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The Crumbling Banking System: Analysis of the technological impact within the retail sector

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Introduction

It is odd and unnecessary to believe that financial institutions could be completely replaced by technological advanced companies from other industries. Nevertheless, historically, the percentage of outsiders able to create more efficient solutions within a particular market has increased. A perfectly suited example is related to Canon and Apple; the former could have never imagined that a computer-based company would have shrunk the camera market by 50%, leading them to hit the bottom within two years (Mitarai, 2019). This is just one example of how incumbents, from different types of industries, are able to act as game-changers, establishing new rules to follow within your ancient and well-established environment.

This thesis, within the European financial context, takes into account the Banking industry and how the above scenario might, from one perspective, represent a fallacy and, from another, a disruptive fear. Reasoning on the Bank's function, it is unlikely that a new incumbent, even more technological advanced, could substitute its role in the Corporate and Private Banking sector; an opposite analysis could be made concerning the Retail segment. From the latter, customers are demanding a more efficient and dynamic system[1], able to effectively manage everyday transactions. In the Retail context Bill Gates phrase[2], supposed almost three decades ago, plays a crucial role and shapes up the common opinion that the player which will be able to offer the best service and solution would be the one heading the race.

Concerning the actors that might be involved, it is crucial to underline the geographical area and the current legal framework. Within the European context, firms in the Banking industry are currently building new technological infrastructures, adding new layers on their current business model. This proceeding lead to a static frame, were technological innovations became difficult and costly to adapt (Eonnet & Manceron, 2018). An example of the bank's reluctance to modify the core of their business model can be underlined in the data provided by the 2019 Annual Global CEO Survey by PwC; administrators, for example, thinking about how to effectively innovate and provide a winning customer experience (PwC, 2019), are investing in Artificial Intelligence technology in order to deliver a more efficient credit scoring system. Anyhow, this represents just an improvement of the standard screening process previously undertook, far away from the

[1] The following survey will be described in a specific paragraph.
[2] In 1990's Bill Gates said: "Banking is necessary, Banks are not".

concept of retrieving data from customer transactions[3]. Moreover, banks are not even interested in reconsidering their current business model related to the retail sector – e.g., in the Europe area, as far as the Directive (2015/2366) on Payment Services in the Internal Market stands still, guaranteeing the exclusiveness of escrow services to licensed institutions, the banking environment would be safe.

A preview of what a legal framework without an escrow service provision could be its given by the Chinese context with the Alibaba Ecosystem. While in most developed countries, financial firms are still struggling to offer a winning customer experience, in China, Alibaba, with the implementation of Alipay, has been able to create a fully inclusive system, capable of providing all types of services regarding the financial environment. Because of the relevance and degree of service offered, throughout this thesis the Alibaba Ecosystem will be considered as a benchmark for the overall retail financial services sector.

Considering the bilateral interaction between Alipay and a conventional bank structure, the former has created a winning benchmark related to customer experience; if banks within the retail sector want to survive this disruptive Fintech Effect, they will need to be more flexible in adapting new technologies and solutions, which could increase customer satisfaction and efficiency of the overall process; the route should target the yardstick that the Chinese company, with the support of a smooth regulatory environment, has created. As long as the escrow service exclusivity is granted, implementing such technologies might be a winning maneuver; afterwards, because of their static structure, it might be too late.

In the following paragraphs all the concepts mentioned above will be analyzed in depth, taking into account the European legal framework, current and potential players and future scenarios concerning the overall financial services industry.

[3] Process currently undertaken by Zhima Credit, an Ant Financial company based in China.

Chapter 1: Eu Legal Framework

1.1 PSD2: Directive (2015/2366)

In analyzing the main players and their respective incumbents within the European context, it is crucial to understand the legal framework in which those entity coexist. The Directive (2015/2366), mainly known as PSD2, which needed to be enforced by the European member states within the 13 of January 2018. Looking from a bank perspective, the directive represents an initial turbulence for the entire structure: it sets the stage for an open banking environment, blurring boundaries among industries and allowing third-party providers and financial technology companies to completely access to banks payment infrastructure and customer data (PwC, 2016). This complete access is granted through Application Programming Interfaces (API), which connect data, products and services throughout the financial sectors. From this viewpoint banks like UniCredit are still trying to develop more advanced APIs, seeking also external feedbacks from technicians to state their effectiveness (Malvassori, 2016).

Moreover, the aim of the directive is to standardize the payment system throughout the EU area and ensure a higher level of customer protection and make it simpler and faster for customers to pay for goods and services. It is crucial to analyze this directive in order to understand the limitations that third-party service providers (payment initiation service provider and account information service providers), have within the European context. The dictate was adopted to embrace new technological innovations within the market and it's starting point is reflected in the "Commission Green Paper" established the 11 January 2012, which aimed at moving toward an integrated European market for cards, internet and mobile payments. According to the directive, an integrated internal market is crucial to support the growth of the economy and to ensure that consumers, merchants and companies enjoy choices and transparency of payment services. The mindset established aims for a completely harmonized payment market, which lowers the banking sectors boundaries from the retail standpoint.

Concerning customer protection, the directive imposes a limitation on the amount of transaction fees to apply, forcing the overall system to lower operational costs for consumers. Those limitation regard also specific operations like refund and capital movement. Parties involved have complete access to a specific list of authorized payment institutions in order to enhance transparency and ensure a higher level of protection. Moreover, consumers have the right to terminate the contract with TTP[4] without additional charges if the document is terminated less than 6 months after it is entered into force; if this is not the case, payment service provider is allowed to apply a fee in accordance to the directive provisions. Furthermore, payment institution and any other intermediaries, within a certain transaction, are not allowed to deduct any amount from the capital transferred. The former needs to specify any additional charges prior the agreement of the contract and, ex post, consumers need to have the possibility to verify the correct implementation of the transaction and the relative fees applied. This concept is underlined multiple times throughout the directive, within provisions prohibiting non-transparent pricing methods.

