (5.8%) | (4.1%) | (23.9%) | (15.0%) | (6.3%) | n.m. |
| Resurs | Sweden | +0.2% | +0.8% | (8.8%) | (0.4%) | +3.4% | (2.3%) | +1.6% | +0.2% | (1.2%) |
| Square | United States | +45.2% | +44.8% | +46.4% | +33.9% | +33.5% | +34.5% | +36.0% | +38.9% | +29.3% |
| Equiniti | United Kingdom | (14.5%) | (15.6%) | (20.9%) | (10.5%) | (10.8%) | (12.8%) | (2.7%) | (3.1%) | +4.4% |
| FirstData | United States | (1.6%) | (2.0%) | (1.6%) | +0.1% | (1.4%) | (2.0%) | +5.1% | +3.6% | +15.7% |
| Worldpay | United Kingdom | +10.4% | +11.6% | +9.2% | +10.0% | +10.0% | +14.4% | +15.0% | +17.6% | +25.7% |
| CPI | United States | +21.7% | +22.3% | +20.4% | +25.3% | +24.4% | +24.0% | +21.1% | +17.8% | +30.0% |
| Collector | Sweden | +9.8% | +10.1% | n.m. | +16.5% | +19.2% | n.m. | +11.3% | +12.6% | n.m. |
| **Average** | | **+17.2%** | **+17.2%** | **+17.6%** | **+16.2%** | **+16.8%** | **+15.2%** | **+24.8%** | **+26.1%** | **+32.8%** |
| **Median** | | **+10.1%** | **+10.8%** | **+9.2%** | **+13.2%** | **+14.6%** | **+14.4%** | **+13.2%** | **+15.1%** | **+27.5%** |

*Source: Companies' websites, Prospectus, Facset*

The absolute performance of the twelve companies analyzed has been equal on average to ca. +17% on the first day of trading compared to the Offer Price.

Excluding the outliers from the sample (Adyen and Equiniti, which reported respectively the highest and the lowest price movements) the performance in the first day has been of ca. +13% compared to the Offer Price.

Adyen's debut, indeed, was record-breaking: the shares reached almost 90% more than the €240 Offer Price, which had already been set at the top of the indicative price range.

The company's shares opened on the market at €400, with a 66% premium over the IPO price, and closed the day at almost 90% more.

Also the Relative performances with respect to the stock market and the local governments have been good on average.

This results turns out to be confirmed even after the first week and the first month of trading.

This allows concluding in a first instance that in the last five years the payment companies shares, recorded positive price performances both in absolute that in relative terms.

*Table 4 - Three Months, Six Months and To Date Price Performance*

| | | 3M-Price performance | | | 6M-Price performance | | | Price performance to date | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Peers | Country | Absolute | vs local index | vs local govies | Absolute | vs local index | vs local govies | Absolute | vs local index | vs local govies |
| NEXI | Italy | +8.1% | +6.8% | (24.8%) | +4.8% | +2.7% | (79.4%) | +37.6% | +30.3% | (20.6%) |
| Adyen | Netherlands | +207.6% | +211.8% | +168.4% | +87.5% | +97.1% | +96.3% | +204.6% | +197.2% | +202.3% |
| EVOPayments | United States | +37.4% | +32.7% | +43.9% | +52.9% | +55.9% | +54.1% | +64.2% | +46.3% | +46.6% |
| PagSeguro | United States | +51.3% | +58.3% | +64.0% | +35.3% | +35.0% | +55.0% | +54.7% | +41.1% | +55.3% |
| NETS | Denmark | (17.0%) | (17.2%) | n.m. | (27.5%) | (30.6%) | +0.6% | n.a. | n.a. | n.a. |
| Resurs | Sweden | (8.0%) | (9.9%) | n.m. | +4.1% | (3.0%) | n.m. | +9.4% | (20.9%) | n.m. |
| Square | United States | +10.9% | +18.7% | (2.8%) | +6.7% | +8.6% | +1.8% | +586.7% | +531.9% | +603.2% |
| Equiniti | United Kingdom | (9.4%) | (1.7%) | (16.1%) | (8.1%) | (6.4%) | (0.7%) | +28.1% | +8.9% | +0.0% |
| FirstData | United States | (14.3%) | (7.7%) | (14.3%) | (17.6%) | (20.5%) | (8.5%) | n.a. | n.a. | n.a. |
| Worldpay | United Kingdom | +29.0% | +36.5% | +33.9% | +14.6% | +16.8% | +23.0% | n.a. | n.a. | n.a. |
| CPI | United States | +3.0% | +6.6% | +8.0% | (11.7%) | (13.3%) | (5.6%) | (98.3%) | (158.2%) | (71.7%) |
| Collector | Sweden | +16.9% | +24.5% | n.m. | +155.4% | +162.6% | n.m. | (8.2%) | (18.2%) | n.m. |
| **Average** | | **+26.3%** | **+29.9%** | **+28.9%** | **+24.7%** | **+25.4%** | **+13.7%** | **+97.6%** | **+73.2%** | **+116.5%** |
| **Median** | | **+9.5%** | **+12.8%** | **+8.0%** | **+5.7%** | **+5.7%** | **+1.2%** | **+37.6%** | **+30.3%** | **+46.6%** |

*Source: Companies' websites, Prospectus, Facset*
*(1) Performance to date has been evaluated as of 31/12/2019*

The table presented above summarizes the stocks' performance in the three months, six months and to date of the companies in the sample.

On average the trend that has been witnessed in the first months continued also after three, six months and to date: the companies in the group recorded an average price performance of ca. +26% and +25% after three months and six months.

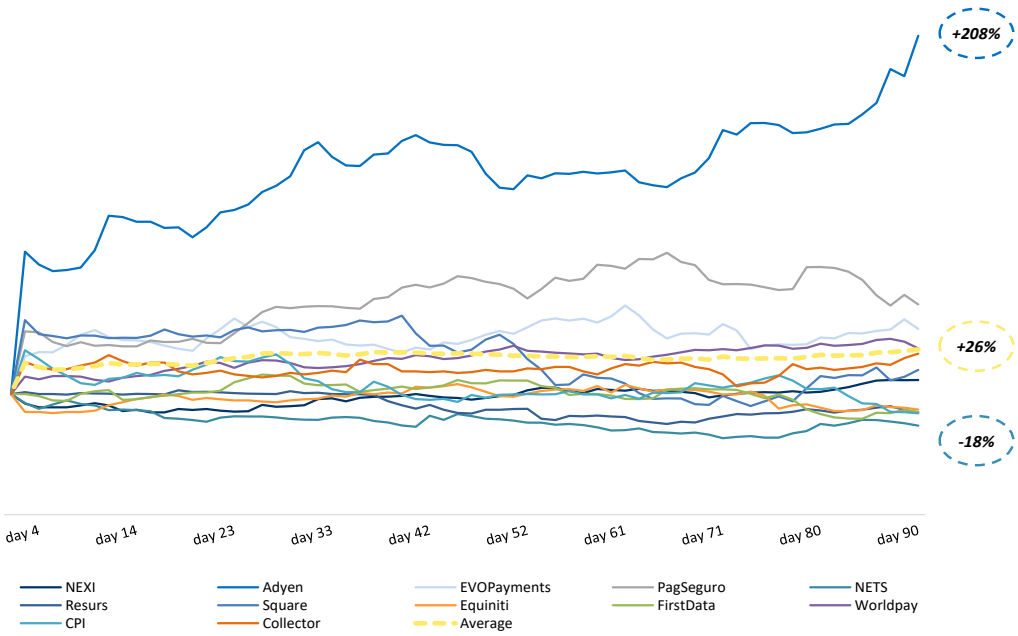
During the period considered some companies have been taken private and delisted; in particular, according to Merger Market, the deals related the following companies:

