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Master's Degree Thesis:
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Valuation methodologies of FinTech companies. Case study on Nexi

Supervisor
PhD. Arturo Capasso

Candidate:
Riccardo
Roberti
Id. 700181

Co-supervisor
Prof. Riccardo Bruno

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Abstract

The word FinTech has become increasingly important not only for the finance industry, but also for an individual daily life. This trend, along with FinTech high future growth projections worldwide, implicitly attracted many private and corporate investors. Since an appropriate valuation methodology would be a helpful tool for investors all over the world, this thesis firstly provides a detailed theoretical analysis of various and ad-hoc methods applicable to a FinTech company. Then, a practical case study is applied to an Italian FinTech firm – recently listed on the Italian Stock Exchange in Milan – in order to better comprehend advantages and shortcomings of the valuation methodologies previously illustrated.

Acknowledgements

“You cannot connect the dots looking forward; you can only connect them looking backwards. So, you have to trust that the dots will somehow connect in your future.” I perfectly remember my first day of university, when I saw this Steve Jobs’ quote right on the wall of a corridor at the LUISS campus. And I wondered what it meant. I kept asking myself about it month by month, year by year, above all when negative situations arose. And just to be as sincere as possible, I still do sometimes. However, that continuous wondering let me think about how the dots could connect. There was not a particular moment I started believing in the quote, but I think that experiences and above all time make you reflect. First of all, time is surely a gentleman. In my case, after an exam or a nice evening with friends and other thousands of positive moments, I understood everything I was doing was worth. Every decision I took had to be like that, even though I could have thought to be wrong at the beginning. The dots really connected somehow, and I am quite certain they will keep connecting in the future. Moreover, the university path taught me that – beside subjects, books, papers, slides I studied, as well as exercises, case studies and practices I worked on – people you meet along makes the journey special. This is why I would like to thank everybody I came across during these 5 long years. To Rome and to university friends, both from bachelor and master, who always – both directly and indirectly – spurred me to the best and have been a point of reference along all my path. To Milan and to all colleagues, friends and flat-mates I met during my two internships, as they made me grow not only as a student but above all as a person. To Maastricht and St. Gallen, the best exchanges I could have ever taken. Because it does not matter where you spend your Exchange, it is people you are with that makes it a great and unique experience. Finally, it might be obvious, but the special thank goes to my parents and my brother, who were always, always by my side.

To my parents

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1 Introduction

This chapter will give a general overview of the relevance of the subordinate topic of FinTech companies and how to measure their value, followed by the research question and the approach used to answer it as well as the contribution of this thesis. Finally, the structure of the thesis will be laid out.

1.1 Research Question

In the recent years, significant changes and developments have occurred in the financial services industry worldwide. Lead by the digitalization process and new technological innovations, a different view of the banking experience[1] has appeared. The reasons behind it are essentially two. Firstly, the financial crisis had a negative impact on trust in the financial system. Secondly, the ubiquity of mobile devices has begun to undercut the advantages of physical distribution that banks previously enjoyed[2]. Thus, this paved the way to the rise of new entities, the FinTech firms. FinTechs[3], continuously on the hunt for a market renovation, have been disrupted the industry for years, gaining both market share and appeal from investors. Venture capital funds, global banks as well as multinational companies started investing in these unprofitable, low-revenues but high-growth start-ups, paying for them big money. Altogether, 2018 was a year of multiple record highs across FinTech investment, including VC, CVC, M&A and PE. Global investments in FinTech rocketed to a record of $111.8b in 2018 (up to 120% compared with $50.8b in 2017) with 2,196 deals, driven by mega M&A and buyouts deals[4]. These facts lead the author wanting to answer the following question with the present thesis: **"How are FinTech firms valued globally? Is there a correct valuation methodology for them?".**

1 As well as asset management, wealth management, insurance and other financial services.
2 McKinsey & Company (2016), FinTechnicolor, *The New Picture in Finance*
3 Both the singular "FinTech" and the plural "FinTechs" are used to describe one start-up or more building FinTech based offerings.
4 KPMG (2018), The Pulse of FinTech, *Biannual global analysis of investment in FinTech*

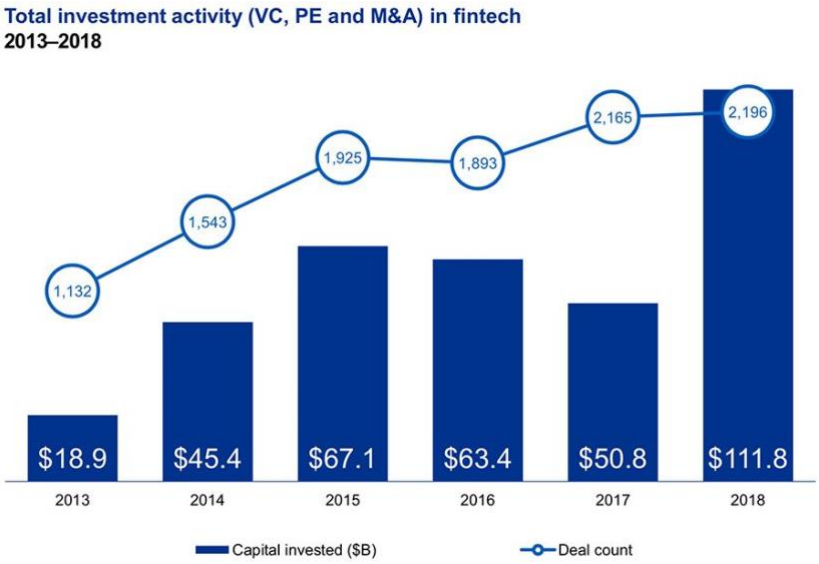

Fig. 1 – Pulse of FinTech 2018, Global Analysis of Investment in FinTech, KPMG International (data provided by PitchBook) January 4, 2019

1.2 Methodology used for research strategy

Due to the findings of the literature research the author decided to answer the research question concerned with a quantitative-conceptual approach that will be described as follows. From a theoretical perspective the author made extensive literature research of academic papers and journal articles in notable databases, such as Academia, CB Insight, KPMG, McKinsey & Company, PWC and SSRN[5], of books in online and offline libraries as well as of diverse resources on the internet. Although FinTech literature – in terms of definition, history and future trends – is a field for further research, the author believes that the various books, papers and other sources used, let thesis to be as objective as possible. Instead, this research revealed that the literature with regards to valuation methodologies of FinTechs is still very limited, which had different implications for the author's approach taken. Despite the distinguished literature[6] used for this thesis – such as A. Damodaran, P. Fernandez, J. Berk and P. DeMarzo, R. Higgins, M. Bini, L.

[5] Acronym for Social Science Research Network
[6] They will be clearly illustrated in the respective chapters and paragraphs.

Guatri, L. Potito etc. – the author truly believes that a practical case study might be helpful to better understand the topic.

1.2.1 Case Study Research

After reviewing the literature about FinTech in general and valuation methodologies applicable for the FinTechs, the author found that the thesis will provide a case study research design. Indeed, case studies are the preferred strategy when "how" or "why" questions are being posed (as this thesis's research question), when the focus is on a contemporary phenomenon within some real-life context (FinTech and valuation methodologies to be applied) and when the investigator has little control over events[7]. More specifically, research design is a framework that will support the researcher during the gathering of data. This is an in-depth research, since the aim is to understand how a FinTech company's value can be measured by existing valuation methodologies, and so it is important to have a full understanding of what FinTech is and where it is going forward and which might be the best methods to be applied to. For these reasons, the case study has been selected as research design. Case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence[8]. Generally, case study is used especially when developing a qualitative research, since it allows a deep examination of the phenomenon, with the aim of building a new theory. However, case studies can include, and even be limited to, quantitative evidence. In fact, the contrast between quantitative and qualitative evidence does not distinguish the various research strategies[9]. Likewise, historical research can include enormous amounts of quantitative evidence such as the one used for Nexi's case study (§4).

[7] Yin R.K. (2014), *Case Study Research. Design and Methods*, (5th edition)
[8] Robson C. (2002), *Real World Research*, Wiley, (3rd edition)
[9] Yin R.K. (2014), *Case Study Research. Design and Methods*, (5th edition)

1.2.2 Data collection

There are two main research methods used both for data collection and data analysis: qualitative and quantitative. The main difference between the two lies in the type of data they deal with. Indeed, while the former uses questionnaires, surveys and structured interviews as a means to obtain numerical data, the latter deals with quantities, values or numbers, making them measurable. As we stated above, the present study is developed by following the quantitative method, since it is the most suitable one given the purpose of the work. Indeed, historical data have been used for WACC calculation (§4.2.2.1) and consequently cost of capital by FactSet and Bloomberg data, Damodaran database for country default spread and risk premiums and Nexi's financial statements' data. Beside historical data, future projections have been extrapolated from Nexi's business plan mixed with an analysis of market peers (§4.2.1.2), which allowed the author to provide a more objective final result.

1.3 Structure

After this introduction the thesis will, in the second chapter, provide a general overview on FinTech firms. After a due and compulsory explanation of FinTech definition and history, emphasis will be put on the impact over the financial services system and the future trends of FinTechs. By illustrating the increasing investment into the sector and the relevance to understand how the value of FinTechs can be assessed, the second chapter's last paragraph paved the way to the third chapter. The third chapter outlines the different valuation methodologies applicable, ranging from DCF to multiples valuation. Consequently, the fourth chapter is the analysis part of this thesis through a case study research. Indeed, the author applies different valuation methodologies to a well-established FinTech firm, in order to figure out whether there is a correct method. Last but not least, there will be a conclusion where the results will be reviewed taking the results of

the case study together with the theory described into consideration. The thesis will be finalized with a limitation, including implications for further research.

2 FinTech, a wave of new companies disrupting the market

This chapter will provide an overview of FinTech, starting from its debated definition and passing through its recent history. Then, a description of FinTech's significant role of disruptive innovation into the financial industry will follow. At the end of the chapter, future trends' perspective will be provided, as well as the increasingly need to find out a correct valuation method to apply to FinTechs.

2.1 FinTech Definition

FinTech stands for financial technology. The term's origin can be traced to the early 1990s with the "Financial Services Technology Consortium", a project initiated by Citigroup to facilitate technological cooperation. However, only since 2014 has the sector attracted the focused attention of regulators, consumers and investors[10]. Although the term has been getting familiar to everybody in the world recently, there is no universal and agreed definition. The term is used to describe new tech that seeks to improve and automate the delivery and use of financial services[11]. FinTech has been also defined by the European Banking Authority, aligned with the Financial Stability Board[12], 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"[13]. McKinsey & Company defines FinTech players as start-ups and other companies that use technology to conduct the fundamental functions provided by financial services, impacting how consumers store, save, borrow, invest, move, pay, and protect money[14]. PricewaterhouseCoopers describes it as a dynamic segment at the intersection of the financial services and technology sectors where technology-focused start-ups

[10] Arner, D., Barberis, J., & Buckley, R. (2015), *The evolution of FinTech: a new post-crisis paradigm?* University of Hong Kong Faculty of Law
[11] https://www.investopedia.com/terms/f/fintech.asp
[12] https://www.fsb.org/work-of-the-fsb/policy-development/additional-policy-areas/monitoring-of-fintech/
[13] https://www.eba.europa.eu/-/eba-publishes-a-discussion-paper-on-its-approach-to-fintech.it
[14] McKinsey & Company (2016), FinTechnicolor, *The New Picture in Finance*

and new market entrants innovate the products and services currently provided by the traditional financial service industry[15]. Arner, Barberis & Buckley say that it is a uniquely recent marriage of financial services and information technology[16]. And the Federal Financial Supervisory Authority refers to it as companies or young undertakings that provide specialized and in particular customer-oriented financial services using technology-based systems[17]. To sum up, the term in discussion describes the use of technology to create any innovative offering in the financial services sector and it is not only used to describe a new form of innovation but also to label the people pushing the innovation.

2.2 FinTech History

This paragraph provides a detailed description of the birth of FinTech, as well as its evolution around the globe and the future trends. The following representations rely mainly on Arner, Barberis & Buckley's paper "150 Years of FinTech: An Evolutionary Analysis" and Roberto Ferrari's[18] book "FinTech Era: Digital Revolution within financial services".

2.2.1 FinTech 1.0: From analogue to digital (1866-1967)

Outstanding scholars affirmed the first FinTech period stems from 1866 to 1967[19]. In the late 19th century finance and technology combined to produce the first period of financial globalization thanks to innovations such as the first transatlantic cable (1866) and the Fedwire (1918). Afterwards, post-World War I technological developments advanced rapidly: Diner's Club (1950), telex (1966). Although the financial services industry has been largely interconnected with technology, it remained mostly analogue.