Member States play a crucial role in ensuring transparency and protection within their legal environment; in fact, they need to act in the interest of the consumer, ensuring that TTP and other parties involved do not execute any unauthorized change in the framework contract without a justified reason. Also, they should be informed regarding structural changes in the latter and in case of doubt they are empowered to perform further controls. Moreover, local government must cooperate with payment institutions to ensure them the passporting right[5]; the former must facilitate the latter to operate in multiple areas within the European Union. On the other hand, if a payment institution operates in a country which differs from the one in which it headquarters is located, it is obliged to periodically report to the local government their activities for transparency and statistical purposes. Companies will also need to establish a central point of contact to facilitate communication with local member state.

In case of a large fraud authorities from different areas will need to cooperate and enact non-discriminatory measures in order to contain the damage that such fraud could create within the Union. Those measures shall not violate any fundamental right. This parallelism between rights and obligations concerning payment institution is peculiar throughout the directive.

Even though the dictate aims for the establishment of an open banking system, payment institutions have got several limitations concerning their activities. Apart from multiple provision regarding anti-money laundering activities and anti-terrorist financing, payment institutions need to behave in a suitable manner, coherent with antitrust and competition laws and they need to guarantee a technologically neutral environment, allowing the entry and growth of new incumbents.

[4] Third Party Providers

[5] The PSD2 underlines the main principles concerning the passporting right. The Central Bank within the Home Country will grant the financial institution with an authorization to perform its activities throughout the EU Area. Regardless of the area in which the financial institution performs its activities, the Central Bank which grants the authorization will be still responsible to supervise the firm’s actions.

One of the most crucial provision is specified in the Whereas (31) of the directive which establishes that payment initiation service providers could not, in any time, hold user's funds. This feature, specified in the introduction part, limits payment institutions in performing escrow service activities and secures the banking environment. As far as this provision is applied, payment institution could never develop client's portfolios within their infrastructure, and they could never reach a degree of service comparable with the ones offered by Alipay in China.

Payment institutions are also required to hold a minimum level of their own capital for risk management purposes; their funds must be kept, in any time, separate from the user's ones.

It is fundamental to underline that payment service providers participating with a payment system like a four-party card scheme[6], will need to provide proof that their system is able to mitigate and absorb all kind of risks. This provision is essential in order to ensure a smooth functioning of the overall process without a high degree of risk exposure. Concerning the three-party card scheme, the directive will not cover the system; anyhow its functioning needs to be granted by national authorities. Within the payment system the payment service provider needs to clearly specify the point in time in which it would not be possible anymore to revoke a certain payment; the timing will be linked to the type of payment service and the specific payment order. Moreover, if those transactions are denominated in euro, they will be subject to a 1-day execution time. Nevertheless, to ensure a more efficient payment system, Member State are entitled to impose an execution timing lower than one-day. As we previously stated, the payment service provider is fully liable for the transaction execution and will need to ensure the correct functioning of the process respecting timing and transparency provisions. Those rules might not guarantee the same level of customer protection for private companies; in this case Member State should rely on national provisions in order to protect at least the smaller firms and guarantee a well-functioning system. The information provided were all retrieved from the official directive and are mainly related to the functioning of payment systems and right and obligations of the players involved.

[6] The four-party card scheme involves the Cardholder, Merchant, Acquirer and Card-Issuing Bank. Moreover, two parties are involved which facilitate the process: the Gateway and Card Scheme. The Cardholder will initiate the transfer of the card information which will pass through the Merchant, Acquirer and finally, to the Card-Issuing Bank. If the payment is approved, the Card-Issuing Bank will transfer the money, repeating the process; money will arrive to the Merchant which will deliver the good or service to the Cardholder (ClearHaus, 2019).

1.2 Directive (2014/65/EU) on Markets in Financial Instruments (Mifid II) & Directive (2008/48/EC) on Credit Agreements for Consumers

It is worth mentioning also the role played by the Directive (2014/65/EU), which could give us a broad outlook on the strict limitations that technological firms could have concerning the offering of financial instruments.

As anticipated in the introduction, our main hypothesis pertains to the fact that the Alibaba Ecosystem is considered a benchmark for financial services within the retail sector. Moreover, as we will see with a more in-depth analysis of the company, Ant Financial offers to their clients the possibility to invest in money market instruments, instead of keeping their money in liquid form. The efficiency of the mechanism is guaranteed by the low transaction costs scheme that the company's business model has achieved. Finally, through the Ant Fortune platform, the company offers to their clients a vast range of financial instrument provided by multiple asset management firms.

The system described above might have multiple pitfalls if applied within the EU context. Concerning the customer protection provisions, the directive underlines two main macro area of interest: Product Governance and Product Intervention. The former imposes to the firm building a financial product to define a clear customer target; a positive one, in which all the adequate clients are included, and a negative one, representing clients that should never approach such financial instruments. The decision is arbitrary made, taking into account the clients' financial education and competences. Concerning the latter, it provides authorities with a higher degree of power toward the commercialization of financial instrument: competent authorities, in extreme cases, could guarantee an effective level of customer protection by limiting or denying the trade of a specific instrument (Criscione, Ursino, Davi, & Cellino, 2018).

Regarding the information disclosure, the directive forces the institution providing the instrument to disclose all type of information, not only to the retail investors, but also to professional and surrogate clients[7]. Anyhow, clients will now be provided with a special document called KID. This document aims to enhance even further the level of transaction cost transparency, underling each fee applied in percentage and absolute term and what impact could have on the final return. Finally,

[7] The disclose of transaction costs information for the retail client was already a provision established within the previous regulation (Mifid I).

it will contain a scenario analysis and the risks involved if a determined event occurs within the financial and economic environment.