- NETS: on 01/12/2018 Evergood 5 AS, a newly formed company controlled by funds managed and advised by Hellman & Friedmam, in a consortium with GIC Private Limited (14%), Advent International and Bain Capital Private (16%) and StepStone Group LP and Fisher Lynch Capital LLC as minority co-investors, performed a voluntary takeover of NETS AS, for a total deal value of
- First Data: on 29/07/19 Fiserv Inc. has agreed to acquire First Data Corp for a total deal value of €33.7 billion

  According to Merger Market: "The combined company will have enhanced payments capabilities to provide a range of payments and financial services. The combined company will offer comprehensive distribution channels and will have expertise in partnering with financial institutions, merchants and billers of all sizes, as well as software developers."
- Worldpay: on 31/03/2019, Fidelity National Information Services, Inc. (FIS), the listed US-based provider of software, processing, and information services for the financial services and real estate markets, acquired 100% of the equity stakes of Worldpay for a total deal value of €37.5 billion

Below is provided a graph showing the performance of the peers group in the first 90 days of trading, rebased on the first day of trading.

*Figure 15 - 90-days Group Performance since IPO*




*Source: own elaboration using Facset data*

## 3.4. Focus on Nexi S.p.A

### 3.4.1 Company Overview

Nexi S.p.A. ("Nexi") is the Italian leader in the payments landscape, offering services and infrastructures for digital payments for banks, companies, institutions and public administration.

The Nexi Group is the leader in Italy in numerous business sectors ranging from the Cards sector to the Merchant Services sector up to Corporate Digital Banking.

The Group offers best-in-class digital payment services and infrastructures to support banks, financial and insurance institutions, businesses, companies and the public administration.

In particular, in the Nexi offer, cards, payment acceptance technologies, money transfers between companies and private individuals play an important role.

Nexi supports the Partner Banks, helping them to develop the customer base offering an increasingly complete, simple and secure payment experience, close to the customer and in

step with the market evolution, to bring innovation but also to spread digital payments in Italy as much as possible, being these still below the European average.

The company is the largest domestic acquirer in Italy: in 2018 Nexi had 83% market share in physical acquiring for international schemes and 21% share within e-commerce within Italy.
Nexi manages, in different ways, around 41.3 million payment cards and 2.7 billion transactions each year and has about 890 thousand points of sale, 1.4 million POS terminals, 446 billion euro transacted (given 2018), 13.5 thousand ATMs throughout the national territory and 420 thousand companies using Interbank Corporate Banking services[51].
In 2018 the company acted as the acquirer or co-issuer for approximately 90% of the Italian card spending for international schemes.

The company operates through 3 business divisions, covering all the areas of the payment ecosystem:

- Merchant Services & Solutions

Nexi merchant services division accounts for ca. 50% of total revenues.
The Company proposes to retailers, through the Partner Banks, a complete range of solutions and services for the acceptance of every type of payment, with commercial proposals differentiated according to the target and the different needs of the customer.

- Digital Cards & Payments

Nexi cards divisions accounts for ca. 40% of total revenues, offering a complete portfolio of payment products (debit, credit and prepaid cards) leading torwards the digitalization of payments.

[51] The CBI Service is an Italian remote banking service whose management is entrusted to the CBI Consortium - Customer to Business Interaction. In Italy, 95% of financial institutions offer the CBI service in competitive mode. The CBI service is a banking service that allows companies to manage their treasury in electronic mode. In particular, through a single connection the company can optimize all the account relations it has with multiple banks.
In particular, the CBI: centralizes the relationships of a company towards the entire banking system, in a single point; provides a wide range of financial, informational and commercial functions; always uses the same communication standard; provides a service based on bank cooperation, without reducing competitive spaces.

Nexi offer carefully studies every aspect of the payment experience, in order to make it more and more digital and just a click away: cards and smartphones, thanks to web access and Apps, allow clients to dynamically manage their own tools payment, adapting them at best to every use occasion.

- Digital Banking Services

Banks, payment institutions and IMELs offer all types of payments services: from clearing and settlement services to the management of receipts and payments with the related back office activities, from IBAN based real time payments (Instant Payments) to intermediation and regulation services, up to the world of traditional payments and services for the digitalization of public administrations
The digital banking and solutions divisions accounts for ca. 10% of the company's revenues.

In addition the company offers the following services:

- Application outsourcing and innovative service: It provides the banking, insurance and financial market with application and administrative services and solutions, System Integration projects, consultancy and training in the field of anti-money laundering, compliance and compliance with the Supervisory Authorities.

- Customer Care Service: In synergy with Help Line and PayCare, Group companies specializing in contact center services, it guarantees Partner Banks and their customers a 24-hour service.

### 3.4.2 Company history and key facts

Nexi can trace its origins to Istituto Centrale delle Banche Popolari Italiane (ICBI), founded in 1939 by six cooperative banks to provide payment and securities services and clearing services to Italian institutions.
In 2009 the group acquired CartaSi, a leading card issuer/acquirer in Italy.

Together, CartaSi and the ICBPI Group for more than 70 years of history have been at the side of their partner banks to support the development of payment systems.

In 2015 the ICBI was bought by Mercury Italy srl, a consortium of private equity funds formed by Bain Capital, Advent Capital management and Clessidra.

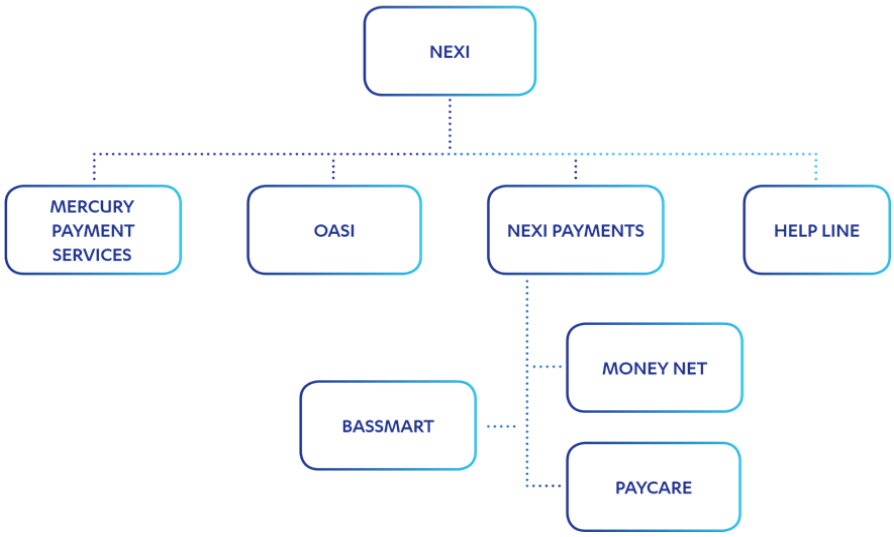
Starting from the end of 2017, a process of reviewing the corporate organization of the former ICBPI banking group and of the other Mercury subsidiaries was undertaken to make the corporate structure consistent with the nature of the business exercised.

The organizational transformation was aimed at separating the payments business (in Nexi S.p.A.) from the banking business (ICBPI/Depo Bank) in order to promote digital evolution and building the future of payments in Italy, bringing simplicity, security and innovation.

As a result of the reorganization, *Nexi Payments, Mercury Payment Services, Oasi, Help Line, Pay Care, BassmArt e Moneyne* became part of the Nexi group.

Banking activities were concentrated in DEPObank, the new Italian Depositary Bank created by the company spin-off and led by a management and a board of directors completely separate and independent from that of the Nexi Group.