[15] PWC (2016), Global FinTech Report, *Blurred Lines: How FinTech is shaping financial services*
[16] Arner, D., Barberis, J., & Buckley, R. (2015), *The evolution of FinTech: a new post-crisis paradigm?* University of Hong Kong Faculty of Law
[17] BaFin (2016), *FinTechs: Young IT companies on the financial market*
[18] Roberto Ferrari was Group Chief Digital and Innovation Officer of Mediobanca, and in 2015 he has been appointed on the Top FinTech40 in Europe by Financial News (Wall Street Journal).
[19] Arner, D., Barberis, J., & Buckley, R. (2016), *150 Years of FinTech: An Evolutionary Analysis*

2.2.1.1 FinTech 2.0: Digitalization of traditional financial services (1967-2008)

"The most important financial innovation that I have seen the past 20 years is the Automatic Teller Machine, that really helps people and prevents visits to the bank, and it is a real convenience." This is what Paul Volcker affirmed in 2009, referring to the first ATM installed by Barclays in 1967. During the period in discussion, traditional financial institutions faced a deep change in their services such as the electronic payment systems. Indeed, whereas the first credit card[20] was created to ease the burden of carrying cash[21], the nowadays well-known MasterCard and Visa were born respectively in 1966 and 1970. In US, the Clearing House Interbank Payments System was established in 1970 and the NASDAQ was created in 1971. Instead, in Italy the Interbank System (*Sistema Interbancario*) stepped into the credit card market in 1986, thanks to the birth of *Servizi Interbancari*, launching *CartaSì* (today known as Nexi, which will be the case study illustrated in §4.1)[22]. Regulations worldwide, driven by liberalization mainly in US and Europe, did pave the way to total interlinked global markets. To better understand how interlinked the global markets were in this period, the Black Monday in 1987 provoked all the stock exchanges collapse around the world. In the late 1980s, Citibank, Chase Manhattan and Chemical and Manufacturers Hanover (three of the main banks) launched an online banking service thanks to a videotext system in New York. By 2001, eight US banks had at least one million customers online[23]. To sum up, during the period named FinTech 2.0, financial services worldwide were more and more digitalized due to the development of innovative technology for communications and transactions.

[20] In 1950, Frank Mc Namara created Diners, the first plastic means of payments.
[21] https://www.forbes.com/sites/falgunidesai/2015/12/13/the-evolution-of-fintech/#702472867175
[22] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services*, FrancoAngeli
[23] Arner, D., Barberis, J., & Buckley, R. (2016), *150 Years of FinTech: An Evolutionary Analysis*

2.2.1.2 FinTech 3.0: Developed countries (2008-present)

Nowadays, the boom in consumer facing FinTech start-ups is a global phenomenon, but "What explains the boom?"[24]. Firstly, the financial crisis of 2007/2008 and the consequent heavy regulation over the banking industry created a perfect vacuum to renovate. Moreover, at this time, the brand image of banks, especially in the UK and US, was undoubtedly shaken[25]. These facts paved the way to the rise of the FinTech start-ups, capable to step in a rooted market by a disruptive way. As the JP Morgan CEO Jamie Dimon said[26]: "Silicon Valley is coming: there are hundreds of start-ups with a lot of brains and money working on various alternatives to traditional banking [...] They are very good at reducing the pain points in that they can make loans in minutes, which might take banks weeks". Furthermore, other two main facts may explain (or at least help) the rise of FinTechs: the launch of the smartphones (first iPhone was launched in 2007) and the growth in sophistication of application programming interfaces (APIs). In this period, a fact permanently marked the FinTech's boom as well as the chance to grow and expand: the release of the cryptocurrency Bitcoin in 2009. Although several digital start-ups[27] (as well as digital banks) already operated into the financial services, firstly in EU and US, the investments on FinTech were not as large as they are today. To summarize, *"the critical difference in FinTech 3.0 lies in: firstly, who is providing financial services, with start-ups and technology firms supplanting banks in providing niche services to the public, business and the banks themselves; and secondly, the speed of development. In many markets, there has been a shift in customer mindset as to who has the resources and legitimacy*

[24] https://www.forbes.com/sites/falgunidesai/2015/12/14/the-fintech-revolution/#7272a149249d
[25] Arner, D., Barberis, J., & Buckley, R. (2016), *150 Years of FinTech: An Evolutionary Analysis*
[26] JP Morgan (2015), *Annual Letter*, Wall Street Journal
[27] The online payments' Klarna was established in 2005, the peer-to-peer start-ups Zopa and Lending Club respectively in 2005 and 2006, the trading and investing platform eToro in 2007, the online investment platform Betterment in 2008 etc.

to provide financial services, combined with an entirely new speed of evolution, particularly in emerging markets"[28]*.*

2.2.1.3 FinTech 3.5: Emerging markets (2008-present)

In 2013, the Alibaba CEO Jack Ma stated: "There are two big opportunities in future financial industry. One is online banking, all financial institutions go online; the other one is internet finance, which is purely led by outsiders". Both in Africa and in emerging Asia, ongoing FinTech improvements have been principally stimulated by conscious government arrangement decisions in the quest for financial inclusion and advancement[29]. In these countries, the main causes which paved the way to a rise of FinTech are conscious government approach decisions, inefficiencies into the financial industry, and the high growth of new technology. For instance, a success case in Africa, more precisely in Kenya, is M-Pesa, a transformative mobile phone-based platform for money transfer launched in 2007 by Vodafone. In 2013, a staggering 43 percent of Kenya's GDP flowed through M-Pesa, with over 237 million person-to-person transactions[30]. On the other part of the globe, Alibaba launched Alipay (the group mobile and online payment platform) in 2004 and introduced loans to SMEs on its e-commerce platform in 2010. Instead, in India 11 new payment banks were established in 2015. To sum up, these countries have specificities which make them very fertile ground for FinTech: high technology penetration and infrastructure mismatch between people with a mobile phone and at the same time without a bank account[31]. These characteristics make these markets arguably more suitable than developed ones to deploy mobile-based financial services and products.

[28] Arner, D., Barberis, J., & Buckley, R. (2016), *150 Years of FinTech: An Evolutionary Analysis*
[29] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[30] https://www.forbes.com/sites/danielrunde/2015/08/12/m-pesa-and-the-rise-of-the-global-mobile-money-market/#2e21e785aecf
[31] Arner, D., Barberis, J., & Buckley, R. (2016), *150 Years of FinTech: An Evolutionary Analysis*

2.3 Future Trends

The Microsoft co-founder Bill Gates said: *"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten"*[32]. Following Bill Gates' quote, the aim of this paragraph is to focus on FinTech's future long-term trends rather than short term ones. Major trends will be analyzed, particularly in terms of technological, demographic and business evolution. The aforementioned phenomena will tend to intersect with each other by tough mechanisms to understand nowadays. Although difficult to understand, these changes are highly likely to happen in the future. The trends, as detailly analyzed by Roberto Ferrari in his book "FinTech Era: Digital Revolution within financial services", are essentially nine: 1) New competitors from Silicon Valley; 2) APIs development, from marketplace lending and funding to marketplace banking; 3) Fintegration, everything will be FinTech; 4) Millennials maturation and new generation arrival; 5) Boom of big data, machine learning and AI; 6) 1to1 banking; 7) Banking everywhere and IoT; 8) The real time, fast and secure processing and the blockchain; 9) Financial inclusion and East and Africa's growth.

2.3.1 New competitors from Silicon Valley

Firstly, BigTech firms such as western GAFA and eastern BAT have grown fast over the last two decades. An essential by-product of their business is the large stock of user data they own and manage[33] and thanks to it, they stepped in the financial industry. A lot of examples can be cited: the e-payments services such as Google Pay, Amazon Pay, Apple Pay in US or Alipay and WeChat Pay in China; the huge investments made by them into the FinTech world; GAFA's banking license in Europe as well as the recent launch of Libra, Facebook's cryptocurrency. Although these facts regard the short term, it is highly likely

[32] Gates B., Myhrvold N., Rinearson P. (1996), *The Road Ahead*, Viking Penguin
[33] BIS (2019), *BigTech in finance: opportunities and risks*, Annual Economic Report

BigTech firms will step in other financial sectors such as trading, P2P lending and alternative finance in the medium/long-term.

2.3.2 APIs development, from marketplace lending and funding to marketplace banking

Secondly, the exponential growth of internet-connected devices is also bringing with it the very strong increase in the spread of APIs and therefore the dialogue between different online software[34]. This trend is mainly driven by regulation (particularly in Europe) and business. On one hand, the PSD2[35] will enforce the open banking principle: all the banks will be forced to disclosure their services and products as well as their customers' (whether consenting) transaction data to a "trusted third party". On the other hand, the whole banking system's software is needed to change and adapt by APIs. A new model of bank will rise: the marketplace banking. It is a completely flexible scheme, where each bank has an internal core business made up of software/products and can externally open to new services, both from FinTech firms and other parts.

[34] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[35] The Payment Services Directive 2015/2366 is an EU Directive, administered by the European Commission to regulate payment services and payment service providers throughout the European Union. The Directive's purpose was to increase pan-European competition and participation in the payments industry also from non-banks, and to provide for a level playing field by harmonizing consumer protection and the rights and obligations for payment providers and users.

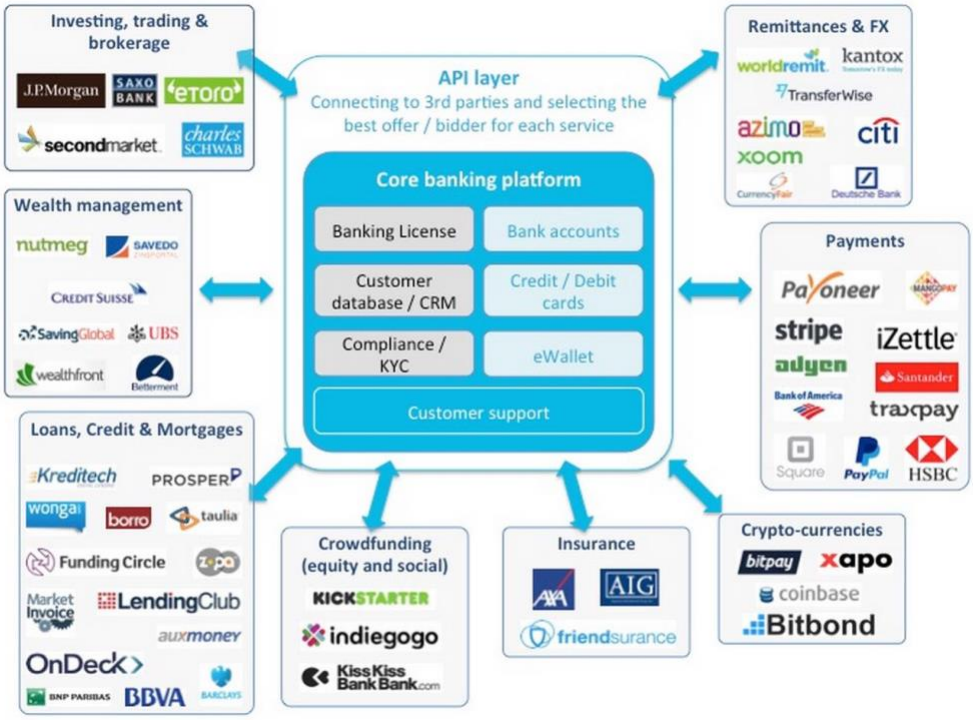

Fig. 2 – Novobrief, FinTech (or marketplace) banks: the second wave of FinTech, 2015

2.3.3 Fintegration, everything will be FinTech

The recent boom of FinTech made many authors think of a complete disruption of the financial and banking system as it is nowadays. However, as the marketplace banking model did show previously, this contrast is wrong and stems from a short-term vision. Actually, the increasingly digitalization and the open banking development will force traditional banks to transform and renovate themselves[36]. A strong convergence will take place, on one hand some FinTechs will expand their services and products in order to be seen as actual bank; on the other hand, a collaboration between FinTechs and banks will arise. As noted by Andres Wolberg-Stok, Global Head of Emerging Platforms and Services at Citibank: "The holy grail for banks is to become the best at "Fintegration"[37]. It is a model of coopetition, where FinTechs provide services and solutions as well as playing as banks' competitors. Instead, banks will need to get digitalized to survive. Everything will be FinTech.

[36] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services*, FrancoAngeli
[37] The Economist (2015), *The Disruption of Banking*, Intelligence Unit

2.3.4 Millennials maturation and new generation arrival

Millennials (also Generation Y[38]) are the first generation capable, both in theory and in practice, to understand the Bill Gates' famous quote *"Banking is necessary, banks are not"* of 1994. According to Roberto Ferrari, a millennial has never got into a bank's branch (unless she accompanied her parents), she lives in a symbiosis with her smartphone, daily using social networks. She takes her adult steps into the sharing economy and she lives in a completely digitalized, mobile and social user experience. Year by year, financial institutions will need to face with these users target and even with another type of users: Generation Z[39], which are completely digitalized and have used Internet since a young age. These generations are a great opportunity for those starting from scratch[40]. Indeed, a lot of start-ups with these generations target was born all over the world. From Moven to Robinhood, from N-26 to Venmo, from Betterment to Revolut, they are all based on social network, mobile, analytics and crowd-advisory. This is a revolution if compared with the strong and significative banking user-experience. It is not just a matter of moving from a physical channel to a mobile one, but to fully redesign the use of financial services based on the ecosystem and the experiences to which millennials are accustomed. This trend, together with technological progress, will irreversibly change banking, by making it portable, invisible, social and essential and opening the way for new players[41].