Ultimately, since we need to analyze the financial service offerings comparing two different countries it is important to mention how the credit market for consumers is regulated and the practices used by creditors concerning the risk assessment[8]. For our analysis we need to mention the Directive (2008/48/EC), underling the role of the provision establishes that creditors, in order to assess the credit status of a customer, should consult relevant databased. Considering the Italian market as a proxy for the European one, those databased are referred as “central credit registers” and might be private or public, according to the credit imports of each agreement. Thus, the credit imports below €31.246 will be analyzed by private central credit registers like CRIF SpA, Experian SpA, CTC (Consorzio Tutela Rischio), Cerved SpA and Infocamere ScpA. For credit imports above that amount, the analysis will be performed by the Bank of Italy. The system is defined in the following way: every month the intermediary institutions will communicate to the Bank of Italy the total amount of credit supplied during that period; on the other hand, the Central Bank will provide intermediaries with information concerning the reliability of their clients. Finally, if a client want to know it has been included in this database of “negative debtors”, it could turn to one of the Bank of Italy’s branches (Prestiti, 2019).

[8] It is worth observing the credit risk assessment within the European context in order to make a more precise parallel with the one offered by Ant Financial.

Chapter 2: Climbing Toward the Benchmark

2.1 Banking Sector Analysis concerning Retail Offering through Technological Platforms

Looking at the 2018 S&P Global Market Intelligence report and more specifically to the list of the 100 largest banks in the world[9], we can clearly see that the first four positions are occupied by Chinese banks, while the fifth by the Japanese bank Mitsubishi UFJ Financial Group. Since we need a reference point within the western countries, it is worth considering the institution in the sixth position, JPMorgan Chase & Co. Nonetheless, choosing as reference a US Firm might hide a lack of consistency related to the differences, in terms of development, between the European capital market and the American one. Anyhow, since in both countries the escrow service is reserved to licensed institutions and the discussion will not involve Private and Corporate Banking, the two environments can be considered as comparable.

Thus, within the sample of the analysis, I've included the following firms:

Bank	Market Cap	
JPMorgan Chase & Co.	€	334,602,000,000.00
HSBC	€	137,730,000,000.00
Banco Santander	€	73,890,000,000.00
BNP Paribas	€	61,350,000,000.00
Intesa Sanpaolo	€	39,990,000,000.00
Unicredit	€	27,170,000,000.00
Deutsche Bank	€	15,090,000,000.00

Figure 1, Sample Banking Sector Analysis

The main decisional criteria are related to country differentiation and market capitalization, in order to have a more consistent and realistic picture of the overall European offerings in term of financial services. A more in-depth analysis could be made considering a larger sample and taking into account parameters like the percentage value of non-interest expenses invested in technologies and the plowback ratio, through which we could have some indication concerning the extent to which those companies are investing technology innovation. The results, retrieved from 2018 Annual Reports of each companies, are showed in the following graph:

[9] Ranked considering the number of total assets using as accounting standard US GAAP.

Bank	% Non-Interest Exp Invested In Tech	Market Cap	Plowback Ratio
Charles Schwab	35.4%	€ 53,919,000,000.00	81.2%
Deutsche Bank	33.9%	€ 15,090,000,000.00	100.0%
JPMorgan Chase & Co.	29.1%	€ 334,602,000,000.00	70.0%
Unicredit	24.4%	€ 27,170,000,000.00	100.0%
Citi	17.2%	€ 146,421,000,000.00	73.0%
HSBC	16.2%	€ 137,730,000,000.00	19.0%
Capital One	16.1%	€ 39,465,000,000.00	86.6%
Lloyds Banking Group	16.0%	€ 51,660,000,000.00	42.4%
Intesa Sanpaolo	15.6%	€ 39,990,000,000.00	15.0%
ING Group	14.8%	€ 44,000,000,000.00	43.8%
Morgan Stanley	14.8%	€ 72,690,300,000.00	76.7%
State Street Corp.	14.8%	€ 22,779,000,000.00	72.4%
UBS	14.4%	€ 44,942,400,000.00	24.0%
U.S. Bancorp	11.6%	€ 73,638,000,000.00	67.7%
Bank of New York Mellon Corp.	8.9%	€ 41,616,000,000.00	74.0%
Wells Fargo	7.7%	€ 196,047,000,000.00	61.2%
Banco Santander	7.6%	€ 73,890,000,000.00	69.0%
Bank of America	7.3%	€ 261,360,900,000.00	79.7%
Goldman Sachs	4.4%	€ 69,124,500,000.00	87.5%
TD Group US Holdings LLC	4.0%	€ 92,385,000,000.00	56.7%
SberBank of Russia	3.6%	€ 68,234,400,000.00	56.5%
BNP Paribas	3.3%	€ 61,350,000,000.00	50.0%
Royal Bank of Scotland Group	1.9%	€ 34,479,000,000.00	60.0%

Figure 2, Population Banking Sector Analysis[10]

Pop	Mean	Median
λ	14.1%	14.8%
Plow Back	63.8%	69.0%

Figure 3, Mean-Median Analysis[11]

A crucial effort needs to be made in order to understand to which extent those percentage computed are reliable and what are those banks offering, from the retail side, in terms of financial services. The analysis will proceed investigating the offering of the single banks within the sample chosen.

[10] Percentage of non-interest expenses in Technology for BNP Paribas and HSBC were computed retrieving information from the following articles: www.ft.com/content/c57ac5ca-ec9b-11e6-ba01-119a44939bb6; www.finextra.com/newsarticle/32239/hsbc-promises-17bn-investment-in-technology. This decision is related to the fact that it was not possible to find reliable information regarding tech investments within the companies' Annual Reports.

[11] The value "λ" is used to indicate the percentage of Non-Interest Expenses invested in technological related activities.

2.2 JPMorgan Chase & Co.

According the several communications performed through their core website, the firm is totally conscious that changes are tangible, and the technology transformation is occurring also within the Banking Sector. In particular, one article states that JPMorgan wants to be in the disruptor side of the technological revolution and non on the disrupted one (JPMorgan, 2019). For the purpose of the analysis we will focus the attention on the retail side of the company, taking into account what they concretely offer to customers; therefore, we will mainly consider the activities performed by of the subsidiary of the company related to retail services: Chase Bank. Starting from 2015 the firm has partnered with multiple startups like, for example, On Deck Capital. The aim of the company was to enhance the efficiency within the business lending activity, exploiting the algorithm of the affiliated company. The system aimed to give a quick answer to the business borrower and fund him within one day if the algorithm response was positive (Feldman, 2015). Subsequently, during the year 2017, the firm announced the partnership with Roostify. In this case, the alliance involved directly Chase. The strategy was consistent since the former is a self-service mortgage platform, designed for retail consumers, which aims are to be faster and more transparent (Roostify, 2017).