*Figure 16 - Nexi Group:*




*Source: Company Annual Reports*

This corporate reorganization project had the objective of separating, within the group, the technological activities and digital payments from those connected to the banking license,

eliminating the existing competitive disadvantages compared to competitors and increasing the overall efficiency.

As a result of the reorganization, the companies dedicated to payment services initially included in the ICBPI banking group were transferred to Latino Italy (now Nexi), with the aim of creating the leading national champion in payment services.

Furthermore, the reorganization involved the creation of a new UK holding company owned by the consortium of funds managed by Advent International Corporation, Bain Capital Investors LLC and Clessidra SGR SpA, to which the controlling interest in ICBPI (now DEPObank) was transferred.

The described reorganization was achieved through the execution, in a single context, of the following corporate transactions:

1) transformation of Nexi Payments into an Electronic Money Institute;
2) transfer to Nexi Payments of the non-bank business branch of ICBPI which includes, inter alia, ancillary activities for payment services that do not require a banking license, electronic money issuing activities, distinctive signs and all the personnel necessary to guarantee the full autonomy management of the new group of companies headed by Nexi;

3) the partial proportional demerger of Nexi (now DEPObank) with the beneficiary Latino Italy (now Nexi), concerning Nexi's investments in Nexi Payments, Oasi Diagram SpA, Help Line SpA, Bassilichi SpA and Consorzio Triveneto SpA;

4) the transfer, by contribution in kind, to Equinova UK HoldCo of the equity investment held by Mercury UK HoldCo in ICBPI. In particular, Mercury UK HoldCo subscribed newly issued shares of Equinova UK HoldCo, against the contribution in kind of the shares held by the same Mercury UK HoldCo in ICBPI (now DEPObank);

As a result of the corporate reorganization completed in July 2018, following the release of the authorizations from the competent Supervisory Authorities, the following corporate structure was found:

- the current Nexi (formerly Latino Italy) holding company of a group that includes electronic money institutions and payment institutions focused on digital payments: -

focused exclusively on its core business and on the development of the related technology; - with a flexible corporate structure capable of supporting additional investments (eg IT and payment infrastructures) and future M&A activities; - with better access to the capital market, thanks to the lower perceived risk for activities connected to digital payments compared to regulated banking activities.

- DEPObank SpA, a bank with a simplified organizational structure and a greater focus on banking services such as: - securities services; - settlement to be offered through a joint commercial offer with Nexi.

Consolidation in the payments business also continued in 2018, through the acquisitions by the subsidiary Nexi Payments:

- of the company branch related to the service management activities for the operators of Banca Carige SpA, in continuity with the operations carried out with Monte dei Paschi and Deutsche Bank;
- of the start-up *Sparkling18*, one of the most innovative companies in new digital payments. Consistent with the process of consolidating Nexi's positioning in the core business of digital payments, a process was launched to enhance the investments deemed non-strategic.

Following the extraordinary operations described above, the Group has assumed the current corporate structure composed of Nexi Payments SpA (which controls Moneynet SpA, Pay Care Srl and BassmArt Srl), Mercury Payment Services SpA and Help Line SpA.

The financial structure of the Group changed significantly during 2018 due to the reorganization within which, among other things, bonds were issued.

Prior to the issue of bonds, the Group had no medium / long-term financial debts, with the exception of certain loans for small amounts that were included in the scope of consolidation due to the acquisition of Bassilichi.

Nexi Capital established in April 2018 and then merged by incorporation into Nexi, issued the following instruments:

- on 18 May 2018, the "Senior Secured Fixed Rate Notes" bonds for an amount of € 825 million with a semi-annual coupon at a fixed rate of 4.125% p.a. and maturity November 1, 2023 and "Senior Secured Floating Rate Notes" for an amount of €1,375 million with a

quarterly variable rate coupon equal to the 3-month Euribor period (with a minimum value of 0% pa) plus a spread of the 3.625% pa and maturity 1 May 2023;

- on 2 July 2018, the "Senior Secured Floating Rate Notes" bond for an amount of €400 million with a quarterly variable rate coupon equal to the 3-month Euribor period (with a minimum value of 0% pa) increased by one spread of 3.625% pa and deadline 2 July 2024.

### 3.4.3 Nexi Ipo Overview

Nexi S.p.A. listed on 16th April 2019 on the Milan Stock Exchange.
The IPO represented the largest IPO of 2019 globally, the largest IPO in Europe since October 2018 and the largest in Italy since the Pirelli IPO of 2017.
It is also the largest payments IPO after Worldpay in 2015 and the largest financial sponsor backed in Europe in the last three years.

Nexi IPO Offer Price was set at €9.0 per share, implying a market capitalization of €5.7 billion based on the number of Shares outstanding and an enterprise value of ca. €7.3 bn.
The price was carefully set in the lower part of the indicative price range of €8.50-10.35 per share, subsequently narrowed at €9.00 - €9.50, implying a base deal size of €1.9 bn to €2.2 bn.
Bookbuilding launched after two weeks of investor education and books of demand were covered on the full deal size after half a day. The Offer period was successfully concluded on 11th April 2019 and the transaction were multiple times oversubscribed within the price range on the back of a strong investor demand.
The company ended the offering period with the placement of ca. 257 million of shares at the Offer Price, of which (1) ca. 159 million shares were sold by the selling shareholder Mercury UK Holdco Ltd –owned by the private equity funds Advent International, Bain Capital Europe and Clessidra SGR (including the 33.5 shares subject to the over-allotment option exercised on 12th April); (2) ca. 21 million where sold by minority shareholders: Banco BPM S.p.A., Banca Popolare di Sondrio S.C.p.A., Banca di Cividale S.C.p.A., Credito Valtellinese S.p.A. and Iccrea Banca S.p.A; and (3) 77.8 million shares deriving from the capital increase.

*Table 5 - Number of newly issued and existing shares offered*

| N. of Shares ('m) | |
|---|---|
| **Primary Offer** | **77.8** |
| **Secondary Offer:** | **179.1**(1) |
| *- Mercury UK Holdco* | 158.5 |
| *- Banks* | 20.6 |
| **Total** | **256.9** |

*Source: Nexi S.p.A. Investors Relations*
*(1) Including shares object of overallotment option*

As a result of the placement the controlling shareholder Mercury UK reduced its equity stake from ca. 94% to ca. 57% of the Company share capital (considering the hypothesis of full exercise of the Greenshoe.

*Table 6 - Number of share owned by existing shareholders pre and post IPO*

| Shareholders | N. of shares pre-IPO ('m) | % share | N. of shares post-IPO ('m) | % share |
|---|---|---|---|---|
| Mercury UK Holdco | 518.1 | 94.2% | 359.6 (1) | 57.3% |
| Banks | 27.6 | 5.0% | 7.0 | 1.1% |
| Other Shareholders | 4.3 | 0.8% | 4.3 | 0.7% |
| Free Float | - | - | 256.9 | 40.9% |
| **Total** | 550.0 | 100.0% | 627.8 | 100.0% |

*Source: Nexi S.p.A. Investors Relations*
*(1) Number of shares considering full exercise of green-shoe option*

Primary proceeds of €700 million were mainly intended to be used to reduce the financial indebtedness of the Group and refinance part of the residual financial debt through partial repayment of the Bonds and, in particular, (i) the bond issue denominated "Senior Secured Floating Rate Notes" in the amount of €1.375 billion[52], and (ii) the Private Placement Bond.
Secondary Proceeds of ca. €1.3 billion (pre-greenshoe) were used to reimburse the Selling Shareholders.