2.3.5 Boom of big data, machine learning and AI

Big data[42] will express the banking in the future. Banking will need to extract value from big data, taking a cue from what GAFA and FinTechs[43] have been

[38] Researchers and popular media use the early 1980s as starting birth years and the mid-1990s to early 2000s as ending birth years.
[39] Demographers and researchers typically use the mid-1990s to mid-2000s as starting birth years.
[40] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[41] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[42] Big data refers to the large, diverse sets of information that grow at ever-increasing rates. It encompasses the volume of information, the velocity or speed at which it is created and collected, and the variety or scope of the data points being covered. Big data often comes from multiple sources and arrives in multiple formats.
[43] Both GAFA and FinTechs are born with a very different and precise know-how in search of alternative sources of revenue.

doing for years. The more digital is used, the more what you do (as well as what you think, look for and like) is tracked. Moreover, APIs growth will surely increase the data collection possibility, whereas the blockchains could greatly facilitate its access[44]. As information grows and access becomes easier, analytical capacity, machine learning and predictive analytics increase as well, applied not only to transactional or socio-demographic data, but also to behavioral ones. Data points are rising up, algorithms are getting increasingly powerful, and analysis quality is getting more and more precise. New business models are born, and current ones are radically changed, and it is clear that digitalization brings about revenues' reduction. How can the companies balance out? How can the companies increase revenues with these new business models driven by zero costs and low prices? Big data's monetization will be a significant factor in the future.

2.3.6 1to1 banking

All previous trends will lead to 1to1 banking. This term means the ability to offer a real time and personalized interaction with the customer, based on the data collected[45]. Real time analytics, customers' risk and behavioral analysis, and social data are the fields where relevant breakthroughs have been made and will be made in the future. Indeed, it is completely consistent with the marketplace banking model, as well as with the millennials and the new generation's[46] expectations[47].

2.3.7 Banking everywhere and IoT

There may not be a branch nearby to go to[48]. Nobody will get into the bank in the future: the bank will always be with us and interact with us during our daily life. Banking will not see as a physical place anymore; banking will be everywhere.

[44] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[45] Bria F.H. (2014), *Seven Billion Banks: How a personalized banking experience will save the industry*, Cambio Publishing
[46] New generation refers to Generation Z, as illustrated in §2.3.4.
[47] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[48] https://www.forbes.com/sites/ronshevlin/2019/03/11/will-bank-branches-go-the-way-of-retail-stores/#32b6f487a72d

Perhaps, some branches will still exist, but with different functions and services provided than nowadays[49]. Indeed, touchpoints are going to be built up, just as Apple pioneered with its stores around the world or how Amazon and Ikea have been doing recently. Last but not least, IoT in financial services will come. According to Roberto Ferrari, IoT will certainly be instrumental in favoring alternatives to cash management, digital customer identification or trade finance. Although this trend will take time due to technological transformation, the path is already traced.

2.3.8 The real time, fast and secure processing and the blockchain

The Generation Z (and consequently the following generations) will experience the world of transactions in real time. No matter whether it will be driven by blockchains or another technological solution. Undoubtedly, the development of the blockchain will not be limited to the only possible evolution of the transactions and the related processing systems. Indeed, many middle and back-end processes could be transformed by distributed ledger, until reaching even the capital markets. It will take time, the adoption of the different applications of the blockchain as a service will be scanned according to the complexities encountered. However, the potential, even out of the financial services industry, is extremely high.

2.3.9 Financial inclusion and East and Africa's growth

Innovation into the financial industry mainly concerned the western world, or even more specifically, the G7[50] countries. Innovation was functional to the expansion of the economy and its internationalization: it was inevitably driven by those in control. On one hand, the path taken so far seems to have reached its maximum with regard to financial inclusion in the western countries[51]. On the

[49] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli
[50] Canada, France, Germany, Italy, Japan, United Kingdom and United States
[51] Ferrari, R. (2016), *FinTech Era: Digital Revolution within financial services,* FrancoAngeli

other hand, the eastern countries' growth shifts the global balances as well as the drivers of change. Indeed, FinTech and mobile may boost toward a higher financial inclusion those 2 billion of "unbanked" people left out from globalization. Moreover, the continuous technological development as well as the rise of tech giants in Asia (South Korea, Singapore, India, China and Hong Kong) and Africa (Israel, Nigeria, South Africa etc.) have been moving the innovation impulse. According to Roberto Ferrari, the geographical expansion of actors, solutions, business models, and users themselves will be part of the scenario of evolution of financial services in the next 10/15 years.

2.4 The relevance to value FinTech firms' value

As said in the introduction, investments into FinTech companies have been increasingly growing all over the world for years. The author truly believes that an overview on how FinTechs are valued is very important to be provided. Indeed, valuing a FinTech company carries significance for employees, investors as well as potential ones, and stakeholders of the company and understanding the value of a FinTech company is crucial to everyone with an interest in the company[52]. While owners would like to receive a fair value for their shares, investors do not want to overpay. The following chapter will provide several valuation methods which may be applied to FinTech companies, in order to better understand how these more and more important firms nowadays are valued.

[52] Mercer Capital (2018), *How to Value an Early-Stage FinTech Company*

3 Valuation methodologies for FinTechs

This chapter will dig into the valuation methodologies applicable to FinTech companies. After providing a general overview of each method, the underlying assumptions as well as pros and cons for every approach will be illustrated. The methods taken into consideration are: 1) Equity method; 2) Income approach; 3) Mixed equity-income method; 4) Discounted Cash Flow; 5) Multiples method; 6) Others.

3.1 Equity method

3.1.1 General aspects and fields of application

Pablo Fernandez[53] said that the equity method[54] seeks to determine the company's value by estimating the value of its assets. This is a traditionally used method that considers that a company's value lies basically in its balance sheet[55]. The IESE Business School Professor divides the equity method into:

- Book value method: the value of the shareholders' equity comes from the balance sheet (capital and all kinds of reserves). This quantity is also the difference between total assets and liabilities, that is, the surplus of the company's total goods and rights over its total debts with third parties[56];
- Adjusted book value method: the value of the shareholders' equity comes from the balance sheet with needed adjustments of some balance sheet items (stock, account receivables, account payables etc.) to their market value;
- Liquidation value method: the value of the company when it is liquidated so when the assets are basically sold out and the liabilities are

[53] Pablo Fernandez is Professor of Financial Management at IESE Business School and one of the main experts of enterprise valuation globally.
[54] He actually talks about balance sheet-based or shareholders equity method.
[55] Fernandez P. (2019), *Company valuation methods*, IESE Business School, (10th edition)
[56] Fernandez P. (2019), *Company valuation methods*, IESE Business School, (10th edition)

paid off. This value is calculated by deducting the business's liquidation expenses (redundancy payments to employees, tax expenses and other typical liquidation expenses) from the adjusted net worth[57].

- Substantial value method: the value of the enterprise is derived from the market value of the assets contained in the company[58]. It can also be defined as the assets' replacement value, assuming the company continues to operate, as opposed to their liquidation value[59];

These methods are especially used for valuing real estate companies and holding or sub-holdings as they measure the dynamics of the company's value in a certain time[60]. However, these methods are generally inappropriate for FinTech start-ups as they are not capital-intensive businesses until the company has completed funding rounds[61]. To sum up, the equity method, from the book value method to the substantial value one, is hardly applicable to the type of companies this research is related.

3.1.2 Pros and cons

The equity method is applied on practice as it offers operators more objective and reassuring values, that can also be checked into the balance sheet. Furthermore, this method is undoubtedly useful when it comes to measuring companies whose value is all in their assets, such real estate and holdings companies as previously cited. However, this method is highly controversial for several reasons. Firstly, it gives an unbundled and static overview of the company, which, therefore, does not take into account the company's capability to generate value in the future[62]. This is completely inadequate for FinTechs, which are increasingly known for their high future growth rate and also because in today's world there is no doubt

57 Fernandez P. (2019), *Company valuation methods*, IESE Business School, (10th edition)
58 Truijens T. (2018), *Enterprise Valuation/Value Based Management*, Institute of Management, University of St. Gallen
59 Fernandez P. (2019), *Company valuation methods*, IESE Business School, (10th edition)
60 Bini M., Guatri L. (2009), *Nuovo trattato sulla valutazione delle aziende*, EGEA, (2nd edition)
61 Mercer Capital (2018), *How to Value an Early-Stage FinTech Company*
62 Potito L. (2016), *Le operazioni straordinarie nell'economia delle imprese,* Giappichelli Editore, (5th edition)

that the value of an enterprise depends primarily on expectations about the future[63]. Secondly, the equity method does not take into account other factors that also affect the value such as: management expertise, the industry's current situation, human resources or organizational problems, contracts, etc. that do not appear in the accounting statements[64].

3.2 Income approach

3.2.1 General aspects and fields of application

The income approach[65] expresses the value of the company according to its future income capacity. Different from the equity method, this methodology incorporates a forward-looking approach. Furthermore, the income approach has different application solutions that derive mainly from:

- How the income flows are defined and measured in the past;
- Length of the time horizon and how the related expected future profits are expressed[66];
- How the future projections are conceived and realized;
- Discounted profit method;
- Object of the evaluation.

The income[67] flows can either relate to historical values and their projection in the future or to potential values not yet achieved by the company but that are based on reliable assumptions. The time horizon should be indefinite since an enterprise, by definition, is built to last. However, an enterprise might not last forever due to particular circumstances such as increasing uncertainty about the expected future income flows and their increasing curtailment due to the discounting process[68].

[63] Truijens T. (2018), *Enterprise Valuation/Value Based Management,* Institute of Management, University of St. Gallen
[64] Fernandez P. (2019), *Company valuation methods*, IESE Business School, (10th edition)
[65] Known as Discounted economic profit in Anglo-Saxon countries.
[66] Usually, analytical measures are adopted for the first years and normalized ones for the others.
[67] It is to be considered as the net income (or net profit) after taxes.
[68] Bini M., Guatri L. (2009), *Nuovo trattato sulla valutazione delle aziende,* EGEA, (2nd edition)

The future projections maintain or vary the results that the company has generated in the recent past and is getting into the present. The discounted profit method means that the enterprise value will correspond to the present value of operating profits discounted at the WACC (explained in detail in §3.4.1)[69]. Last but not least, the object of the evaluation can be a standalone or a company integrated with other organized economic entities[70].

The mentioned method is best suited to evaluate non capital-intensive businesses in which the value drivers are principally related to the ability of the firm to generate future earnings rather than the value capitalized by the firm at the time of the analysis (value of firm's assets in place). Therefore, it is worth noting that this valuation method implies a broader observing period. In fact, the time horizon is typically wider and shifted in time and place to better represent the value generated by the firm in a going-concern basis. To sum up, this method is complementary to the aforementioned equity-method described in the preceding paragraphs.

3.2.2 Pros and cons

The income approach gives a complete overview of the company as a unique aggregate, contrary to the equity method (§3.1.2). Furthermore, a strong advantage of this method is its forward-looking approach which can be positively seen for FinTechs, characterized by huge growth rates. Last but not least, the income approach explicitly highlights when a company creates value[71]. Despite of the mentioned pros, this valuation methodology presents several limits such as: the extensive possibilities to manipulate earnings, the lack of working capital

[69] The Weighted Average Cost of Capital represents the returns that all investors in a company, equity and debt, expect to earn for investing their funds in one particular business instead of others with similar risk, also referred to as their opportunity cost.
[70] Bini M., Guatri L. (2009), *Nuovo trattato sulla valutazione delle aziende*, EGEA, (2nd edition)
[71] Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies*, McKinsey, Wiley, (6th edition)

effects and the delayed impact of capital expenditures[72]. Regarding the first one, even when the profitability of an enterprise was determined without any manipulation, it cannot be a sufficient indicator for the valuation[73]. Moreover, in case of very basic service or trading enterprises where transactions are performed on a cash basis, no inventories are existent and capital expenditures do not exist, profit and cash generation can be quite close. However, the moment working capital and capital expenditures are part of the business model, significant differences will exist between profit and cash. As a rational investor is not interested in profits, but rather in cash, the author truly believes this might be the biggest limit of the income approach. Therefore, it is essential to identify a metric which provides a comprehensive picture of how much cash an enterprise is generating with its operating business, including the capital expenditures but excluding all cash effects caused by financing effects[74]. Another limit might be seen on the incapability of a company to generate profit[75], so that the discounting process cannot be applied to.

3.3 Mixed equity-income method

3.3.1 General aspects and fields of application

The mixed equity-income method represents a synthesis between the equity and income methods. The aim is to express the value of the company in terms of its assets and income, thus filling the gaps of both methods. Indeed, as previously seen, the equity method does not consider the capability of the company to generate value in the future, whereas the income approach leaves the assets' valuation out. The mixed equity-income method stems from the addition of two factors: the adjusted shareholders' equity (K), expressed at current values; and the goodwill, classified as the present value ($a_{n\neg i}$) of the excess future normalized

[72] Truijens T. (2018), *Enterprise Valuation/Value Based Management,* Institute of Management, University of St. Gallen
[73] Higgins R.C. (2015), *Analysis for Financial Management,* McGrawHill, (11th edition)
[74] Higgins R.C. (2015), *Analysis for Financial Management,* McGrawHill, (11th edition)
[75] This fact is highly possible in the case of FinTech start-ups, characterized by unprofitable business models at the beginning.

income (R-i'K). Trying to make the last concept as clear as possible, the excess future normalized income corresponds to the difference between the expected average income of the company (R) and the one of the company's industry (i'K).

$$W=K+a_{n\neg i}\ (R-i'K)$$

Furthermore, the income of the company's industry is discounted at the rate i', and it is classified as the cost of equity (explained in §3.4.1). Instead, the excess future normalized income is discounted at the rate i, which corresponds to the risk-free rate (r_f) in case of negative future normalized income and to the r_f plus an enterprise risk premium (ERP) in case of positive future normalized income.