In fact, according to the 2017 Annual Report, the company managed to reduce the refinance period attendance by 15%. Those investments enabled the company to enhance the customer experience and ease the access to credit for both retail consumer and small business owners. Anyhow, the company cleared that they would never sacrifice their margins in order implement further investments within the retail banking. Nevertheless, the company possesses a peculiar strategy with respect to the majority of its competitors within the European territory; in fact, according to a speech from Marianne Lake, CFO, during the 2018 annual investor day, the company considers retail distribution like a muscle and it will open up to 200 more branches in up to 20 new markets while constantly implementing the technological offering (Broughton, 2018). The approach is consistent with the company efforts of enhancing customer experience: establishing new branches, building a sense of community and develop the technological offering, enabling users to become part of Chase Bank through simple and swift procedures. Considering the mobile application, one specific feature offered by the company within its accounts is the AutoSave option, which allows customers to set rules for how much to save based on milestones, like receiving a paycheck or spending at a certain merchant (JPMorgan Chase & Co., 2018). The firm, thanks to this client-based approach, managed to keep 33 Million active users within its Chase Mobile application. Digging more in depth within the application offering, we can list the following activities:

- View Account Balance
- Monitor Checking, Savings and Credit Card Activities
    - Chase Quick Deposit option
    - Possibility to schedule a Payment
- View and Check updates on your Credit Score
- Make Payments and Transfers
    - Send Wire Transfers
    - Transfer Money between Chase Accounts
    - Send and request money using Chase QuickPay with Zelle[12]
- Track your Rewards
- Send Gift Cards
- Grow Saving using AutoSave
- Track Investments through You Invest by JPMorgan Trade account
- Connect with Chase closest branches, ATMs and service representative 24/7.

It is non-trivial that JPMorgan, thanks to its efforts and investments, has been able to develop a competitive platform which represents a benchmark for the western banks. The company is constantly trying to develop new technologies and approaches to the banking and financial environment, understanding more in depth the needs of customers and investing in advanced technologies like Blockchain and Artificial Intelligence. Finally, it is crucial to mention a common strategy being used within the banking sector: Invest and Partner Model. A lot of banks are involving within their portfolios startups companies with the aim to partner with them and acquire the firm if their business model is proven to be successful. Concerning JPMorgan specific case, the firm is mainly investing in companies developing Capital Market related software and Payments and Settlements solutions[13].

[12] Zelle is a way to send and request money within few minutes and using just a mobile phone number or an email address. In order to use this service, you need to have a bank account within the United States.

[13] The main companies within the JPMorgan Chase portfolios are: InvestCloud, Open Fin, SmartStream and Level Up.

2.3 HSBC

In June 2018, the new CEO of the company, John Flint, stated that the firm would invest a total of $17 Billion in technological related activities within 3 years, in other to boost growth. Anyhow, if we consider the bank's offering within the retail sector, we do not observe any concrete technological impact. In fact, within the Retail Banking and Wealth Management Business the company just offers tailored solutions for its customers concerning financial products and planning, without giving clients the possibility to perform those actions thought an online platform. Directly analyzing the mobile application offering, we can immediately notice that supply is limited to certain countries in which the Bank is more active and locally present. In fact, if we analyze the mobile application which targets mainly US and worldwide consumers, the features will be poorly handled and not even comparable with our western benchmark[14]. Proceeding coherently with the analysis, the features of the mobile application mention above will be the following:

- View Account Balance
- Transfers
- Bill Payment
- Transaction History

Anyhow, if we analyze a more comparable and well-structured application, like the one offered by the company in the United Kingdom, we will still come up with similar conclusions. De facto, the features will just include the possibility to enter within your account using your touch ID or face recognition, apply for a mortgage or a credit card loan and deposit your checks through a photo. A review within the application store perfectly describes the features of the platform: "It does incredibly well… nothing". Moreover, some features cannot be accessible prior the generation of the six-digit code and within the global application you will not be able to log-in unless you are under a WIFI connection. Therefore, through this brief analysis we can observe that the budget related to technological investments is not currently injected in enhancing the overall customer experience. Nevertheless, the company has just engaged in a new alliance with a business consulting firm named CGI. The latter will help HSBC to build a new technological infrastructure

[14] JPMorgan Chase mobile application.

and to coordinate its innovation agenda. The consulting firm will provide a trading platform software which will enable the bank to improve its offering concerning global trade business (ConsultancyUK, 2019). The fact that a Bank with over €130 billions of market capitalization relies on a pre-existing technology offered by a consulting company to improve its trading system gives a grasp of the difficulties banks face in managing innovation. Finally, like the majority of its peers, the company is building its portfolio of startups including firms within the FX Market transaction management and blockchain technology companies.

2.4 Banco Santander

Originally established in Spain, Banco Santander is considered the first bank of the Iberic peninsula and its stock are quoted both on the New York Stock Exchange and in the London Stock Exchange. Similar to HSBC, the bank has concentrated its main efforts concerning the mobile application within the countries in which it has more relevance and market share[15]. Anyhow, considering also the current annual report, we can immediately retrieve the efforts of the company in developing consumer-friendly solutions. One example is the increase of digital customers from 16% to 32% during the periods from 2015 to 2018. Moreover, the company underlines that 38% of digital transaction were performed through mobile apps[16]. The bank is always been involved in implementing new technologies; de facto, already in 1996, the company lunched the website for one of its subsidiaries: Openbank[17]. Beside Banco Santander itself, it is worth to analyze the main feature of the subsidiary mentioned above. In fact, the latter is one of the largest fully digital banks in the world, having over 1.3 million users, offering to its clients several range of service within its mobile application like:

- Integrated Trading Platform
- View Account Balance
- Transaction History

[15] The bank has tailored application for the following countries: United Kingdom, Italy, Spain, United States, Poland, Mexico and Brazil.
[16] The following data are retrieved from the 2018 Annual Report of Banco Santander.
[17] HSBC acquired in 1992 a telephone and internet-based bank called First Direct. Anyhow, it is not been mentioned in the above analysis since it does not offer superior services with respect to the bank's main mobile application.