The offering was characterized by a large syndicate of banks and parties involved: Bank of America Merrill Lynch acted as Lead Joint Global coordinator and Joint Bookrunner of the offer, while Banca Imi, Credit Suisse, Goldman Sachs and Mediobanca acted as Joint Global Coordinators.

[52] With coupon quarterly floating rate equal to the 3-month Euribor for the period (with a minimum value of 0% p.a.) increased by a spread of 3.625% p.a. and maturity on May 1, 2023

*Table 7 – Nexi IPO Syndicate Structure*

| | |
|---|---|
| **Lead Global Coordinator** | Bank of America Merrill Lynch |
| **Joint Global Coordinators** | BANCA IMI, CREDIT SUISSE, Goldman Sachs, MEDIOBANCA |
| **Joint Bookrunners** | Banca Akros, BARCLAYS, citibank, HSBC, MPS, UBI Banca, UBS, UniCredit |

*Source: Nexi S.p.A. IPO Prospectus*

Nexi shares made a negative debut in their first day of trading, reaching a minimum price of €8.36 (-7.1% with respect to the Offer Price of €9.0), closing the day at €8.44 (-6.2%), and implying a market capitalization of €5.2 billion (vs €5.7 billion at the Offer Price).
Despite the negative performance on its debut, which negatively distinguished Nexi from the first-day performance of the other payment companies, since the IPO the share price has kept up growth reaching after three months an increase of ca. 8% with respect to the IPO price, closing the 2018 year with an increase of ca. +40%.

The reasoning of the negative first-day performance of the Italian company, leader in the domestic landscape are various.
First of all the pricing was made ahead of the Easter break and the IPO was executed on an accelerated timetable, with only 4 months between kick-off and pricing and facing the issue of a coordinating a large syndicate of banks involved in the process.
Most importantly Nexi was the priced during a period characterized by a large macroeconomic uncertainty, due to the geopolitical risk arising from Brexit and the presence of a tough Eurozone and Italian economic background.
In addition, another factor which affected the company stock performance, was the weak sentiment of investors towards the Italian equities.

As of the end of 2018, Nexi had €2.6 billion euros in debt and the aim of the IPO was to reduce, via primary proceeds, the financial indebtedness of the company to €1.7 billion, as reported in the company IPO prospectus.

Since the IPO, the Company started a debt refinancing exercise. According to the preliminary 2019 financial results, Net Debt was reduced to €1.47 billion compared to a Net Debt of €2.45 billion in 2018. The company's debt reduction was made possible thanks to the early repayments of debt during the period and the cash flows generated by the operating performance. Net Debt/EBITDA was reduced at 2.9x in 2019, making a significant improve with respect to the 5.8x of 2018 and 3.5x post IPO.[53]

Other significant events happened during the course of the year affecting the company share price which strongly increased over the course of the last months, reaching on 14 February 2020 an increase of ca. 70% from the IPO.

In particular, on 19th December 2019, the largest Italian banking group Intesa San Paolo S.p.A. acquired the 9.9% of the company share capital from Mercury UK Holdco.

Intesa acquired 61.1 million shares at €10.50 per share in Nexi, with a discount of 4% over the day-before-closing price and a premium of ca. 12% of the closing price the day before the announcement, for a total consideration of €653 million.[54]

At the same time Nexi entered in the agreement with Intesa San Paolo Group to purchase its Merchant Acquiring Business, consisting of ca. 180,000 merchants, aimed at consolidating the company's position in the merchant services and strengthening its role as a Paytech company, leader in the digital payments in Italy. The operation is expected to be completed in the second half of 2020.

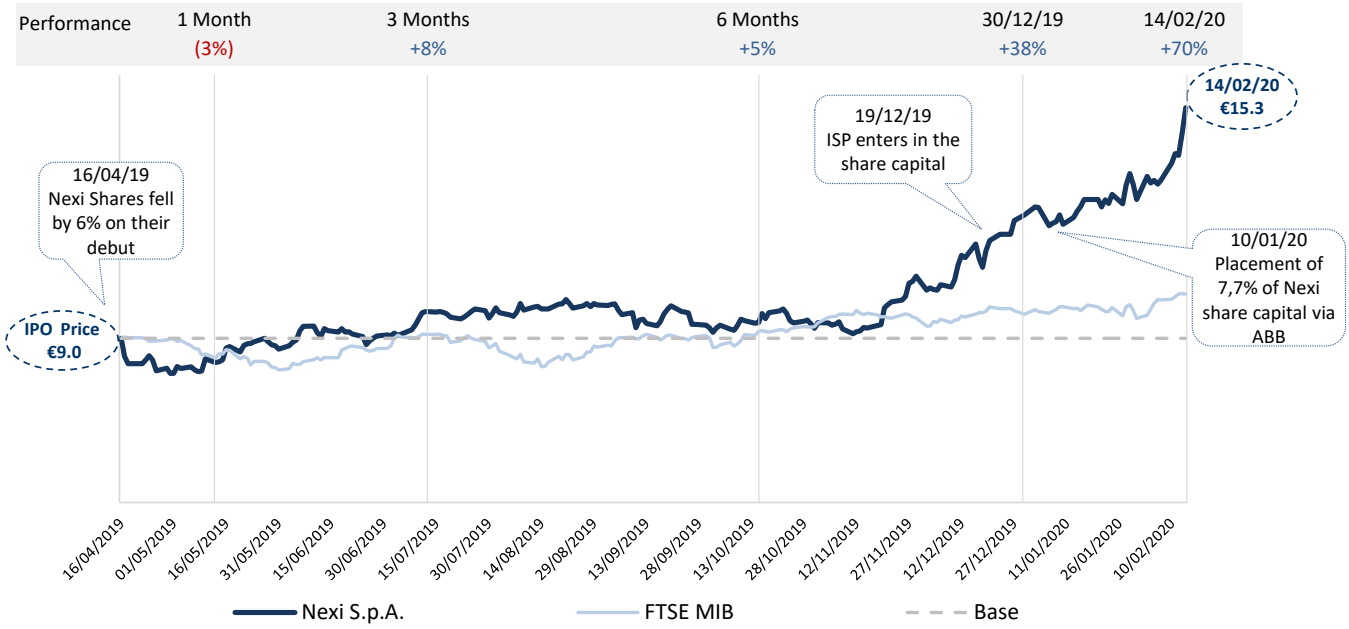
On 10th January 2020, Mercury UK announced the sale via an Accelerated Bookbuilding (ABB) of 7.7% of Nexi share capital, for a total consideration of ca. €562 million.

Through the accelerated offering, Mercury UK sold ca. 48.5 million shares of the company at the price per share of €11.6, reducing its equity stake in the company to ca. 52.4%

53 Nexi Investor Relations, "Preliminary Group Financial results as of December 31st 2019 approved"

54 Deals details from ww.MergerMarket.com

*Figure 17 - Nexi Share Price performance since IPO*




*Source: own elaboration based on Facset data, Company press release*

Also looking at EV/EBITDA and EV/EBIT trading multiples of company vs other companies active in the payment landscape, it is possible to confirm that Nexi is well placed among its peers, recording with a positive growth since IPO.

Based on the indicative price range of €8.5-10.35, the multiple 2018 EV/EBITDA range was of 16.5-18.9x, and at the same conditions estimates for 2019 show a multiple of 20.8x.