This valuation methodology is used for several applications. It can be relevant as a means for a "simplified income verification" of analytical asset estimates. Moreover, it is used as a method of checked revaluation of the depreciable assets of industrial companies[76]. Then, filling the gap of the income approach, the mixed equity-income method can be used to evaluate unprofitable companies, and this might fit for FinTech start-ups, very often characterized by negative profits. Last but not least, "badwill[77]" calculation is another field of application for the mixed method.

3.3.2 Pros and cons

The main advantage of the mixed equity-income method is filling the gap of both equity and income approaches. Thus, whereas it offers investors more objective values that can be checked into the balance sheet, it provides a forward-looking overview of the company analyzed. On one hand, this method is very useful as it allows to measure companies whose value is all in their assets; on the other hand, it is capable to provide a company's whole overview. However, the main

[76] Bini M., Guatri L. (2009), *Nuovo trattato sulla valutazione delle aziende*, EGEA, (2nd edition)
[77] Badwill is also known as negative goodwill, and it occurs when a company purchases an asset at less than net fair market value. Typically, badwill occurs when one company purchases another at a price that is below its book value. This may happen if the outlook for the company is particularly bleak.

disadvantage is to obtain the precise values of the formula's factors, above all R and i'K, which otherwise do not allow the valuation process. The author believes this method may not be adequate for FinTechs for two reasons. Firstly, the mixed equity-income method focuses its attention on company's assets, but FinTechs are not high capital-intensive companies (§3.1.1). Secondly, even though the method is future-projected, which may be seen positively for FinTechs' high growth rates, it does rely on firm's profits and this is inappropriate for FinTechs. Finally, this valuation methodology has represented, especially in the continental Europe, one of the most used enterprise valuation methods requiring analytical assets estimates[78] but nowadays it has been replaced by DCF (§3.4) and Multiples (§3.5).

3.4 Discounted Cash Flow

3.4.1 General aspects and fields of application

"If I want to know what a company is worth, I ask myself how much cash I can take out of this company in the long-run after undertaking all the necessary investments to ensure the future success of the company; and how much is this expected future cash worth today"[79]. This quote of Warren Buffett perfectly explains the logic behind the DCF. Indeed, the aforementioned model discounts free cash flow, that is the one available to all investors (equity holders, debt holders, and any other nonequity investors) at the WACC, meaning the blended cost of capital for all investor capital[80]. Thus, the key steps in the DCF method are:

- Compute the WACC and its components;

[78] Potito L. (2016), *Le operazioni straordinarie nell'economia delle imprese,* Giappichelli Editore, (5th edition)
[79] Truijens T. (2018), *Enterprise Valuation/Value Based Management,* Institute of Management, University of St. Gallen
[80] The author is appositely focusing its attention on the unlevered free cash flows, which is available to pay all stakeholders in a firm, including debt holders as well as equity holders. On contrary, levered free cash flows is the amount of money a company has left remaining after paying all of its financial obligations, that is, the one available to pay equity holder

- Determine the free cash flows (FCF) to the firm and the terminal value (TV);
- Discount the FCF to the firm using the WACC and adding TV.

Primarily, the WACC calculation has to be made. In its simplest form, the WACC equals the weighted average of the after-tax cost of debt and cost of equity[81]:

$$WACC = \frac{D}{V} rD(1-\propto) + \frac{E}{V} rE$$

Where *D/V* = target level of debt to enterprise value using market-based values

E/V = target level of equity to enterprise value using market-based values

rD = cost of debt

rE = cost of equity

$\propto$ = company's marginal income tax rate

The cost of debt can be calculated in several ways. Firstly, it can be represented by the interest expenses divided by debt outstanding, which are both balance sheet's data[82]. Another way is to approximate by using average maturity and return expectation given the current rating of enterprise whose debt trades infrequently or for nontraded debts[83]. Lastly, the cost of debt can be obtained by looking up the yield to maturity on a straight bond outstanding from the firm[84].

The cost of equity represents the expected rate of return available in the market on other investments with equivalent risk to the firm's shares[85]. As Koller,

81 Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies,* McKinsey, Wiley, (6th edition)
82 Higgins R.C. (2015), *Analysis for Financial Management,* McGrawHill, (11th edition)
83 Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies,* McKinsey, Wiley, (6th edition)
84 Damodaran A. (2016), *Estimating cost of debt, debt ratios and cost of capital,* NYU Stern
85 Berk J., DeMarzo P. (2017), *Corporate Finance,* Pearson, (4th edition)

Goedhart and Wessels affirm, it is the most difficult WACC's component to estimate. According to the CAPM[86], the cost of equity is given by:

$$rE = rf + \beta * (rm - rf)$$

Where rf is the risk-free rate, the interest rate at which money can be borrowed or lent without risk over a given period. It has to be in the same currency and defined in same terms (real or nominal) as the cash flows[87]. Then, β measures how a company's stock price responds to movements in the overall market[88], so it roughly represents the riskiness of the firm if compared with the market. Last but not least, $rm - rf$ is the difference between the return of the market (rm) with the risk-free rate (rf), the so-called market risk premium. Indeed, it represents the market risk premium, that is, the expected excess return of the market portfolio. According to Damodaran, the risk premium can be calculated through historical premia: 1) Mature equity market premium, that is the average premium earned by stocks over T.Bonds in U.S.; 2) Country risk premium, given by:

$$Country\ Default\ Spread * \frac{\sigma Equity}{\sigma Country\ bond}$$

Furthermore, the NYU Stern Professor affirmed the risk premium can also be measured by implied premium, that is based on how equity is priced today and a simple valuation model.

86 It is the most important method for estimating the cost of capital that is used in practice. The CAPM was first developed independently by William Sharpe, Jack Treynor, John Lintner, and Jan Mossin, building on the earlier work of Harry Markowitz on diversification and modern portfolio theory.
87 Damodaran A. (2016), *Estimating cost of debt, debt ratios and cost of capital,* NYU Stern
88 Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies,* McKinsey, Wiley, (6th edition)

Moreover, a robust valuation model requires a clear account of financial performance, so that a reorganization of the firm's financial statements needs to be made[89]. Indeed, this reorganization is essential to calculate the FCF to the firm.

$$FCF = NOPAT + D\&A - CapEx - \Delta NWC$$

Starting from the first factor, NOPAT[90] stands for net operating profit after taxes and it is equal to EBIT, evaluated on an after-tax basis ($\propto$) and it is also called unlevered net income.

$$NOPAT = EBIT * (1 - \propto)$$

Going through the equation, depreciation and amortization (D&A) represents the add-back of all non-cash elements contained in income statement whereas CapEx reflects the investments/divestments in fixed assets of the firm.

$$CapEx = PPE_t - PPE_{t-1} + Depreciation_t$$

The last factor is the reflection of the net working capital, that is, the difference between current assets and current liabilities.

$$NWC = Inventory + Accounts\ Receivables - Accounts\ Payables + Other\ assets - Other\ liabilities$$

As the ΔNWC is taken into consideration, both investments and divestment on the previous components need to be accounted. The second part of the cash flows is composed by TV which represents the market value (as of the last forecast period) of the free cash flows to the firm at all future dates. To the estimation of terminal

[89] Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies*, McKinsey, Wiley, (6th edition)

[90] NOPAT is a very accurate measure of operating efficiency for leveraged companies, and it does not include the tax savings many companies get because of existing debt.

value, the Gordon growth model is usually used[91], where FCF_{t+1} stands for the FCF at year t+1, and g represents the long-term growth rate:

$$TV = \frac{FCF_{t+1}}{WACC - g}$$

After computing all the factors, the EV can be finally calculated:

$$EV = \sum_{t=1}^{n} \frac{FCF_n + TV}{(1 + WACC)^n}$$

3.4.2 Pros and cons

The DCF represents the valuation method taken as reference in economic and financial theory, in the perspective of potential investors looking for the acquisition of a majority-stake in a target. The method in discussion allows to better evaluate the specific characteristics of the company, identifying clear value drivers. Furthermore, the DCF reflects long-term value creation and in this sense might be seen as the most appropriate valuation methodologies for FinTechs since it is capable to capture their high-growth business. At the same time, this might be a big limit of the DCF. More clearly, a two-digit growth rate[92] leads to a huge unbalance on the terminal value side and this is comprehensibly a disadvantage of the model. On the other hand, the DCF valuation model requires a complex prospective economic-financial model, based on numerous variables whose determination is subject to a high degree of discretion. This is the main limit for the model. Previously, we talked about the growth rate variable determination, but this can be applied to the business plan projections as well as the estimation of cash flows[93]: How much are the revenues increasing/decreasing? What about the operating costs? And investments? Indeed, for FinTech startups, cash flows forecasts are often characterized by a period of operating losses, capital need, and

[91] In practice, the exit multiple method is also utilized.
[92] This can be easily assumed for most of FinTechs, especially start-ups.
[93] Higgins R.C. (2015), *Analysis for Financial Management,* McGrawHill, (11th edition)

expected payoff as profitability improves or some exit events – like an IPO – occur[94]. Clearly, this is not a piece of cake and can be seen as another pitfall for the FinTechs valuation, as they are usually characterized, more than other established firm, by unstable and volatile business plans. Moreover, the estimation of WACC represents a big challenge in most of cases, particularly for the cost of equity. Indeed, CAPM is highly inadequate to be applied for either newly founded companies[95] as FinTech start-ups or companies with a high-risk level. This aspect might lead to an overweight on the cost of equity side and to an insignificance of the WACC. Although the DCF valuation model theoretically can be seen as the principle method, relevant and unsolved limits came out which make it difficult to be applied to FinTechs.

3.5 Multiples method

In the previous paragraph (§3.4), we have valued a company by considering the expected future cash flows it will provide to its owner. This paragraph focuses instead on the method of multiples. Rather than valuing the firm's cash flows directly, the value of the firm is estimated based on the value of comparable firms that will generate very similar cash flows in the future[96]. Although it might seem a straightforward process, identical companies do not exist. Indeed, even though they may be similar in many respects, also two firms in the same industry selling the same types of products are likely to be of a different size or scale. Before illustrating the general aspects and fields of application for multiples method, a relevant distinction has to be made. There are two types of multiples: trading multiples and transaction multiples. As mentioned, this methodology implies the use of different metrics taken from both public or private markets, trading multiples or transaction multiples respectively, through which comparable listed or non-listed firms could be evaluated. Trading multiples approach relied on the

[94] Mercer Capital (2018), *How to Value an Early-Stage FinTech Company*
[95] Truijens T. (2018), *Enterprise Valuation/Value Based Management*, Institute of Management, University of St. Gallen
[96] Berk J., DeMarzo P. (2017), *Corporate Finance*, Pearson, (4th edition)

prices of shares traded on the stock markets and related to listed companies that are comparable to the one being valued or operating in the same sector or in similar sectors with similar characteristics. Instead, transaction multiples approach is based on previous M&A operations of listed and non-listed companies operating in the same industry and possibly with similar performances.

3.5.1 General aspects and fields of application

The aforementioned method relied on two basic assumptions: a) the value of the firm varies proportionally with the fundamental figure chosen as a metric of performance; b) there is equality between growth rates, risk and the ability to generate cash flows between comparable companies and the company being valued. The most common multiples used are: P/E, EV/EBITDA, EV/EBIT, and EV/Sales. P/E represents the most common multiple used and it is the ratio of the value of equity to the firm's earnings, either on a total basis or on a per-share basis[97]. In the line with Berk and DeMarzo, P/E is a simple measure that is used to assess whether a stock is over- or undervalued based on the idea that the value of a stock should be proportional to the level of earnings it can generate for its shareholders. Furthermore, EV/EBITDA is one of the most widely used multiples by analysts, and it is a ratio that compares a firm's EV to its Earnings Before Interest, Taxes, Depreciation & Amortization. Although EBITDA can be seen as a proxy of the firm's cash flows and thus highly used by investment banks and financial boutiques to value firms, it has a number of limitations: it does not include the changes in the working capital requirements, and it does not consider capital investments[98]. EV/EBIT is a ratio that compares a firm's EV to its Earnings Before Interest, Taxes. EV/EBIT is commonly used as a valuation metric to compare the relative value of different businesses, but it is usually calculated along with EV/EBITDA as the latter is not affected by D&A

[97] Berk J., DeMarzo P. (2017), *Corporate Finance,* Pearson, (4th edition)
[98] Fernandez P. (2019), *Valuation using multiples: dispersion. Useful to compare and to negotiate,* IESE Business School, (10th edition)

manipulation by the firm managers, whereas EV/EBIT can be. Lastly, EV/Sales is also a very used multiple and it is especially useful if it is reasonable to assume that the firms will maintain similar margins in the future[99]. Furthermore, EV/Sales is computed when firms have negative EBITDA and thus it might be helpful in the case of FinTech start-ups, at the early stage of their life. Obviously, depending on the industry and the firm's characteristics, other multiples can be used. For example, in the late 1990s, valuing the young companies was a struggle because of the great uncertainty surrounding potential market size, profitability, and required investments[100]. Consequently, financial multiples such as the ones just mentioned were worthless since profitability (measured in any form) was negative in most cases. To overcome this shortcoming, academics and practitioners alike relied on nonfinancial multiples, which compare enterprise value with one or more non-financial statistics, such as website hits, unique visitors, or number of subscribers[101]. The author believes that this idea might be also applied to FinTechs, especially at the first stage life.