- Open Mortgage[18]

Furthermore, during the year 2018, the company has developed one of the first blockchain-based retail payment solutions called One Pay FX. According to the 2018 Annual Report, the platform has been simultaneously lunched in 4 geographic areas and has achieved a growth in monthly transaction volume from May to December of 230%. The aim of the company was to bring to the market a solution having a high degree of transparency, certainty and speed (Ripple, 2018). Additionally, the company has established a new firm within the microfinance environment, Super Digital Bank, tackling as customer segment the unbanked consumers. Considering the bank's mobile application, it will offer basic features as the ones proposed by its competitors. Anyhow, the firm also offers multiple cashback deals from several retail companies and allows you to directly inform your contact, through an email or SMS from the bank, that he has been paid.

Even though the bank currently possesses a percentage of non-interest expense invested in technology lower than the median value retrieved from our sample, it demonstrates a full commitment toward digital transformation. Finally, the bank has just signed a contractual agreement with IBM for $700 Million in order to use their blockchain technology platform and improve their overall business (Tayo, 2019). This represents another example concerning the difficulties for banks in managing innovation and efficiently use it to achieve a competitive advantage within the industry. Those strategies are ultimately linked to which approach banks are willing to undertake in order to follow competently the path of technological transformation.

2.5 BNP Paribas

One of the firm's main pillar, beside Cross-Business Cooperation, Engagement and Risk Diversification, is Innovation. Taking into account the Retail Banking and Services, the firm has been able to improve multiple business line like Arval, specialized in corporate vehicle leasing and services, BNP Paribas Personal Investors, specialized in online savings and brokerage and Nickel, specialized in online banking services and acquired from the bank in 2017 (BNP Paribas , 2018). According to the company Annual Report, their growth strategy is entirely based on digital

[18] This feature allows customers to obtain a mortgage through a simple step procedure. According to the 2018 Annual Report, the company increased the number of mortgages by 370%.

transformation; de facto, the firm is currently trying to enhance customer experiences and it managed to sign almost 50% of their contracts through electronic means. During the years, the company established numerous technology-related funds like the Parvest Disruptive Technology fund and the BNP Paribas Innovative Technology Leaders. The following approach is coherent with the Invest and Partner Model; enabling the firm to sort the most efficient and successful technological solutions.

Concerning the mobile offering, the company does not add any particular feature; in fact, the main purposes of its mobile application is mainly related to the outlook of the account balance, divided considering the category of expenses. Anyhow, the company also offers a specific mobile trading platform for its clients; beside the actual fees applied to each transaction, not comparable with other online brokers, the application seems to present multiple pitfalls concerning real time data and customer-friendly structure. Finally, considering other subsidiaries, it is crucial to mention the role played by Hello Bank. The institution offers to its clients the possibility to open a new account with no expenses, bearing an annual interest rate up to 2% without any withdraw restrictions. The bank positioned himself within the online banking environment and has been able to attract almost 430000 subscribers. The users will be able to completely manage day-by-day operations within the mobile application. Nevertheless, we need to specify that within the application we won't find any extra feature that could be considered as a competitive advantage.

2.6 Intesa Sanpaolo

As the majority of banks within the European context, Intesa Sanpaolo has changed its culture, setting aside the standard conceptions within the banking industry, underlying the prominent role of technology and digital transformation. Within the CIB division, for example, the firm plans to reduce its software outsourcing and implement proprietary technologies in order to have a more direct control within the overall process. Concerning the mobile application, the bank managed to attract more than 3 million users. This is the result of a well-structured innovation agenda, capable of structuring a mobile application well above the competitors average. The app will offer the following services:

- View Account Balance
- Transfer and Request Money

- Expenses Categorization
- Transaction History
- Direct Saving Management
- SOS Withdraw[19]
- Virtual Wallet[20]

Thanks to a service called JiffyPay, you will be able to transfer or request money just using the recipient telephone number. The decision of outsource the payment transfer service is coherent with the one performed by JPMorgan Chase in the United States, which allow a company named Zelle to support the structure of this system.

Considering the western benchmark of our analysis, the mobile application reaches one of the highest services levels. The missing component is mainly related to the restriction of not allowing users to trade financial instruments within their mobile phone.

A case worth mentioning is related to Banca 5, an Intesa Sanpaolo subsidiary. The latter acquired the bank in 2016 for €153 millions with the aim of reaching the unbanked customer segment. As before, we are able to notice similarities between the main players strategies within the Banking Sector[21]. As we can retrieve from the actual name, the firm aims to offer five different products: Cards, Loans, Account, Insurances and Services. The scheme is based on affiliations with tobacco shops: users will be able to use and interact with all those banking-related services through those points of sale. Thanks to this solution, the bank aims to positioning himself within the local territory, without opening further branches and allow unbaked customers to take advantage of banking-related services. Finally, we must consider that Tobacco Shops in high-congested areas might prefer not to adopt the system because they consider it time consuming and not worth it in terms of monetary trade-off[22].

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[19] In cases of emergencies the company will allow you, from any ATM of the group, to authorize the withdraw of a specific amount of money from a third-party individual without using the card.
[20] Within the Virtual Wallet offered by the company you will be able to not only insert all your credit cards, but also your personal documents like ID Card and Driver License.
[21] The statement is mainly referred to Banco Santander and the implementation of Super Digital Bank.
[22] The following information has been retrieved interviewing a sample of 10 Tobacco Shop owners not currently using the service.