*Table 8 - Trading Multiples Nexi S.p.A. vs Peers*

| | | Price | Market | EV/EBITDA | | | EV/EBIT | | |
|---|---|---|---|---|---|---|---|---|---|
| Company | Country | (LC) | Cap. (€m) | 2019E | 2020E | 2021E | 2019E | 2020E | 2021E |
| Nexi S.p.A. | Italy | 11.13 | 6,987 | 20.8x | 17.5x | 15.4x | 27.5x | 23.4x | 20.6x |
| Wirecard AG | Italy | 109.02 | 13,472 | 15.4x | 11.5x | 8.8x | 18.5x | 13.5x | 10.2x |
| Worldline SA | Italy | 60.86 | 11,143 | 20.2x | 17.7x | 15.7x | 29.4x | 24.5x | 21.3x |
| Fidelity National Information Services, Inc. | Italy | 137.44 | 76,204 | 22.5x | 15.6x | 14.0x | 28.1x | 18.8x | 18.3x |
| Fiserv, Inc. | France | 115.58 | 72,424 | 18.6x | 14.1x | 13.1x | 31.6x | 24.2x | 19.8x |
| Global Payments Inc. | Switzerland | 178.79 | 48,129 | 26.4x | 17.2x | 15.2x | 33.0x | 18.8x | 16.2x |
| Cielo | UK | 8.37 | 5,039 | 10.8x | 10.9x | 10.7x | 13.1x | 15.3x | 15.0x |
| Adyen NV | US | 715.46 | 22,138 | n.m. | n.m. | n.m. | n.m. | n.m. | n.m. |
| PayPal Holdings Inc | UK | 107.12 | 115,420 | 25.8x | 22.0x | 18.9x | 29.6x | 24.7x | 20.5x |
| Mastercard Incorporated Class A | UK | 294.19 | 268,666 | 29.2x | 25.1x | 21.7x | 31.0x | 26.5x | 22.9x |
| Visa Inc. Class A | US | 185.07 | 372,546 | 26.3x | 23.5x | 20.7x | 27.6x | 24.5x | 21.4x |
| **Average (First Group)** | | | | **19.3x** | **14.9x** | **13.3x** | **25.9x** | **19.8x** | **17.3x** |
| **Median (First Group)** | | | | **20.2x** | **15.6x** | **14.0x** | **28.1x** | **18.8x** | **18.3x** |
| **Average** | | | | **21.6x** | **17.5x** | **15.4x** | **26.9x** | **21.4x** | **18.6x** |
| **Median** | | | | **21.7x** | **17.4x** | **15.3x** | **28.7x** | **23.8x** | **20.2x** |

*Source: Facset*

The 2019 preliminary financial results of the company exceeded the IPO guidance, showing an increase in Revenues to €984 million (+7% vs 2018) and in the EBITDA to €503m (+18.5% vs 2018).

Based on these considerations and on the strong market performance recorded by the company in the last months, it is possible to reasonably believe that Nexi has all the characteristics to become the market leader in the Italian payments landscape, benefitting by the growth of the digital payments in the Italian market, still being underdeveloped, and the increase in card penetration.

## Conclusions

This thesis aimed at analyzing the performance of a group of EU and US Fintech companies active in the payments landscape, in order to provide insights into the post - Initial Public Offering (IPO) share performance of companies operating within the Fintech sector, which widespread deeply worldwide only in the last few years.

The research question of this thesis was to examine the aftermarket price performance and the performance of the companies' stocks in the medium term, by considering the share price movements in the first day of trading, after the first week and after one, three and six months from the IPO date.

In order to conduct the analysis a sample of Fintech companies active in the provision of merchant acquiring, cards and payments solutions and issuing services, which were subject to an IPO in the period 2015-2019, was considered.

The selection, made on the basis of the business sectorial membership, ended up with the choice of twelve US and EU companies: Nexi S.p.A., Adyen, EVO Payments, Pag Seguro, NETS, Resurs, Square, Equiniti, FirstData, Worldpay, CPI Card Group, Collector.

In the majority of the cases, the Offer prices were set on the high end of the Indicative Price Range, yet showing an appetite for investors globally in investing in transactions regarding companies operating in the Fintech landscape.

The result of the prices analysis showed that on average the absolute performance of the twelve companies analyzed has been equal to ca. +17% on the first day of trading compared to the Offer Price, and ca. +16% after the first month.

On average the trend that was witnessed in the first months continued also after three, six months and to date: the companies in the group recorded an average price performance of ca. +26% and +25% respectively after three months and six months.

The unique Italian company included in the sample is Nexi S.p.A., which priced the largest IPO of 2019 on 16$^{th}$ April 2019, on Milan Stock Exchange.

Despite the positive performance showed by the other peer payment companies, and the one of the twelve companies analyzed in the sample, Nexi shares went down by ca. 6.2% on their debut with respect to the IPO Offer Price of €9.0, which had been already carefully set on the lowest end of the Indicative Price range.

Despite the strong demand received during the Offer period (books were multiple time oversubscribed receiving demands from more than 340 investors worldwide) the performance was not the best in class.

The listing of the Italian companies indeed mainly suffered by the large macroeconomic uncertainty of that period, due to the geopolitical risk arising from Brexit and the presence of a tough Eurozone and Italian economic background.

Despite the poor short term performance, Nexi was able to recover during the 2019 year, exceeding the results emerged from the IPO price guidance, and the share price registered a performance equal to more than 70% respect to the IPO Offer Price in February 2020.

Overall, based on the results of the analysis conducted, it is possible to conclude that investors' are showing a growing appetite for Fintech and payment companies, being this trend confirmed by the positive share price performance recorded by the companies after the IPO and in periods ahead.

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# Summary

Recently "*Fintech"* has become one of the most searched words on internet, and is commonly to hear about this new phenomenon on newspapers, websites, and financial articles.

Financial Technology, or *Fintech*, refers to the provision of financial services, payment services, investment services, consulting and financial products through the most advanced information technologies. Briefly, one can say that Fintech describes the innovation sector that improves the financial services by means of technology.

Fintech phenomenon carries with itself a *big promise*: that of radically innovating and revolution the way in which financial services are being provided.

Fintech, indeed, allows financial services to be provided in an easier and cheaper way, to improve various aspects of people daily life: Fintech evolution will translate into an improved payment landscape where transactions are verified only by touching your thumb, money will be transferred in real time and in a cheaper and efficient way.

The Fintech revolution is happening and investors are putting money into new start-ups and companies, believing in this promise and in the transformation of the entire financial landscape.

Fintech can be simply defined as everything that is technology applied to Finance.

However a more precise and detailed definition of Fintech is given by the Financial Stability Board, that defines Financial Technology as "*technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services*".

In this view, Fintech is seen as a "horizontal" phenomenon within the financial services sector which encompasses different products and activities (such as peer-to-peer landings, payments, crowdfunding etc.) and which is developing in the broader context of the *digital economy*.

Hence, Fintech firms do not represent a 'new industry' nor a financial service but a way of providing financial services by innovating others: Fintech is a component of the financial industry that is questioning the traditional business models used by the financial

intermediaries' subject to regulation (*incumbents*).

More often the term refers to a *revolutionary* concept in the sense of providing innovative services and new business models for the financial industry that did not exist before.

In this sense, technological innovation is considered by many to be even a disruptive factor for the traditional financial industry, since the development of new technologies to improve financial services has started accelerating at a remarkable rate reshaping the entire financial industry's status quo.

Indeed the Fintech phenomenon has led to an increasing competition between the traditional financial intermediaries (*incumbents*) and the *new entrants*: new start-ups and big tech giants and payment service providers changing their business models.

The *new entrants*, firms not subject to regulation, basically offer all types of financial services. First of all, given the variety of *new entrants* which characterize the sector, it is possible to provide a first classification, originally made by Zetzsche et al. (2017), by distinguishing the new operators in two categories:

- The *Fintech firms* (Financial Technologies companies), which are born with the aim of providing exclusively financial services;
- The *TechFin firms*, which are companies originally born in the technology and e-commerce sector but that have subsequently developed instrumental activities for financial services;

The new entrants operate throughout the entire Fintech value chain, which comprises the provision of the following services:

- payments, clearing and settlement;
- deposit, lending and capital raising;
- insurance;
- investment management;
- market support.