3.5.2 Pros and cons

Multiples method represents the main methodology used in the secondary market by institutional investors. Moreover, multiples are granted an informational advantage, especially in cases where it is difficult to make reasonable estimates, and this might be greatly helpful for FinTechs whose future estimates are highly uncertain. Another advantage of this method is that it represents a relatively simple and fast valuation tool, especially if compared to DCF (§3.4) or mixed equity-income method (§3.3.9). As every valuation methodology, also the multiples method has its pitfalls. Firstly, the results are influenced by the difficulty of finding and selecting a representative sample of listed companies as peer group.

[99] Berk J., DeMarzo P. (2017), *Corporate Finance*, Pearson, (4th edition)
[100] Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies*, McKinsey, Wiley, (6th edition)
[101] Koller T., Goedhart M., Wessels D. (2015), *Valuation: Measuring and Managing the Value of Companies*, McKinsey, Wiley, (6th edition)

This completely match the FinTechs' case as there are not so many listed firms with these characteristics or not so many transactions carried out in the past. Secondly, another disadvantage is the risk of not adequately highlighting the specific characteristics and growth potential of the company being valued, which again weakens the FinTechs' example, highly characterized by increasing future growth potential. Thirdly, the values obtained may be excessively influenced by market conditions or by the overpaid/underpaid price for a company, as well as by the discretion adopted in the choice of multiples to be used. Indeed, they only provide information regarding the value of the firm relative to the other firms in the comparison set, so using multiples will not help to determine if an entire industry is overvalued or vice versa[102]. Thus, looking at the FinTech industry, many companies might be seen as overvalued relative to their potential cash flows or value.

3.6 Others

3.6.1 Economic Value Added - EVA

Economic Value Added[103] is an asset-side mixed method alternative to the traditional one (§3.3). EVA is able to measure economic performance and management capabilities in terms of new value created (or destroyed). More precisely, EVA is an economic performance measure if applied to historical data, whereas it can be considered as an enterprise valuation method if applied to future data[104]. New value creation represents the increase of the greater (or lower) value that can be added to the invested operating capital[105] (IC) into the company. The incremental difference is determined by the spread between the return on invested capital (ROIC) and the WACC. Thus, a positive EVA means that a company is generating value from the funds invested in it. Contrarily, a negative EVA shows

[102] Berk J., DeMarzo P. (2017), *Corporate Finance,* Pearson, (4th edition)
[103] The term is a mark registered by the management consulting firm Stern Value Management, originally incorporated as Stern Stewart & Co. The method is brilliantly illustrated and explained in the book *The Quest for Value* by Bennet Stewart III, (1999).
[104] Potito L. (2016), *Le operazioni straordinarie nell'economia delle imprese,* Giappichelli Editore, (5th edition)
[105] It represents the total assets minus the current liabilities, that is, the economic capital employed.

a company is not producing value from the capital invested. As previously illustrated:

$$EVA = (ROIC - WACC) * IC$$

However, ROIC is measured by NOPAT (§3.4.1) divided by the invested capital:

$$ROIC = \frac{NOPAT}{IC}$$

This assumed, the formula for the calculation of EVA, better illustrates an operating perspective, is:

$$EVA = NOPAT - (WACC * IC)$$

Thus, Economic Value Added represents the net operating profit after taxes less a capital charge. If EVA stands for the annual new value created, the total enterprise value (EV) will be the sum between the initial IC and the present value of all estimated future EVA, which can also be named as Market Value Added (MVA):

$$EV = IC + MVA$$

In practice, all estimated future EVA are determined for a period during which the company maintains the ability to generate ROIC higher than WACC. Since increasing difficulties arise for the period taken, an interval of 5/6 years is likely to be considered[106]. The author believes EVA might be an appropriate valuation methodology to be applied to FinTechs because of its forward-looking approach and its capital invested consideration (as FinTechs invest a lot at the beginning of their life). However, NOPAT calculation might be seen as the main limit of EVA

[106] Potito L. (2016), *Le operazioni straordinarie nell'economia delle imprese,* Giappichelli Editore, (5th edition)

approach to FinTechs, above all to start-ups, because they are characterized by unprofitable results.

3.6.2 Residual Income Model

The previous paragraph (§3.6.1) has illustrated an asset-side approach, this paragraph will focus on an equity-side approach: Residual Income[107] Model. RIM determines the equity value (E) as the sum of the company equity's current book value (BV) and the present value of all its abnormal earnings (or residual income[108]):

$$E = BV_0 + \sum_{t=1}^{n} \frac{Earnings - rE * BV_{t-1}}{(1 + rE)}$$

The earnings-based formulation has intuitive appeal indeed, if a firm can earn only a normal rate of return on its book value, then investors should be willing to pay no more than book value for its shares[109]. Investors should pay more or less than book value if earnings are above or below this normal level; thus, the deviation of a firm's market value from book value depends on its ability to generate abnormal earnings[110]. It is worth considering that this method implies the assumption of a clean surplus relationship between the equity book value of one year and the subsequent one. The mentioned rule is necessary to remove any accounting distortion generated by changes in equity not reflected in income statement such as AFS valuation reserves, currency translations, etc. To sum up, the following equation shows the aforementioned assumption:

$$BV_1 = BV_0 + E_1 - DIV_1$$

[107] Residual income is net profit adjusted for a capital charge, which is computed as the discount rate multiplied by the beginning book value of equity. Residual income incorporates an adjustment to reflect the fact that accountants do not recognize any opportunity cost for equity funds used.
[108] This explains why it is also called Residual Income Model.
[109] Palepu K.G., Healy P.M., Peek E. (2013), *Business Analysis and Valuation*, Cengage, (3rd edition)
[110] Palepu K.G., Healy P.M., Peek E. (2013), *Business Analysis and Valuation*, Cengage, (3rd edition)

Moreover, in line with EVA's implications, if the present value of residual income is positive, then it is assumed the management is creating value. On contrary, then management will take the blame. RIM is appropriate in case of firms do not distribute dividends or which have negative cash flows, and this might perfectly match the FinTechs. Furthermore, when TV is unlikely to be estimated, RIM turns out to be an adequate valuation methodology to be applied. However, similar to DCF, Residual Income Model highly relies on the assumptions made such as earnings estimates and rE calculation. Regarding this aspect, a FinTech company would not fit as its riskiness (and consequently its rE) is too high and the future projections are too broad to be assumed. Another limitation of the RIM is that the company equity's book value can be affected by management policy such as the shares buyback one.

4 Case Study

4.1 Nexi in a nutshell

The author believes that, in order to better understand the valuation methodologies used and applied for the case study, a brief and general overview of the firm taken into account is due. Nexi is the leading Italian FinTech company in the digital market, with over €900m revenues reached in 2018 and it has been listed on the Milan stock exchange on 16th April of this year. During its history, it evolved from issuing cashier's checks operator[111] (1940s) to provider of digital payments solutions for banks, merchants and cardholders, mainly through a series of inorganic activities. Nowadays, it operates mainly via two non-captive legal entities (Nexi Payments and MePS), through 3 business lines: merchant services and solutions, offering acquiring and POS terminal management to merchants; cards & digital payments, active in the issuance of card payments to retail and corporate customers; digital banking solutions, offering clearing, digital corporate banking and self-banking services to banks. Nexi is currently employing ca. 1.900 resources with dedicated competence centers in the north and center of Italy. Regarding customer base, Nexi is mostly composed of ca. 150 partner banks, whose long-lasting relationship with Nexi represents a key strength of the company. The customer base is quite concentrated (top 10 clients generate ca. 60% revenues), consistently with banking structure, and bound to Nexi by plurennial or automatically renovated contracts. Moreover, excluding banking consolidation effects, underlying volumes have been growing over the last few years, granting increasing revenues for Nexi. In terms of R&D and innovation, leveraging internal business development structure and relevant investments in IT development (over €100m in 2018), Nexi is a state-of-the-art provider of innovation in all business lines.

[111] Previously known as CartaSi.

4.2 Valuation methodologies and supporting materials

Valuation methodologies used for Nexi are essentially two: multiples approach and DCF. In particular, trading multiples approach has been applied since it represents the main valuation methodology used in IPO transactions, as it follows an immediate comparison with the different investment alternatives on the financial market. Then, DCF has also been used as it represents an important reference for the determination of a medium-term valuation. The following documents have been used for valuation purposes: Nexi's historical annual reports, Nexi's press release on FY2018 financial results (1st March 2019), Nexi's 2019-2023 business plan and market research carried out by leading investment banks and equity research firms in relation to the company's reference sector and comparables. Below is a summary of the business plan presented to Borsa Italiana, both of Nexi's balance sheet and income statement.

Balance Sheet (€m)	2019	2020	2021	2022	2023
Receivables related to card transactions	608	700	600	676	825
Revolving Credit Cards	205	235	293	326	331
Settlement Facilities Lines	(603)	(724)	(682)	(791)	(945)
Schema Compensi	(237)	(259)	(296)	(337)	(377)
Working Capital	139	155	172	193	211
Assets (tangible, intangible, financial)	2,962	2,934	2,885	2,802	2,722
Other assets / liabilities	(79)	(74)	(69)	(65)	(59)
Total Invested Capital	**2,995**	**2,966**	**2,903**	**2,803**	**2,708**
Debt	2,650	2,636	2,625	2,617	2,608
Cash	(278)	(447)	(693)	(1,035)	(1,446)
Net Debt	**2,372**	**2,189**	**1,933**	**1,581**	**1,162**
Equity	623	777	970	1,222	1,546
Total Sources	**2,995**	**2,966**	**2,903**	**2,803**	**2,708**

Fig. 3 – Business plan's balance sheet presented to Borsa Italiana, Nexi, 2019

Regarding income statement, "normalized net profit" is net profit adjusted for non-recurring items, D&A of customer contracts and long-term incentive plan post tax. Furthermore, operating revenues, direct costs as well as operating costs for both Nexi payments and Mercury payments are net of intercompany items.

Income Statement (€m)	2019 rev. BDG	2020	2021	2022	2023
Nexi Payments *	779	828	889	961	1,031
Mercury Payments *	189	211	231	250	270
Others *	9	5	5	5	5
Operating Revenues	**978**	**1,045**	**1,126**	**1,217**	**1,306**
Nexi Payments *	(197)	(214)	(232)	(250)	(268)
Mercury Payments *	(13)	(15)	(18)	(21)	(23)
Direct costs	(210)	(229)	(250)	(271)	(291)
First margin	**767**	**816**	**875**	**946**	**1,015**
Nexi Payments *	(245)	(222)	(207)	(185)	(172)
Mercury Payments *	(30)	(35)	(36)	(36)	(35)
Operating Costs	(275)	(257)	(243)	(221)	(208)
EBITDA	**493**	**559**	**633**	**725**	**808**
Amortization	(152)	(179)	(206)	(218)	(201)
Trasformation	(52)	(28)	(15)	(2)	6
Interests	(107)	(112)	(114)	(119)	(119)
Pre-tax profit	**181**	**239**	**298**	**386**	**494**
Taxes	**(66)**	**(85)**	**(104)**	**(134)**	**(169)**
Net profit	**115**	**154**	**193**	**252**	**324**
Normalized Net profit[1]	**178**	**203**	**237**	**287**	**354**

Fig. 4 – Business plan's income statement presented to Borsa Italiana, Nexi, 2019

4.2.1 Trading Multiples

Trading multiples are often the key valuation methodology used by research analysts and investors (§3.5). Given the fact that IPO took place in the second quarter of 2019, the multiples of 2020E are the most relevant. The primary trading multiple is EV/EBITDA, commonly used by equity analysts and investors and it represents a fundamental metric in order to capture Nexi's high margins and significant operating leverage. Even though represents the most common multiple used, P/E (§3.5.1) is the secondary trading multiple as it is a less relevant metric for Nexi, due to different financial structures.