2.7 UniCredit

Coherently with the approaches just described, UniCredit is concentrating on improving its technological offer in order to remain competitive within the Industry. Apart from several discussion concerning possible fusions in order to boost growth, the bank is adopting new technologies to improve their operations. One concrete example is related to the Blockchain technology, which was first adapted by the firm in March 2019; UniCredit managed to perform its first transaction using a Blockchain technology through the platform we.trade; the latter has already partnered with other eight European Financial Institutions and has proven to offer an effective blockchain payment solution. Using this technology, companies will be able to enhance the transparency of their operations, allowing, for example, the payment only if the product has been received by the client (Soldavini, 2019). The system is similar to the Alipay transaction mechanism which will be later analyzed. Concerning other open innovation activities, the company is currently investing in an Italian company named Axyon, specifically in a product named SynFinance. The solution uses Artificial Intelligence to gather data related to the entire syndicate loan market, identifying investors which could perform the loan with a higher probability (IlSole24Ore, 2018). In the specific, the bank is applying the technology to enhance its advisory skills concerning syndicate bonds; in the future, UniCredit aims to apply the technology also in the Corporate and Investment Banking division.

As previously described, the Invest and Partner Model and an Open Innovation approach appear prominent within the banking sector. Considering the Retail environment, the company is consistent with the strategies just mentioned. In fact, UniCredit, during the last months, has launched a program called DesiGenZ, aimed to discover new ideas related to the customer journey of financial services. The program has been opened to 30 university students with the aim of implementing new projects concerning the customer experience. The following, based on a Design Thinking model of innovation[23], has been proven to be effective in implementing solutions which could fulfill customers needs. Parallel to this, the bank offers a Startup Program called "UniCredit Start Lab", in which the company acts as a venture capital firm in order to lunch solutions within the market. For what concerns the direct interaction with the customer, consistently with our

[23] Innovation methodology based on clearly understand customer needs prior implementing a new solution.

analysis, we need to take into account the mobile application. The firm will offer the following features:

- View Account Balance
- Expenses Categorization
- Direct Saving Management
- Transaction History
- Money Transfer
- Negotiate Shares and Manage Orders

The fact of allowing clients to directly trade within the application represents a competitive advantage within the industry. Moreover, through the finger print and face recognition, the mobile application allows you to perform all types of financial-related operations. Despite the fact that UniCredit Group is progressively selling all the shares of the company[24], Fineco Bank perfectly fits within our analysis. The latter's total assets amount to a total of €74 billions and it is considered one of the main banks to offer a consistent and effective customer friendly experience. In fact, the bank allows you to directly manage your bank account from all platforms. Taking into account the main mobile features we underline the following:

- View Account Balance
- Transaction History
- Money Transfer
- Professional Trading Service

The effective competitive advantage is ultimately related to the trading platform embodied within the application, which offers to the clients the possibility to trade within 26 global markets and build your own portfolio and watchlist. Furthermore, the client will also have the possibility to ask for an advisory support from the company. Finally, UniCredit group has developed a bank only for the iPhone users: BuddyBank. The focus is mainly on the customer experience and human interaction. In fact, the mobile app not only offers the basic banking services, but also a 24/7 chat

[24] In May 2019, UniCredit Group sold 17% of the company's shares, earning €1 billion. Because of this action, the group remains with only 18% of the total shares, becoming a minor shareholder (Davi & Festa, 2019).

with a “Banking Concierge”, offering support for the banking related services. Moreover, by paying €9.99/month you can obtain the BuddyBank Love, in which you will have access to a Banking Concierge that not only accommodates all your requests related to the banking account but also fulfills lifestyle needs[25] – e.g. book a table in a restaurant, hotels and flights. UniCredit represents a concrete example of how an Open Innovation approach could drastically implement financial services and gives a more tangible outlook of the strategy path followed; financial institutions, within the retail sector, are trying to build parallel offering instead of implementing the mother company’s customer experience.

2.8 Deutsche Bank

Beside the issues related to its financial market performances[26], Deutsche Bank is completely conscious of what is happening within the financial sector in the past decade. Starting from 2014, the company has built labs in Silicon Valley, London and Berlin with the aim of exploiting external knowledge and concretely follow the technological path, with a particular focus on blockchain technologies. Coherently with the innovation model explained above[27], the company aims to invest in projects which could enhance the company value in terms of innovation and achieve a competitive advantage. Within the labs three streams of innovation occur: Demand-led innovation, Supply-led innovation and discovering emerging tech. The first aims to identify current challenges for the company in term of IT structure and technology. The second is related on the interaction with partners, clients and suppliers, applying an open-minded approach and constantly searching for new ideas. The third segment is related to the investigation of new technologies such as API economy, machine learning and distributed ledger technology (DeutscheBank, 2019). Considering this structure, the company effectively established an innovation culture which, nonetheless, risks to de disrupted by the massive budgets cut that the company needed to implement due to poor financial performances in their main business division: Investment Banking. Concerning the IT infrastructure, the banks has partnered with the company Red Hat, which, during several periods, has helped the company building their cloud framework. Moreover, the firm has implemented

[25] In this specific case the Banking Concierge will be powered by Quintessentially, concierge services which offers a complete support to their client, 24/7, including festivities.
[26] Related to the stock price drop of the 23 of May 2019, in which the firm stock price has reached an historical minimum price of €6.35.
[27] Invest and Partner approach.

multiple investments within the payments technology sectors, investing in startups like Modo. Thank to this stake, the banks will be able to insert within its payment platform non-bank payment systems like Alipay, PayPal and WeChat. For what concerns the mobile application offering we need to underline the following features:

- View Account Balance
- Transaction History
- Money Transfers
- Financial Markets Monitoring

The mobile offering will be limited and consistent with the benchmark established from the sample. Anyhow, Deutsche Bank obtained a coefficient λ higher than the one obtained by JPMorgan Chase. Looking at the specific offerings, this represents a solid inconsistency with respect to the data retrieved from the 2018 Annual Reports, since we would expect, at least, a service offering above the standard average.

2.9 Further Considerations

An effective way to boost innovation within the banking environment might be through the legal framework: law makers should incentivize institutions to create solutions which could be adapted at European level. For example, considering OpenBank, no subsidiary is able to offer such competitive features. This structure might be implemented through the ease of laws concerning the passporting right and the ability of European firms to implement their activities within the Union. Beside the fact that it might be an advantage for technological advanced institutions, this approach can lead to an increase of the overall competition, leaving an environment in which only the banks able to offer the more effective service can survive.