Among the financial activities most subjected to the changes generated by the technological evolution there is the provision of payment services.

Since the 1980s, thanks to the development of electronics and its use in financial activities, a real revolution has begun in the payment services sector, with a gradual transition from payment services mainly based on paper instruments to methodologies of capital transfer based on electronics.

The payment ecosystem is manly characterized by the presence of numerous players such as institutions (banks and card schemes), retailers, consumers and a list of suppliers of payments and processing infrastructures.

The main players involved into a payments landscape are the following:

- *Networks*: establish standards and rules and route payments between banks and processors (e.g. Visa, Amex, Mastercard, Discover); networks connect the entire payment ecosystem: they receive authorization from acquirer and routes it to the relevant issuer for approval.

- *Acquirer*: is the financial institution (merchant bank or acquirer) that has a direct relationship with the merchants, enabling them to process credit and debit card transactions and sometimes provides the POS terminal; it can be a bank or another payment service provider such as: First Data, Ingenico, NETS, Wirecard, Worldline, Worldpay, Adyen, Nexi.

- *Merchant Processor*: physically processes transaction from terminal or online payment gateways to front-end networks; many acquiring banks also provide processing services. Examples are: Firt Data, Global Payments, Ingenico, NETS, Wirecard, Worldline, Worldpay, Adyen, Nexi.

- *Issuing Bank/ card issuer*: is the cardholder's bank, i.e. manages the consumer's bank account and/or provides him/her with a card on behalf of the card networks; Discover and American Express act both as the card network and issuing bank in the same time

- *Issuing Processor*: process and authorize transactions and provides settlement and clearing of card accounts (First Data, Global Payments, NETS, SIA, Worldline, Nexi)

The increasing use of e-commerce and the ongoing innovation in new payments solutions, such as introduction of mobile wallets have increased the demand for cashless payments over cash and the use of digital payments (according to McKinsey, the share of cash-settled transactions has reduced from 89% to 77% in the last five years).

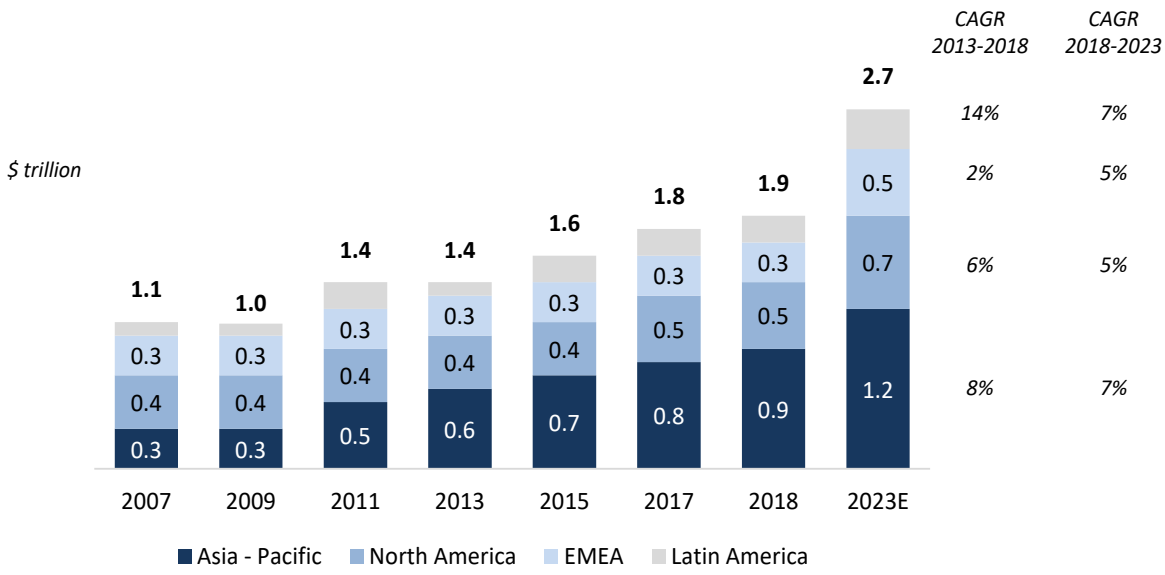
The rapid shift towards the use of Alternative Payment Methods by consumers is boosting the growth of global payments industry at a high speed.

Analyzing the dynamics by regions, the majority of revenues come from the Asia-Pacific region, which grew sharply in 2017, thanks to the strong increase of alternative payments methods, pushed by the aim of regulators to reduce cash transactions.

In North-America a rapid growth of transactions led to an increase in revenues exceeding two or three percentage points the GDP in the past four years, and electronic payments transactions grew by nearly twice the GDP growth rate thanks to the spread of e-commerce and m-commerce.

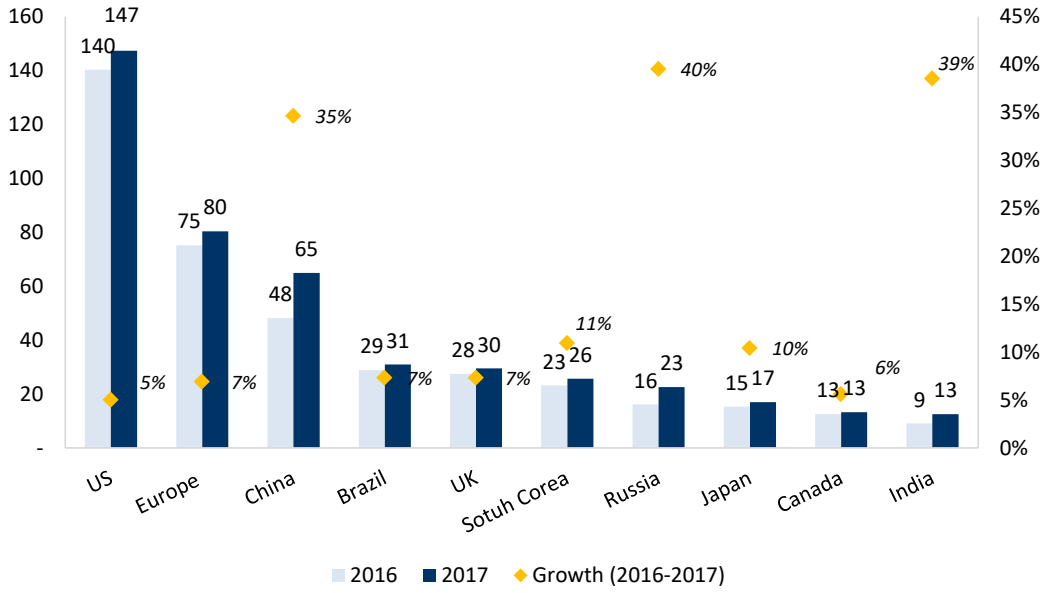
In Europe, that accounts for ca. 90% of EMEA transactions, the pace of payments revenues appears to be slower with respect to the other regions.

*Figure 1 - Global Payments Revenues*




*Source: Own elaboration from "Global payments 2019: Amid sustained growth, accelerating challenges demand bold actions", McKinsey*

*Figure 2 - Number of Non Cash transactions in the top ten market in 2016/17 (bn)*




*Source: Own elaboration from World Payments Report 2019 (CAPGEMINI) data*

Cards revolutionized consumer payments. However, there are some drawbacks to this infrastructure.