4.2.1.1 Setting the comparable universe

Given specific profiles of different players operating in the payments sector, the author selected two categories based on positioning across the payment value chain: global payment leaders, and diversified players across the value chain. The former is represented by firms such as Worldpay, Worldline and Global payments, which are market leaders in merchant acquiring and have been investing in strategic growth channels (fully integrated value-added services, eCommerce, omni-channel, software verticals). Analyzing the financial profile of

Worldpay, Worldline and Global payments, led the author to the following results:

- Revenues CAGR ‘19E-‘21E = 8.9%
- EBITDA Margin ‘20E = 37.8%
- EBITDA CAGR ‘19E-‘21E = 12.3%

Instead, the latter is composed by the two American giant Visa and Mastercard, that are scale, growth, global footprint, and resilient market leadership. Furthermore, they have ubiquitous brand awareness among merchants and consumers and have been increasing focus on B2B and corporate payments. Here, the financial profiles are characterized by higher percentages in all three indicators:

- Revenues CAGR ‘19E-‘21E = 11.8%
- EBITDA Margin ‘20E = 66.9%
- EBITDA CAGR ‘19E-‘21E = 13.2%

4.2.1.2 Application

(EUR m)	Market Cap	EV	EV/EBITDA		P/E		Revenues	EBITDA	
Name	(EUR m)	(EUR m)	2019E	2020E	2019E	2020E	CAGR '19-'21	CAGR '19-'21	Margin 20E
Diversified Players Across Value Chain									
Worldpay [1]	27.419	34.581	18,3x	16,2x	21,6x	18,5x	9,7%	12,3%	52,0%
Worldline	9.740	9.959	18,0x	15,6x	35,0x	29,6x	7,5%	14,3%	25,1%
Global Payments	19.058	23.297	16,5x	14,9x	22,9x	19,8x	9,4%	10,4%	36,4%
Average			**17,6x**	**15,6x**	**26,5x**	**22,6x**	**8,9%**	**12,3%**	**37,8%**
Global Payment Leaders									
Visa	302.570	300.962	21,0x	18,6x	27,6x	24,4x	10,5%	11,8%	71,9%
Mastercard	214.012	205.014	23,6x	20,5x	31,4x	27,1x	13,0%	14,6%	61,8%
Average			**22,3x**	**19,6x**	**29,5x**	**25,8x**	**11,8%**	**13,2%**	**66,9%**

Fig. 5 – Trading multiples chart

For the valuation considerations of the trading multiples, the author used data as at 21st March 2019 from FactSet, and for Worldpay, the undisturbed prices pre-

announcement of an on-going M&A transaction were taken into account. EV/EBITDA and P/E multiple have been calculated, in addition to the revenues CAGR '19E-'21E and EBITDA CAGR 19E-'21E. After that, EV as well as equity value of Nexi were estimated by multiplying the sample's average multiples to the corresponding economic figures of Nexi estimated for 2019E–2020E[112].

EV/EBITDA multiple

(EURm)		2019E	2020E
Nexi Adj. EBITDA		493	559
EV/EBITDA multiple			
- Diversified Players Across Value Chain		*17,6x*	*15,6x*
- Global Payment Leaders		*22,3x*	*19,6x*
Enterprise Value			
- Diversified Players Across Value Chain		*8.668*	*8.696*
- Global Payment Leaders		*10.983*	*10.921*
Net Debt 2018PF	*(2.418)*		
Minorities 2018PF	*(7)*		
Cash-like items and Associates 2018PF(1)	*84*		
Equity Value			
- Diversified Players Across Value Chain		***6.328***	***6.356***
- Global Payment Leaders		***8.643***	***8.581***

P/E Multiple

(EURm)	2019E	2020E
Nexi Adj. Net Income	177	203
P/E multiple		
- Diversified Players Across Value Chain	*26,5x*	*22,6x*
- Global Payment Leaders	*29,5x*	*25,8x*
Equity Value		
- Diversified Players Across Value Chain	***4.703***	***4.605***
- Global Payment Leaders	***5.235***	***5.239***

Fig. 6 – Nexi's valuation based on EV/EBITDA Multiple and P/E Multiple

4.2.2 DCF

DCF represents the methodology which allows to capture the very long-term compounding nature of Nexi's story, which will in turn enable recognition that a long term DCF approach is a key part of valuation triangulation. The valuation method broadly discussed in §3.4 is key to give credit to the very long term, predictable nature of Nexi's growth opportunity and allow to achieve a full and sustainable valuation.

4.2.2.1 Determination of the WACC

In order to determine the WACC used in the application of the DCF, the following parameters are used. Firstly, risk-free rate equals the spot yield of Italian government bonds with 10-year maturity (2.5%). Tax rate corresponds to the sum

[112] Using the Company's Net Debt, Minorities and Cash-like items as of 31/12/2018 pro-forma.

of IRES and IRAP of 27.9%[113]. Equity risk premium is equal to 5.5%, as suggested by the best practice[114]. Beta is estimated by using 5-years monthly observations of trading peers and is 0.9. Furthermore, Net Debt/Equity ratio is assumed equal to 33.9%, based on a mid/long term target Net Debt/EBITDA equal to 3.0x EBITDA 2021. Last but not least, cost of debt corresponds to the cost of debt observed in Nexi's business plan (§4.2). Thus, the WACC calculation[115] will be:

$$WACC = \frac{D}{V} rD(1-\propto) + \frac{E}{V} rE = 25.3\% * 1.9\% + 74.7\% * 9.1\% = 7.3\%$$

4.2.2.2 Determination of the main parameters for TV and EV

Based on the DCF method in its unlevered version and with calculation of TV, both Nexi's EV and equity value have been determined according to the following parameters. Figurative tax rate is equal to 33.0%, while '19-'23 financials rely on the business plan (§4.2). EBITDA's TV is assumed equal to the EBITDA of the last year of the business plan; CapEx's TV is assumed to be fully ordinary and equals to ca. 9% of net revenues, as for guidance for Nexi's management and in line with last explicit year; D&A's TV is assumed equal to CapEx one. Growth rate equals to 2.0%.

4.2.2.3 Application

All components computed, the last step of DCF is to apply the discounting factor to FCF (in this case also called FCFO[116]) and TV. As clearly anticipated for a FinTech company, TV weights way more than the present value of FCF, demonstrating the high growth Nexi will have in the medium/long-term. The table shows the calculation made to determine the EV as well as the equity value of

[113] IRES stands for "Imposta sul Reddito delle Società", that is, tax on net income and it is 24%; IRAP stands for "Imposta Regionale sulle Attività Produttive", which is a regional tax proportional to revenues and is 3.9% on average.
[114] http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html
[115] Some rounding has been made.
[116] Free Cash Flows from Operations.

Nexi. In particular, after setting revenues, EBITDA and EBIT for the period '19-'23, cash taxes were subtracted computing NOPAT. Furthermore, non-cash expenses such as depreciation and amortization were added in order to get the Operating Cash Flow. However, as clearly discussed in §3.4.1, both CapEx and ΔNWC need to be added to determine FCFO. Then, the last step is to compute TV via Gordon Growth Model using a very conservative g of 2% (if compared with all previous revenue growth). Discounting the first stream of FCF and TV by WACC of 7.3% results in an EV of ca. €8b. Last but not least, equity value is calculated by subtracting net debt, minorities and adding back cash-like items and associates. To conclude, the author also made a sensitivity analysis for different WACC and g rate on both EV and equity value, applying a range of +/- 0.25% to g and +/- 2.5% to WACC (approximate to 7.0% and 7.5%).

DCF	2019E	2020E	2021E	2022E	2023E	TV
Net revenue	**978**	**1,045**	**1,126**	**1,217**	**1,306**	**1,332**
YoY Net Revenue growth %	*5.0%*	*6.9%*	*7.8%*	*8.1%*	*7.4%*	*2.0%*
OpEx as % of Net Revenue	*49.6%*	*46.5%*	*43.8%*	*40.4%*	*38.2%*	*38.2%*
Total CapEx as % of Net Revenue	*17.2%*	*14.4%*	*13.9%*	*11.1%*	*9.2%*	*9.0%*
Ordinary CapEx as % of Net Revenue	*11.2%*	*8.7%*	*8.4%*	*9.0%*	*8.6%*	*9.0%*
EBITDA	**493**	**559**	**633**	**725**	**808**	**824**
EBITDA %	*50.4%*	*53.5%*	*56.2%*	*59.6%*	*61.8%*	*61.8%*
D&A	(152.2)	(179.1)	(205.8)	(217.8)	(200.7)	(119.9)
Transformation	(52.0)	(28.4)	(14.9)	(2.4)	5.7	5.7
EBIT	**288**	**351**	**412**	**505**	**613**	**710**
Cash Taxes	(95)	(116)	(136)	(166)	(202)	(234)
D&A	152	179	206	218	201	120
Operating Cash Flows (OCF)	**345**	**414**	**482**	**556**	**611**	**595**
Δ NWC / other assets - liabilities	2	0	15	17	15	-
CapEx	(168)	(151)	(157)	(135)	(121)	(120)
Free Cash Flows from Operations (FCFO)	**179**	**264**	**340**	**438**	**506**	**475**
Discount Factor	0.97	0.90	0.84	0.78	0.73	
Present Value of FCFO	**173**	**238**	**285**	**342**	**368**	

Σ Present Value of FCFO	1,406
Present Value of Terminal Value	6,540
Enterprise Value	**7,946**
Net Debt 2018PF	**(2,418)**
Minorities 2018PF	**(7)**
Cash-like items and Associates 2018PF	**84**
Equity Value	**5,606**

Equity Value (€m)			
g \ WACC	*7.0%*	*7.3%*	*7.5%*
1.75%	5,668	5,295	4,955
2.00%	6,011	**5,606**	5,236
2.25%	6,391	5,946	5,544

Enterprise Value (€m)			
g \ WACC	*7.0%*	*7.3%*	*7.5%*
1.75%	8,008	7,636	7,296
2.00%	8,352	**7,946**	7,577
2.25%	8,731	8,287	7,884

Fig. 7 – Nexi's valuation based on DCF and sensitivity analysis

4.2.3 Football field

Usually used in valuation, football field is a graph showing the valuation of a company according to different methodologies. In this case, EV/EBITDA, P/E and DCF are the three methods used by the author to evaluate Nexi's EV. Preliminary valuation in terms of equity value pre-money was estimated between

€5.0b and €6.5b. The table shows the valuation range both for equity value and enterprise value:

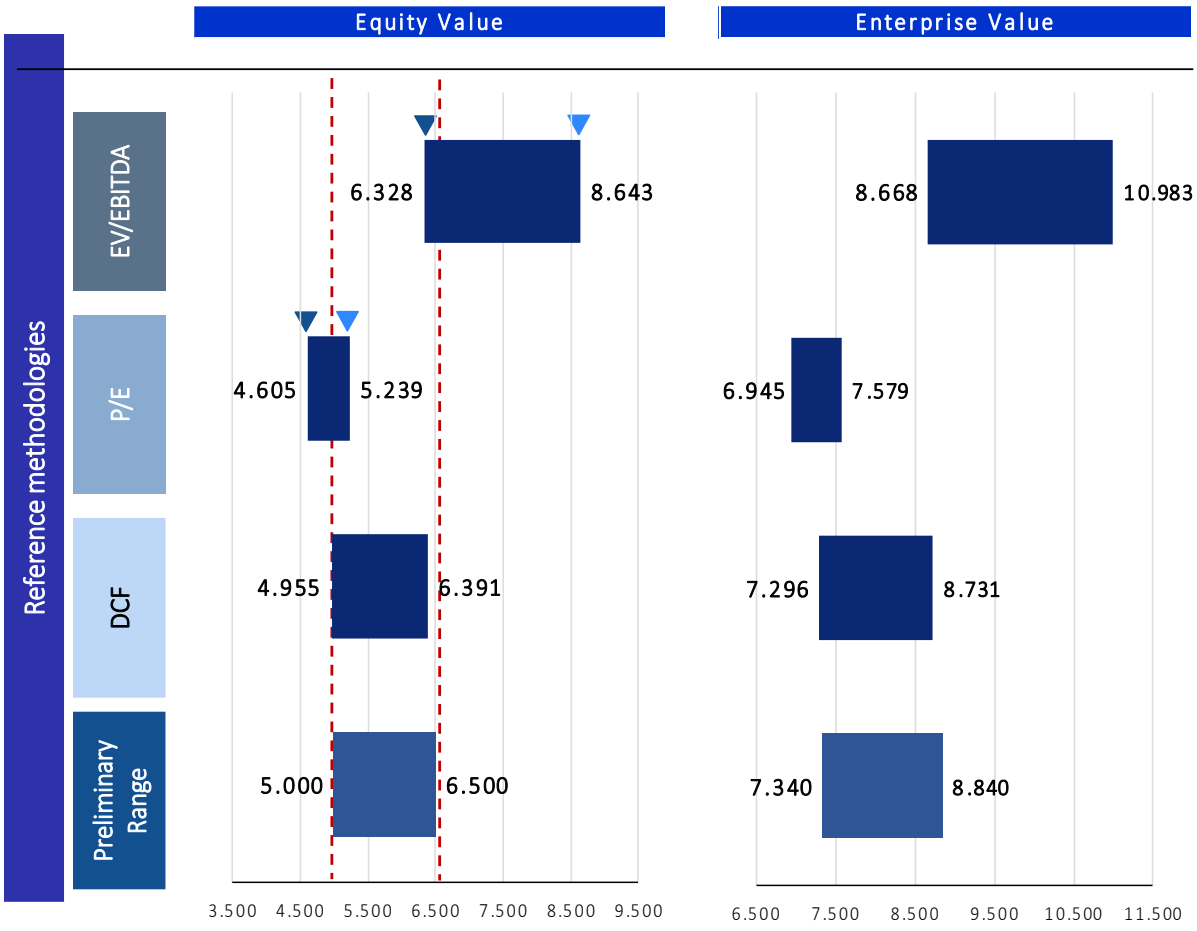

Fig. 8 – Football field: valuation's comparison between EV/EBITDA, P/E and DCF

5 Conclusion

In the following section, the conclusion of the thesis is presented, providing an answer to the research question:

"How are FinTech firms valued globally? Is there a correct valuation methodology for them?"

To provide an answer to the formulated question, the empirical findings have been analyzed, by linking them to the theoretical framework illustrated in chapter §2 and chapter §3, and based on what emerged, a possible solution is suggested. In the following paragraph, the author will provide a summary of the key findings, in order to have a clearer overview of the solution that will then be presented.