Technology disruption has proven to be fatal in many industries and the only firms willing to exploit external ideas and information will be able to effectively survive. In a context in which the Godzilla Factor[28] is not important any more, banks are realizing the need

[28] The "Godzilla Factor" is related to a common miss concept of the Business Environment. The reasoning is related to the fact that only big firms within the industry are able to deliver optimal and technological advanced solutions. Anyhow, this has been proven to be wrong since, considering telecommunication enhancement, effective solutions might come from different part of the world and from several companies regardless of their size.

of applying an Open Innovation Model in order to not be disrupted by new incumbents and knowledges.

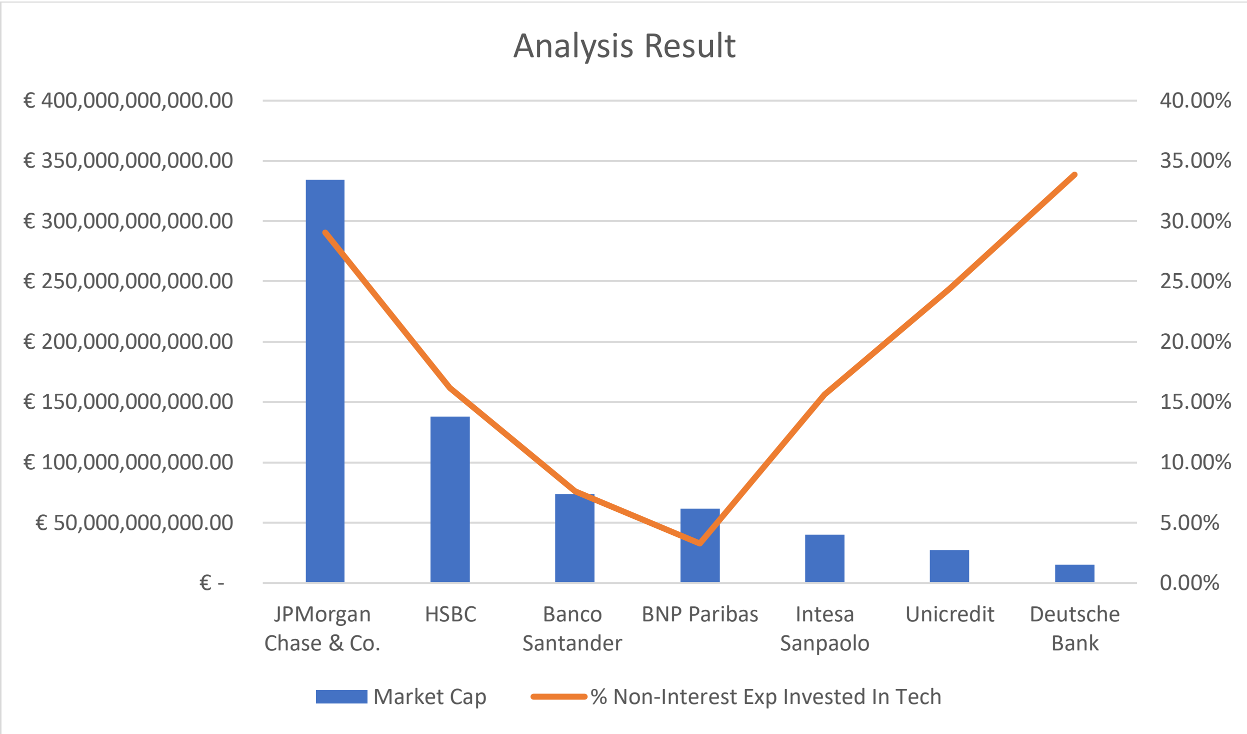

Figure 4, Analysis Result[29]

An explanation of this peculiar graphical representation might be related to the strategies applied within each corporate environment. Intesa Sanpaolo, UniCredit and Deutsche Bank heavily invest in technologies in order to grasp a competitive advantage within the industry and boost growth. Anyhow, like in the case of Deutsche Bank, this might not be enough to ensure an effective presence within the market.

[29] Results are retrieved from the 2018 Annual Report of the following banking institutions. Concerning the Market Cap, values have been retrieved from current market measurement.

Chapter 3: Imposing the Benchmark

3.1 The Alipay Ecosystem

Once we have taken into account the major European Financial institutions and their specific offering, we can further implement the analysis defining more precisely the benchmark to which the former needs to be compared. Since 2003, Alibaba lunched multiple e-commerce platform[30] within the Chinese economy. In order to effectively develop those platforms, the company decided to focus on the trust component, including as a mean of payment the Alipay service. The system functioned as an Escrow Service, in which buyers will send money to Alipay and once the platform received the money, it will alert the counterparty who then made the delivery (Xie, Kien, & Neo, 2018). This scheme allowed the company to build trust within the overall environment, consenting a smooth functioning of the transactions and of the overall business. As the number of users started to increase exponentially, Alibaba decided to create the Alipay Wallet, from which customers could have performed different types of activities including investing in specific money market investment product trough Yu'e Bao[31]. As previously mentioned, the fund allowed depositors to invest their money without high transaction costs yielding a consistent interest rate instead of keeping the money in liquid form. As parallel function, Alibaba obtained a micro-loan license, allowing them to compete against the well-established banks within the Chinese economy, offering competitive interest rates and automatically compute a credit score value using real time data, historical browsing and purchase behavior. This data management technology allowed the company to enhance the efficiency of the system, managing to automatically state if the customer was eligible for credit or not.

After the introduction of specific regulatory requirement related to third-party payment licensing, Alipay was restructured and legally separate by the Alibaba company; in fact, Ant Financial was funded and Jack Ma owned more than 75% of the company's stakes. From this point onward the ecosystem was enabled to develop even further, allowing customer to access to a wide range of services never offered before by a payment provider service. Their aim, as described by the CSO

[30] Those platforms include Taobao, Tmall and Alibaba.com.
[31] Yu'e Bao is defined as a money market fund and has got more than 230 billions of dollars of asset under management. The fund is capable of offering up to 6% of annual interest rate; anyhow, such offering has been implemented by decreasing as much as possible the liquidity buffer within the fund.