This digital transition is resulting in many new entrants: new providers are offering P2P transfers, wallets and buy buttons, which reduce friction and improve the user experience.

In mature payment markets, the card is often used as a funding mechanism however, in emerging payment markets the card era is being skipped altogether and either a bank account is used or, for the under-banked especially, the payment method has its own stored value.

Payments are in essence a "financial handshake", whereby financial details and identification are exchanged in return for goods or services. Invisible payments are transactions without any such explicit financial handshake. Whilst it sounds futuristic, there are increasingly examples of such transactions taking place, including when payment details are on file (Uber, Amazon, etc) and in grab-and-go retail experiences such as Amazon Go.

The invisible payment trend is amplified by the transition to marketplaces.

This is not only for online, but also for physical experiences that are increasingly being booked or ordered in advance via platforms that have payment details on file. Payments will become part of this booking process and no separate payment is needed after a taxi journey (Uber), meal (Just Eat, OpenTable, Deliveroo), travel (Expedia, Booking.com),

yoga class, etc. These physical transactions are now becoming invisible payments on a large platform.

The mobile transition has been the catalyst for many new APMs with an improved user experience, mainly wallets and P2P methods.
Again, these tend to be domestically led, like Venmo and Zelle in the US, Revolut in the UK, WeChat Pay in China and many others. In addition, the high consumer interaction and the data generated are also attracting attention from large-tech.

The European payment system has been affected by an unprecedented evolution: the progress of technology has in particular determined the need to adjust the reference regulatory framework also concerning the significant acceleration of commercial transactions and increase in the *dematerialization* of cash transfers.
The Payment platforms act as intermediaries, processing the information entered during the payment process and facilitating the authorization or execution of payments made to an e-commerce.

The current regulation of payment systems bases its foundations in the PSD I (Payment Service Directive) of 2007, or the first European directive focused on payment services.
The central objective of the PSD was to harmonize the different European regulations or practices regarding payment services, with the aim of gradually implementing a SEPA (Single Euro Payments Area), making it possible to transfer funds on the same conditions in the various Member States of the euro area.
According with changes occurred in the payments world, the Regulator issued in the 2015, the Payment Service Directive II. Where, it has added new categories of service providers defined Third Party Players (TPP), or services for accessing the accounts offered by third subject to the reserve for payment services:

- Payment Initiation Service Providers (PISP): they offer payment services, authorized by customers to carry out transactions on their behalf, in which the seller's website (merchant) and the bank's online platform are connected.
  Therefore, these operators outside the banking world carry out their payment functions directly interposed between the seller and the customer's online account.

- Account Information Services Providers (AISP): they offer a service in which the payer can have access to a complete information regarding the latter's payment accounts thanks to an online platform. In this way, customers will be able to use AISPs to get an overall view of their financial situation, analyze their future financial needs and spending habits.

- Card-based Payment Instrument Issuer (CISP): they offer a service to check the availability of funds in the payment account.

From this analysis it is evident therefore the need of the international authorities to provide regulations that guarantee the development of the system, expanding the possible applications of the technologies declined to the finance and the banking activity, but protecting the final customers from service providers who do not have adequate prerequisites. The process of regulation is still ongoing according with the dynamic changes in the Fintech environment.

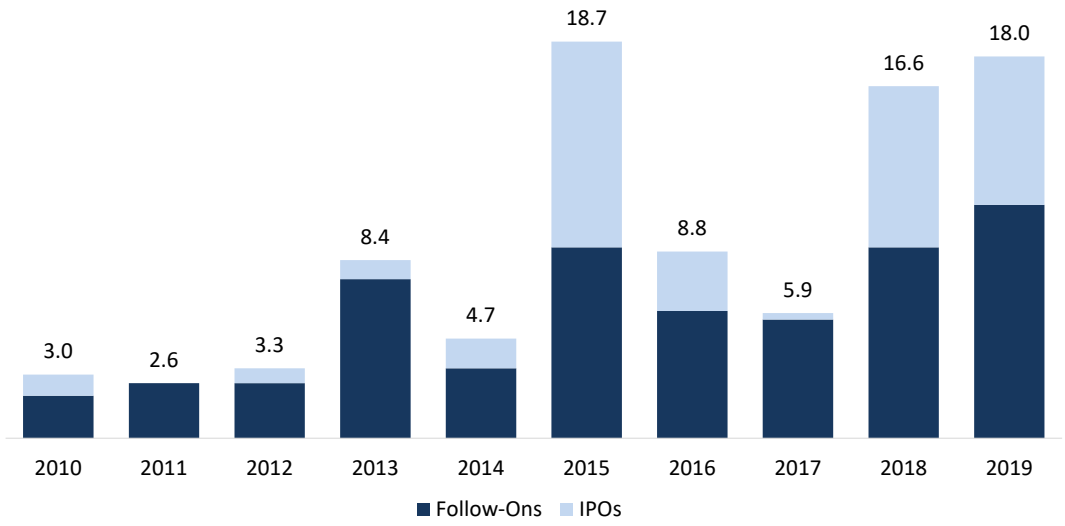
The fast and large growth in the payments landscape translated also into the Equity Capital Markets.

In the last 5 years there has been a particularly high volume of transactions showing growing investors' appetite and interest for Fintech and in particular payments sector companies. From 2010 to 2019 Fintech and Payments issuance volumes worldwide grew at a compounded annual growth rate of ca. 35%, reaching in 2015 unprecedented record volumes of $18.7 billion globally (of which more than half were Initial Public Offerings), with an increase of ca. 297% with respect to 2014.

In 2019 global issuance amounted to €18 billion, (+8.4% vs 2018), confirming a new record from 2016, second only to the record year 2015.

In the EMEA market, total follow-ons and IPO issuance volumes amounted to €11.9 billiom in 2019 (+283% vs 2018), accounting for 66% of total issuances worldwide.

*Figure 13 - Fintech and Payments Global Issuance ($bn)*




This thesis aims at analyzing the performance of a group of EU and US Fintech companies active in the payments landscape, in order to provide insights into the post - Initial Public Offering (IPO) share performance of companies operating within the Fintech sector, which widespread deeply worldwide only in the last few years.

The research question of this thesis was to examine the aftermarket price performance and the performance of the companies' stocks in the medium term, by considering the share price movements in the first day of trading, after the first week and after one, three and six months from the IPO date.

In order to conduct the analysis a sample of Fintech companies active in the provision of merchant acquiring, cards and payments solutions and issuing services, which were subject to an IPO in the period 2015-2019, was considered.

The selection, made on the basis of the business sectorial membership, ended up with the choice of twelve US and EU companies: Nexi S.p.A., Adyen, EVO Payments, Pag Seguro, NETS, Resurs, Square, Equiniti, FirstData, Worldpay, CPI Card Group, Collector.