Nowadays, FinTech popularity around the globe has been getting increasingly higher and this is translated into investments, and vice versa. It is clear that, the bigger an investment is, the better an investor – from institutional to retail one – would like to know about its value. Analyzing firstly FinTech world from its origin to its future trends and illustrating secondly the main valuation methods applicable to FinTechs, the author came to the conclusion there is not a correct and perfect valuation methodology for them. More specifically, DCF and trading multiples turned out to best fit FinTech firms, characterized by high future growth and particular financial structure. Although these methods are the only ones applied to Nexi, they have various and relevant pitfalls – analyzed in §3.4.2 and §3.5.2. Indeed, no valuation methodology might be seen as perfect, but needs to be applied to the specific characteristics of the firm such as: the market and industry it operates in, the place the firm is located, and all micro and macro-economic factors related to the firm. Despite DCF remains a favorite of practitioners and academics because it relies solely on the flow of cash in and out

of the company[117], this might not be applied to FinTechs, whose drivers of value are different from a "normal" firm. The author also believes EVA – if applied to future data – could be an appropriate valuation method for FinTech due to its forward-looking approach and its capital invested consideration. However, the author recognizes the difficulties in calculating capital invested and above all future EVAs to be discounted (§3.6.1).

6 Limitation and Further Research

Like others, the present research has its limitations which will be stated in the following lines, including proposals for further research. A limitation of this study is the high – or low – growth rate applied to the valuation as it hugely affects the final enterprise value of the firm. Indeed, when DCF method is applied for Nexi, TV weights way more (82.3%) than the other stream of FCF (17.7%). Another limitation might be the peers taken into account for multiples method, since there is not a firm which perfectly matches Nexi, neither in Italy nor abroad. Finally, the last limitation is that this study has been conducted by taking into consideration the valuation of only one firm. To conclude, the findings of this thesis should be seen as a contribution to the research of enterprise valuation methodologies, specifically in the FinTech industry, and together with that the basis for further research in this field.

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7.3 Declaration of Authorship

"I hereby declare

- that I have written this thesis without any help from others and without the use of documents and aids other than those stated above;
- that I have mentioned all the sources used and that I have cited them correctly according to established academic citation rules;
- that the topic or parts of it are not already the object of any work or examination of another course unless this has been explicitly agreed on with the faculty member in advance and is referred to in the thesis;
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Date Signature

.... Riccardo Roberti

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B. List of Abbreviations

AEM	Abnormal Earnings Model
AI	Artificial Intelligence
b	billions
BAT	Baidu Alibaba Tencent
B2B	Business to Business
Ca.	Circa
CAPM	Capital Asset Pricing Model
CapEx	Capital Expenditure
CVC	Corporate Venture Capital
DCF	Discounted Cash Flow
EV	Enterprise Value
FCF	Free Cash Flows
FinTech	Financial Technology
GAFA	Google Amazon Facebook Apple
IoT	Internet of Things
m	millions
M&A	Mergers & Acquisitions
NWC	Net Working Capital

P/E	Price/Earnings
PE	Private Equity
TV	Terminal Value
VC	Venture Capital
WACC	Weighted Average Cost of Capital

Summary

In the recent years, significant changes and developments have occurred in the financial services industry worldwide. Lead by the digitalization process and new technological innovations, a different view of the banking experience has appeared. The reasons behind it are essentially two. Firstly, the financial crisis had a negative impact on trust in the financial system. Secondly, the ubiquity of mobile devices has begun to undercut the advantages of physical distribution that banks previously enjoyed. Thus, this paved the way to the rise of the FinTech firms. FinTechs, continuously on the hunt for a market renovation, have been disrupted the industry for years, gaining both market share and appeal from investors. Venture capital funds, global banks as well as multinational companies started investing in these unprofitable, low-revenues but high-growth start-ups, paying for them big money. Altogether, 2018 was a year of multiple record highs across FinTech investment, reaching a record of $111.8b in 2018. These facts lead the author wanting to answer the following question with the present thesis: "How are FinTech firms valued globally? Is there a correct valuation methodology for them?".

Starting from the definition, the term FinTech stands for financial technology. Its origin can be traced to the early 1990s with the "Financial Services Technology Consortium". However, only since 2014 has the sector attracted the focused attention of regulators, consumers and investors. Although the term has been getting familiar to everybody in the world recently, there is no universal and agreed definition. McKinsey & Company defines FinTech players as start-ups and other companies that use technology to conduct the fundamental functions provided by financial services, impacting how consumers store, save, borrow, invest, move, pay, and protect money. Arner, Barberis & Buckley say that it is a uniquely recent marriage of financial services and information technology. To sum up, the term in discussion describes the use of technology to create any

innovative offering in the financial services sector and it is not only used to describe a new form of innovation but also to label the people pushing the innovation.

Regarding FinTech history, outstanding scholars affirmed the first FinTech period stems from 1866 to 1967. In the late 19th century finance and technology combined to produce the first period of financial globalization thanks to innovations such as the first transatlantic cable (1866) and the Fedwire (1918). Afterwards, post-World War I technological developments advanced rapidly: Diner's Club (1950), telex (1966). Although the financial services industry has been largely interconnected with technology, it remained mostly analogue.

The second FinTech period began in 1967 and ended up in 2008. During the period in discussion, traditional financial institutions faced a deep change in their services such as the electronic payment systems. Indeed, whereas the first credit card was created to ease the burden of carrying cash, the nowadays well-known MasterCard and Visa were born respectively in 1966 and 1970. In US, the Clearing House Interbank Payments System was established in 1970. Instead, in Italy the Interbank System stepped into the credit card market in 1986, thanks to the birth of *Servizi Interbancari,* launching *CartaSì* (today known as Nexi). In the late 1980s, three main US banks launched an online banking service thanks to a videotext system. By 2001, eight US banks had at least one million customers online. To sum up, during the period named FinTech 2.0, financial services worldwide were digitalized due to the development of innovative technology for communications and transactions.

Outstanding scholars affirmed the third FinTech period stems from 2008 until nowadays, where the boom in consumer facing FinTech start-ups is a global phenomenon, but "What explains the boom?". Firstly, the financial crisis of 2007/2008 and the consequent heavy regulation over the banking industry created a perfect vacuum to renovate. Moreover, at this time, the brand image of banks,

especially in the UK and US, was undoubtedly shaken. These facts paved the way to the rise of the FinTech start-ups, capable to step in a rooted market by a disruptive way. In this period, a fact permanently marked the FinTech's boom as well as the chance to grow and expand: the release of the cryptocurrency Bitcoin in 2009. Although several digital start-ups already operated into the financial services, firstly in EU and US, the investments on FinTech were not as large as they are today. To summarize, the critical difference in FinTech 3.0 lies in: firstly, who is providing financial services, with start-ups and technology firms supplanting banks in providing niche services to the public, business and the banks themselves; and secondly, the speed of development.

FinTech has been increasingly growing in emerging markets such as Africa and Asia. In these countries, the main causes which paved the way to a rise of FinTech are conscious government approach decisions, inefficiencies into the financial industry, and the high growth of new technology. For instance, a success case is M-Pesa, a transformative mobile phone-based platform for money transfer launched in 2007 by Vodafone, in Kenya. On the other part of the globe, Alibaba launched Alipay in 2004 and introduced loans to SMEs on its e-commerce platform in 2010. Instead, in India 11 new payment banks were established in 2015. To sum up, these countries have specificities which make them very fertile ground for FinTech: high technology penetration and infrastructure mismatch between people with a mobile phone and at the same time without a bank account.

Moving to the Fintech's future trends, Microsoft co-founder Bill Gates said: *"We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten"*. Following this quote, the author tried to focus on FinTech's future long-term trends rather than short term ones. The trends, as analyzed by Roberto Ferrari, are essentially nine: 1) New competitors from Silicon Valley; 2) APIs development, from marketplace lending and funding to marketplace banking; 3) Fintegration, everything will be

FinTech; 4) Millennials maturation and new generation arrival; 5) Boom of big data, machine learning and AI; 6) 1to1 banking; 7) Banking everywhere and IoT; 8) The real time, fast and secure processing and the blockchain; 9) Financial inclusion and East and Africa's growth.

Firstly, BigTech firms such as western GAFA and eastern BAT have grown fast over the last two decades. An essential by-product of their business is the large stock of user data they own and manage and thanks to it, they stepped in the financial industry. Although these facts regard the short term, it is highly likely BigTech firms will step in other financial sectors such as trading, P2P lending and alternative finance in the medium/long-term.

Secondly, the exponential growth of internet-connected devices is also bringing with it the very strong increase in the spread of APIs and therefore the dialogue between different online software. This trend is mainly driven by regulation and business. Indeed, a new model of bank will rise: the marketplace banking. It is a completely flexible scheme, where each bank has an internal core business made up of software/products and can externally open to new services, both from FinTech firms and other parts.

Thirdly, the recent boom of FinTech made many authors think of a complete change of the financial and banking system as it is nowadays. However, as the marketplace banking model did show previously, this contrast is wrong and stems from a short-term vision. Actually, the increasingly digitalization and the open banking development will force traditional banks to transform and renovate themselves. A strong convergence will take place, where both banks and FinTechs will need to collaborate, and as noted by Andres Wolberg-Stok, Global Head of Emerging Platforms and Services at Citibank: "The holy grail for banks is to become the best at "Fintegration". It is a model of coopetition, where FinTechs provide services and solutions as well as playing like banks' competitors. Instead, banks will need to get digitalized to survive. Everything will be FinTech.

The fourth trend talks about Millennials maturation and new generation arrival. Indeed, Millennials are the first generation capable, both in theory and in practice, to understand the Bill Gates' famous quote *"Banking is necessary, banks are not"* of 1994. Year by year, financial institutions will need to face with these users target and even with another type of users: Generation Z, which are completely digitalized and have used Internet since a young age. These generations are a great opportunity for those starting from scratch. This is a revolution if compared with the strong and significative banking user-experience. It is not just a matter of moving from a physical channel to a mobile one, but to redesign the use of financial services based on the ecosystem to which millennials are accustomed. This trend, together with technological progress, will irreversibly change banking, by making it portable, invisible, social and essential.

The fifth future trend regards big data, machine learning and AI, which altogether will express the banking in the future. The more digital is used, the more what you do (as well as what you think, look for and like) is tracked. Moreover, APIs growth will surely increase the data collection possibility, whereas the blockchains could greatly facilitate its access. As information grows and access becomes easier, analytical capacity, machine learning and predictive analytics increase as well, applied not only to transactional or socio-demographic data, but also to behavioral ones. How can the companies balance out? How can the companies increase revenues with these new business models driven by zero costs and low prices? Big data's monetization will be a significant factor in the future.

All previous trends will lead to 1to1 banking, which represents the sixth trend. This term means the ability to offer a real time and personalized interaction with the customer, based on the data collected. Real time analytics, customers' risk and behavioral analysis, and social data are the fields where relevant breakthroughs have been made and will be made in the future. Indeed, it is completely consistent

with the marketplace banking model, as well as with the millennials and the new generation's expectations.

There may not be a branch nearby to go to. Nobody will get into the bank in the future: the bank will always be with us and interact with us during our daily life. Banking will not see as a physical place anymore; banking will be everywhere. Perhaps, some branches will still exist, but with different functions and services provided than nowadays. Last but not least, IoT in financial services will come. According to Roberto Ferrari, IoT will certainly be instrumental in favoring alternatives to cash management, digital customer identification or trade finance. Although this seventh trend will take time due to technological transformation, the path is already traced.

The eighth future trend regards the real time, fast and secure processing and the blockchain. The Generation Z (and consequently the following generations) will experience the world of transactions in real time. Undoubtedly, the development of the blockchain will not be limited to the only possible evolution of the transactions and the related processing systems. It will take time, the adoption of the different applications of the blockchain as a service will be scanned according to the complexities encountered. However, the potential, even out of the financial services industry, is extremely high.

Last but not least, East and Africa will play a relevant role in the future of FinTech. Indeed, FinTech and mobile may boost toward a higher financial inclusion those 2 billion of "unbanked" people left out from globalization. Moreover, the continuous technological development as well as the rise of tech giants in Asia have been moving the innovation impulse. According to Roberto Ferrari, the geographical expansion of actors, solutions, business models, and users themselves will be part of the scenario of evolution of financial services in the next 10/15 years.

As said in the introduction, investments into FinTech companies have been increasingly growing all over the world for years. The author truly believes that an overview on how FinTechs are valued is very important to be provided. The main methods taken into consideration are: 1) Equity method; 2) Income approach; 3) Mixed equity-income method; 4) Discounted Cash Flow; 5) Multiples method; 6) Others.

Regarding equity method, Pablo Fernandez said it seeks to determine the company's value by estimating the value of its assets. This is a traditionally used method that considers that a company's value lies basically in its balance sheet. The IESE Business School Professor divides the equity method into book value method, adjusted book value method, liquidation value method and substantial value method. These methods are especially used for valuing real estate companies and holding or sub-holdings as they measure the dynamics of the company's value in a certain time. However, these methods are generally inappropriate for FinTech start-ups as they are not capital-intensive businesses until the company has completed funding rounds. The equity method is applied on practice as it offers operators more objective and reassuring values, that can also be checked into the balance sheet and it is useful for measuring companies whose value is all in their assets. However, this method is highly controversial for several reasons. Firstly, it gives an unbundled and static overview of the company, which, does not take into account the company's capability to generate value in the future and so it is completely inadequate for FinTechs. Secondly, the equity method does not take into account other factors that also affect the value that do not appear in the accounting statements.

The income approach expresses the value of the company according to its future income capacity. Different from the equity method, this methodology incorporates a forward-looking approach. Furthermore, the income approach has different application solutions that derive mainly from: how the income flows are

defined and measured in the past; length of the time horizon and how the related expected future profits are expressed; how the future projections are conceived and realized; discounted profit method; object of the evaluation. The income approach means that the enterprise value will correspond to the present value of operating profits discounted at the WACC. Contrary to the equity method, the income approach gives a complete overview of the company as a unique aggregate. Furthermore, a strong advantage of this method is its forward-looking approach which can be positively seen for FinTechs, characterized by huge growth rates. Despite of the aforementioned pros, this methodology presents several limits such as: the extensive possibilities to manipulate earnings, the lack of working capital effects and the delayed impact of capital expenditures. Moreover, as a rational investor is not interested in profits, but rather in cash, the author truly believes this might be the biggest limit of the income approach. Another limit might be seen on the incapability of a company to generate profit, so that the discounting process cannot be applied to.

The mixed equity-income method represents a synthesis between the equity and income methods. The aim is to express the value of the company in terms of its assets and income, thus filling the gaps of both methods. The mixed equity-income method stems from the addition of two factors: the adjusted shareholders' equity (K), expressed at current values; and the goodwill, classified as the present value ($a_{n\neg i}$) of the excess future normalized income (R-i'K). This valuation methodology is used for several applications: "simplified income verification" of analytical asset estimates; to check revaluation of the depreciable assets of industrial companies; to evaluate unprofitable companies, and this might fit for FinTech start-ups, very often characterized by negative profits. The main advantage of the mixed equity-income method is filling the gap of both equity and income approaches. Thus, whereas it offers investors more objective values that can be checked into the balance sheet, it provides a forward-looking overview of the company analyzed. However, the main disadvantage is to obtain the precise

values of the formula's factors, above all R and i'K. The author believes this method may not be adequate for FinTechs as it focuses on company's assets, but FinTechs are not high capital-intensive companies and it does rely on firm's profits, that is inappropriate for FinTechs.

"If I want to know what a company is worth, I ask myself how much cash I can take out of this company in the long-run after undertaking all the necessary investments to ensure the future success of the company; and how much is this expected future cash worth today". This quote of Warren Buffett perfectly explains the logic behind the DCF. Indeed, the aforementioned model discounts free cash flow, that is the one available to all investors at the WACC. Thus, the key steps in the DCF method are the following ones: computing the WACC and its components; determining the FCF to the firm and the TV; discounting the FCF to the firm using the WACC and adding TV. Primarily, the WACC calculation has to be made. In its simplest form, the WACC equals the weighted average of the after-tax cost of debt and cost of equity:

$$WACC = \frac{D}{V} rD(1-\propto) + \frac{E}{V} rE$$

Moreover, a robust valuation model requires a clear account of financial performance. Indeed, this reorganization is essential to calculate the FCF to the firm.

$$FCF = NOPAT + D\&A - CapEx - \Delta NWC$$

Starting from the first factor, NOPAT stands for net operating profit after taxes and it is equal to EBIT, evaluated on an after-tax basis ($\propto$). Depreciation and amortization (D&A) represent the add-back of all non-cash elements contained in income statement whereas CapEx reflects the yearly investments/divestments in fixed assets of the firm. The last factor is the reflection of the net working capital, that is, the difference between current assets and current liabilities. The second

part of the cash flows is composed by TV which represents the market value (as of the last forecast period) of the free cash flows to the firm at all future dates. To the estimation of terminal value, the Gordon growth model is usually used, where FCF_{t+1} stands for the FCF at year t+1, and g represents the long-term growth rate:

$$TV = \frac{FCF_{t+1}}{WACC - g}$$

After computing all the factors, the EV can be finally calculated:

$$EV = \sum_{t=1}^{n} \frac{FCF_n + TV}{(1 + WACC)^n}$$

The DCF reflects long-term value creation and it might be seen as the most appropriate valuation methodologies for FinTechs since it can capture their high-growth business. At the same time, this might be a big limit of the DCF because a two-digit growth rate leads to an unbalance on the terminal value side. Moreover, the DCF valuation model requires a complex prospective economic-financial model, which represents the main limit for the model as FinTechs are usually characterized by unstable and volatile business plans. Furthermore, the estimation of WACC represents a big challenge in most of cases, since FinTech start-ups usually have a high-risk level, leading to an overweight on the cost of equity side.

Rather than valuing the firm's cash flows directly, multiples method allows to value the firm based on the value of comparable firms that will generate similar cash flows in the future. Although it might seem a straightforward process, identical companies do not exist. A relevant distinction has to be made as there are two types of multiples: trading multiples and transaction multiples. Trading multiples approach relied on the prices of shares traded on the stock markets and related to listed companies whereas transaction multiples approach is based on previous M&A operations of listed and non-listed companies. The

aforementioned method relied on two basic assumptions: a) the value of the firm varies proportionally with the fundamental figure chosen as a metric of performance; b) there is equality between growth rates, risk and the ability to generate cash flows. The most common multiples used are: P/E, EV/EBITDA, EV/EBIT, and EV/Sales. P/E represents the most common multiple used and it is the ratio of the value of equity to the firm's earnings. EV/EBITDA is one of the most widely used multiples by analysts. Although EBITDA can be seen as a proxy of the firm's cash flows, it has a number of limitations: it does not include the changes in the working capital requirements, and it does not consider capital investments. EV/EBIT is a ratio that compares a firm's EV to its Earnings Before Interest, Taxes. EV/EBIT is commonly used as a valuation metric, but it is usually calculated along with EV/EBITDA as the latter is not affected by D&A manipulation. Lastly, EV/Sales is especially useful if it is reasonable to assume that the firms will maintain similar margins in the future. Furthermore, EV/Sales is computed when firms have negative EBITDA and thus it might be helpful in the case of FinTech start-ups, at the early stage of their life. Obviously, depending on industry and firm's characteristics, other multiples can be used. Multiples method represents an informational advantage, especially in cases where it is difficult to make reasonable estimates, and this might be greatly helpful for FinTechs whose future estimates are highly uncertain. Another advantage of this method is that it represents a relatively simple and fast valuation tool. In terms of pitfalls, the results are influenced by the difficulty of finding and selecting a representative sample of listed companies as peer group. The second disadvantage is the risk of not adequately highlighting the specific characteristics and growth potential of the valued company, which again weakens the FinTechs' example. Thirdly, the values obtained may be excessively influenced by market conditions or by the overpaid/underpaid price for a company. Indeed, they only provide information regarding the value of the firm relative to the other firms in the

comparison set, so using multiples will not help to determine if an entire industry is overvalued or vice versa.

The sixth method illustrated is the Economic Value Added, an asset-side mixed method alternative to the traditional one. EVA is able to measure economic performance and management capabilities in terms of new value created (or destroyed). New value creation represents the increase of the greater (or lower) value that can be added to the invested operating capital (IC) into the company. The incremental difference is determined by the spread between the return on invested capital (ROIC) and the WACC:

$$EVA = (ROIC - WACC) * IC$$

However, ROIC is measured by NOPAT divided by the invested capital, and this assumed, the formula for the calculation of EVA is:

$$EVA = NOPAT - (WACC * IC)$$

Thus, Economic Value Added represents the net operating profit after taxes less a capital charge. If EVA stands for the annual new value created, the total EV will be the sum between the initial IC and the present value of all estimated future EVA, which can also be named as Market Value Added (MVA). The author believes EVA might be an appropriate valuation methodology to be applied to FinTechs because of its forward-looking approach and its capital invested consideration. However, NOPAT calculation might be seen as the main limit of EVA approach to FinTechs, above all to start-ups, because they are characterized by unprofitable results.

The last methodology described is the Residual Income Model. RIM determines the equity value (E) as the sum of the company equity's current book value (BV) and the present value of all its abnormal earnings (or residual income):

$$E = BV_0 + \sum_{t=1}^{n} \frac{Earnings - rE * BV_{t-1}}{(1 + rE)}$$

The earnings-based formulation has intuitive appeal indeed, if a firm can earn only a normal rate of return on its book value, then investors should be willing to pay no more than book value for its shares. Investors should pay more or less than book value if earnings are above or below this normal level; thus, the deviation of a firm's market value from book value depends on its ability to generate abnormal earnings. Moreover, in line with EVA's implications, if the present value of residual income is positive, then it is assumed the management is creating value. On contrary, then management will take the blame. RIM is appropriate in case of firms do not distribute dividends or which have negative cash flows, and this might perfectly match the FinTechs. However, similar to DCF, this model highly relies on the assumptions made indeed a FinTech company would not fit as its riskiness (and consequently its rE) is too high and the future projections are too broad to be assumed.

The author believes that, in order to better understand the valuation methodologies applied to the case study, a brief overview of the firm taken into account is due. Nexi is the leading Italian FinTech company in the digital market, with over €900m revenues reached in 2018 and it has been listed on the Milan stock exchange on 16th April of this year. During its history, it evolved from issuing cashier's checks operator (1940s) to provider of digital payments solutions for banks, merchants and cardholders, and nowadays, it operates mainly in merchant services and solutions; cards & digital payments; digital banking solutions. Valuation methodologies used for Nexi are essentially two: multiples approach and DCF. The following documents have been used for valuation purposes: Nexi's historical annual reports, Nexi's press release on FY2018 financial results (1st March 2019), Nexi's 2019-2023 business plan and market research carried out by leading investment banks and equity research firms. The primary trading

multiple used is EV/EBITDA, as it represents a fundamental metric in order to capture Nexi's high margins and significant operating leverage. Instead, P/E is the secondary trading multiple as it is a less relevant metric for Nexi, due to different financial structures. Given specific profiles of different players operating in the payments sector, the author selected two categories based on positioning across the payment value chain: global payment leaders, and diversified players across the value chain. EV/EBITDA and P/E multiple have been calculated, and then EV as well as equity value of Nexi were estimated by multiplying the sample's average multiples to the corresponding economic figures of Nexi estimated for 2019E–2020E.

DCF represents the methodology which allows to capture the very long-term compounding nature of Nexi's story, which will in turn enable recognition that a long term DCF approach is a key part of valuation triangulation. In order to determine the WACC used in the application of the DCF, the following parameters are used: risk-free rate equals the spot yield of Italian government bonds with 10-year maturity (2.5%); tax rate corresponds to the sum of IRES and IRAP of 27.9%; ERP is equal to 5.5%; Beta is estimated by using 5-years monthly observations of trading peers and is 0.9. Furthermore, Net Debt/Equity ratio is assumed equal to 33.9%, based on a mid/long term target Net Debt/EBITDA equal to 3.0x EBITDA 2021. Last but not least, cost of debt corresponds to the one observed in Nexi's business plan. Thus, the WACC equals to 7.3%. Moreover, EBITDA's TV is assumed equal to the EBITDA of the last year of the business plan; CapEx's TV is assumed to be fully ordinary and equals to ca. 9% of net revenues; D&A's TV is assumed equal to CapEx one; growth rate equals to 2.0%. All components computed, the last step of DCF is to apply the discounting factor to FCF and TV. As clearly anticipated for a FinTech company, TV weights way more than the present value of FCF, demonstrating the high growth Nexi will have in the medium/long-term. Discounting the first stream of FCF and TV by WACC of 7.3% results in an EV of ca. €8b. Last but not least,

equity value is calculated by subtracting net debt, minorities and adding back cash-like items and associates. To conclude, the author also made a sensitivity analysis for different WACC and g rate on both EV and equity value, applying a range of +/- 0.25% to g and +/- 2.5% to WACC (approximate to 7.0% and 7.5%). A football field is also calculated, giving the valuation of Nexi according EV/EBITDA, P/E and DCF. Preliminary valuation in terms of equity value pre-money was estimated between €5.0b and €6.5b.

Getting back to the initial research question "How are FinTech firms valued globally? Is there a correct valuation methodology for them?", the author provides an answer after all the empirical findings have been analyzed, by linking them to the theoretical framework. Analyzing firstly FinTech world from its origin to its future trends and illustrating secondly the main valuation methods applicable to FinTechs, the author came to the conclusion there is not a correct and perfect valuation methodology for them. More specifically, DCF and trading multiples turned out to best fit FinTech firms, characterized by high future growth and particular financial structure. Although these methods are the only ones applied to Nexi, they have various and relevant pitfalls. Indeed, no valuation methodology might be seen as perfect, but needs to be applied to the specific characteristics of the firm such as: the market and industry it operates in, the place the firm is located, and all micro and macro-economic factors related to the firm. Despite DCF remains a favorite of practitioners and academics because it relies solely on the flow of cash in and out of the company, this might not be applied to FinTechs, whose drivers of value are different from a "normal" firm. The author also believes EVA – if applied to future data – could be an appropriate valuation method for FinTech due to its forward-looking approach and its capital invested consideration. However, the author recognizes the difficulties in calculating capital invested and above all future EVAs to be discounted.