*Table 1 - Ipo Details*

| Peers | Country | IPO details | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Date | Market cap (EUR m) | Offer price (LCY) | Filing range (LCY) | Free float (%) | New issuance (%) | Existing shares (%) |
| NEXI | Italy | 16/04/2019 | 5,650 | 9.0 | 8.5 - 10.35 | 36.4% | 30.0% | 70.0% |
| Adyen | Netherlands | 13/06/2018 | 7,067 | 240.0 | 220 - 240 | 13.0% | 0.0% | 100.0% |
| EVOPayments | United States | 23/05/2018 | 207 | 16.0 | 14 - 16 | 20.0% | 95.0% | 5.0% |
| PagSeguro | United States | 24/01/2018 | 4,545 | 21.5 | 18 - 21 | 20.0% | 95.0% | 5.0% |
| NETS | Denmark | 28/09/2016 | 674 | 150.0 | 130 - 160 | 38.0% | 35.0% | 65.0% |
| Resurs | Sweden | 29/04/2016 | 1,195 | 55.0 | 50 - 60 | 35.0% | 0.0% | 100.0% |
| Square | United States | 19/11/2015 | 2,702 | 9.0 | 11 - 13 | 9.0% | 95.0% | 5.0% |
| Equiniti | United Kingdom | 27/10/2015 | 685 | 1.7 | 2 - 2 | 62.0% | 99.0% | 1.0% |
| FirstData | United States | 15/10/2015 | 14,590 | 16.0 | 18 - 20 | 20.0% | 100.0% | 0.0% |
| Worldpay | United Kingdom | 13/10/2015 | 6,430 | 2.4 | 2 - 3 | 52.0% | 44.0% | 56.0% |
| CPI | United States | 09/10/2015 | [1] 605 | 10.0 | 16 - 18 | 31.0% | 0.0% | 0.0% |
| Collector | Sweden | 10/06/2015 | 19 | 55.0 | 55 - 55 | 21.0% | 40.0% | 60.0% |
| **Average** | | | **3,697** | **n.m.** | **n.m.** | **29.8%** | **52.8%** | **38.9%** |
| **Median** | | | **1,948** | **n.m.** | **n.m.** | **26.0%** | **42.0%** | **30.5%** |

*Source: Companies' websites, Prospectus, Facset*

*(1) Market cap of the companies in €/million calculated at the IPO date, source: Company IPO Prospectus*

In the majority of the cases, the Offer prices were set on the high end of the Indicative Price Range, yet showing an appetite for investors globally in investing in transactions regarding companies operating in the Fintech landscape.

*Table 2 - One day, One Week and One Month Price Performance*

| Peers | Country | 1d-Price performance | | | 1w-Price performance | | | 1M-Price performance | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Absolute | vs local index | vs local govies | Absolute | vs local index | vs local govies | Absolute | vs local index | vs local govies |
| NEXI | Italy | (6.2%) | (6.6%) | (6.0%) | (6.7%) | (6.6%) | (3.3%) | (2.9%) | +0.6% | +7.0% |
| Adyen | Netherlands | +89.6% | +88.9% | +120.0% | +73.3% | +74.9% | +78.2% | +145.9% | +146.6% | +128.5% |
| EVOPayments | United States | +18.9% | +19.1% | +15.9% | +28.6% | +28.9% | +31.7% | +31.9% | +31.1% | +32.3% |
| PagSeguro | United States | +35.8% | +35.8% | +34.8% | +30.0% | +30.4% | +29.0% | +50.6% | +53.7% | +56.0% |
| NETS | Denmark | (3.3%) | (3.3%) | (15.9%) | (5.8%) | (4.1%) | (23.9%) | (15.0%) | (6.3%) | n.m. |
| Resurs | Sweden | +0.2% | +0.8% | (8.8%) | (0.4%) | +3.4% | (2.3%) | +1.6% | +0.2% | (1.2%) |
| Square | United States | +45.2% | +44.8% | +46.4% | +33.9% | +33.5% | +34.5% | +36.0% | +38.9% | +29.3% |
| Equiniti | United Kingdom | (14.5%) | (15.6%) | (20.9%) | (10.5%) | (10.8%) | (12.8%) | (2.7%) | (3.1%) | +4.4% |
| FirstData | United States | (1.6%) | (2.0%) | (1.6%) | +0.1% | (1.4%) | (2.0%) | +5.1% | +3.6% | +15.7% |
| Worldpay | United Kingdom | +10.4% | +11.6% | +9.2% | +10.0% | +10.0% | +14.4% | +15.0% | +17.6% | +25.7% |
| CPI | United States | +21.7% | +22.3% | +20.4% | +25.3% | +24.4% | +24.0% | +21.1% | +17.8% | +30.0% |
| Collector | Sweden | +9.8% | +10.1% | n.m. | +16.5% | +19.2% | n.m. | +11.3% | +12.6% | n.m. |
| **Average** | | **+17.2%** | **+17.2%** | **+17.6%** | **+16.2%** | **+16.8%** | **+15.2%** | **+24.8%** | **+26.1%** | **+32.8%** |
| **Median** | | **+10.1%** | **+10.8%** | **+9.2%** | **+13.2%** | **+14.6%** | **+14.4%** | **+13.2%** | **+15.1%** | **+27.5%** |

*Source: Companies' websites, Prospectus, Facset*

The absolute performance of the twelve companies analyzed has been equal on average to ca. +17% on the first day of trading compared to the Offer Price.

Excluding the outliers from the sample (Adyen and Equiniti, which reported respectively the highest and the lowest price movements) the performance in the first day has been of ca. +13% compared to the Offer Price.

Adyen's debut, indeed, was record-breaking: the shares reached almost 90% more than the €240 Offer Price, which had already been set at the top of the indicative price range.

The company's shares opened on the market at €400, with a 66% premium over the IPO price, and closed the day at almost 90% more.

Also the Relative performances with respect to the stock market and the local governments have been good on average.

On average the trend that has been witnessed in the first months continued also after three, six months and to date: the companies in the group recorded an average price performance of ca. +26% and +25% after three months and six months.

The unique Italian company included in the sample is Nexi S.p.A., which priced the largest IPO of 2019 on 16th April 2019, on Milan Stock Exchange.
The Nexi Spa, listed on 16th April 2019 on the Milan Stock Exchange, is the leader in Italy in numerous business sectors ranging from the Cards sector to the Merchant Services sector up to Corporate Digital Banking.

In particular, in the Nexi offer, cards, payment acceptance technologies, money transfers between companies and private individuals play an important role.
The company operates through three mainly business divisions:

1. Digital Card & Payment
2. Merchant Services & Solutions
3. Digital Banking Services

The IPO represented the largest offering of 2019 globally, the largest IPO in Europe since October 2018 and the largest in Italy since the Pirelli IPO of 2017.
It is also the largest payments IPO after Worldpay in 2015 and the largest financial sponsor backed in Europe in the last three years.

The Offer Price was set at €9.0 per share, implying a market capitalization of €5.7 billion based on the number of Shares outstanding and an enterprise value of ca. €7.3 bn.
The price was carefully set in the lower part of the initial price range of €8.50 to €10.35 per share, subsequently narrowed at €9.00 - €9.50, implying a base deal size of €1.9 bn to €2.2 bn.
Nexi shares made a negative debut in their first day of trading, reaching a minimum price of €8.36 (-7.1% with respect to the Offer Price of €9.0), closing the day at €8.44 (-6.2%), and implying a market capitalization of €5.2 billion (vs €5.7 billion at the Offer Price).
Despite the negative performance on its debut, which negatively distinguished Nexi from the first-day performance of the other payment companies, since the IPO the share price has kept up growth reaching after three months an increase of ca. 8% with respect to the IPO price, closing the 2018 year with an increase of ca. +40%.

(1)

Despite the strong demand received during the Offer period (books were multiple time oversubscribed receiving demands from more than 340 investors worldwide) the performance was not the best in class.

The listing of the Italian companies indeed mainly suffered by the large macroeconomic uncertainty of that period, due to the geopolitical risk arising from Brexit and the presence of a tough Eurozone and Italian economic background.

Despite the poor short term performance, Nexi was able to recover during the 2019 year, exceeding the results emerged from the IPO price guidance, and the share price registered a performance equal to more than 70% in February 2020.

Overall, based on the results of the analysis conducted, it is possible to conclude that investors' are showing a growing appetite for Fintech and payment companies, being this trend confirmed by the positive share price performance recorded by the companies after the IPO and in periods ahead.