Chen Long, is to implement the concept of Finlife, that is, a combination of finance and real life, powered by technology. In fact, the Ant Financial group, through multiple partnerships, has been able to offer the following services:

- Financial Services[32]
- Public Welfare[33]
- Dining
- Gaming
- Online Shopping
- Transportation
- Credit[34]
- Money Transfers
- Medical Service
- Daily Household Services

Beside those services, the company managed to implement inclusive finance activities, in order support household and develop business within rural areas. Regarding the credit scoring activity performed by the subsidiary Zhima Credit, or Sesame Credit, multiple concerns were considered. In an article in the Financial Times, Yuan Yang underlines the difference between big data and strong data and how this could represent a pitfall within the algorithm used for the credit scoring calculation. Moreover, since major lenders within the Chinese economy like Qudian were recurring to the system developed by Ant Financial, the Chinese government, to avoid a possible turmoil, decided to stop independent companies from providing credit scores and decided that just one public body needed to define the credit ratings: Baihang. Beside this, the company still provides a rating system through the platform which allows you to obtain certain discounts or to not deposit any amount of money in order to confirm a certain reservation. Anyhow, the system

[32] Financial Services are mainly related to Ant Fortune, which compromises money market funds like Yu'e Bao and other thousands of financial products provided by third-parties through another platform called Zhao Cai Bao. Loans for consumers and small-medium enterprises are provided by other two platforms called Huabei and Jeibei.

[33] With their online offering of insurances, Ant Financial was capable of involve more than 150 million clients within the first year from 2013 to 2014.

[34] Even after the foundation of Ant Financial, the credit system process was based on the analysis of real time data through which the system could retrieve information related to the customer and compute a credit score considering specific parameters. The platform is called Zhima Credit and allows, through an analytical analysis of offline and online data, an assessment of the client default risk.

has been under numerous attacks since the actual discounts on credit borrowing has not been proven to be directly related to the sesame credit scoring; therefore, multiple customers though that the scope of the company was not to facilitate the access to credit but to just collect further information about their clients (Yang, 2018). Apart from the controversial aspects, Ant Financial has been able to develop a concrete ecosystem trough which the client is able to buy a pot a noodles and a financial security within the same mobile application. The company is currently valued more than 150 billion dollars and it is worth more than companies like American Express and Goldman Sachs.

The development of those kind of services has been possible due to the lack of regulations within the Chinese market concerning third-party mobile payment platform. Moreover, traditional banks were not able to retrieve information about the specific transaction if it was performed thought a third-party provider. Prior the PSD2, also within the European Union we would have fund a lack a transparency regarding the transaction information among the parties involved. In China, this resulted in a complete Bucket Scenario: clients just moved their money from the traditional banking deposit and started to perform financial activities through those third-party providers. The fact of having a monopoly of the overall information and the possibility to hold the client's funds allowed an enormous development of those providers. In the specific, we mainly refer at Alipay and WeChat[35]; within the analysis we won't take into account the specific competition environment, but we will only concentrate on the parallelism between our Asian Benchmark, Alipay, and other European Institutions. Because of the lack of strict regulations concerning those services, money laundering and other illicit activities were performed through those instruments. Anyhow, as we stated before, those kind on tools managed to increase the overall trust within the payment system and develop exponentially the e-commerce platforms within the Alibaba network. Nonetheless, the People's Bank of China started to implement several regulations concerning their activities. In January 2017, they required third-party payment services to keep 20% of customer deposit in a single, dedicated account at a commercial bank with no interest payment (Wildau, 2018). The provision was further implemented to 100%, meaning that payments groups will have earn zero interest on the customer funds. Those decisions were implemented to enhance customer protection and prevent those companies to implement risky investments with the client's funds.

[35] The company is held by Tencent and currently accounts for more than 650 million active users. WeChat Pay will be the direct competitor of Alipay. The former is directly linked to the social mobile application WeChat. The platform will perform activities coherent to the ones performed by the latter.

According to the Financial Times, the provision, in a longer time horizon, will decrease revenues of those institutions up to 1 Billion Dollars. Beside this new legal dictate, the most relevant and valuable change for those companies was related to the centralized clearing house. In fact, in June 30, 2018, the PBOC required all mobile payment transactions to be routed through a centralized clearing house, diminishing one of the most important competitive advantage for third-party providers: transactions information. Data collected by Alipay and WeChat needed to be sent to this centralized clearing house, named Wanglian, in order to be shared with other competitors within the market, including commercial banks and, more specifically, the PBOC. Therefore, through this mechanism, the Chinese central bank is now able to effectively supervise fraudulent activities, but this is just one motive. Coherently with the current political approach, through centralized clearing house, the central bank will have direct access to billions of data regarding customer preferences and purchase behaviors (Liu, 2019). Beside those restrictions within the regulatory framework as just described, the Alipay Ecosystem presents one of the most innovative and ductile financial management tools, allowing you to perform whatever activity using just a mobile application. For those reasons, it is fair to assess that the Alipay Ecosystem poses a high benchmark which, in the long run, banks must reach to survive.

Chapter 4: Giants Intervention

Within the analysis we will mainly take into account the large technological companies which could effectively represent a treat for the western financial institutions. In the following paragraphs three cases will be analyzed concerning the activities of large incumbents within the financial services sector. Prior mentioning the actions undertaken by large technological companies, is worth to underline also the role of telecommunication companies like TIM in Italy. The latter has just lunched, through the support of Banca Sella, a credit card which will exploit services like Google Pay and Apple Pay. The company will just offer basic feature like Money Transfer, Payments and Account Balance review. This is just one example related to the fact that incumbents might approach from several different industries[36].

4.1 Apple Card

Beside the Cupertino's company, which already approached the retail banking services with Apple Pay, the most relevant news is related to Goldman Sachs. In fact, the company will issue its first credit card along with Apple and using Mastercard as network. The reasons why such financial institution, always involved within the Corporate and Investment Banking environment decides to invest in the Retail sector are probably link to diversification purposes. In fact, according to Marco Ditta, Head of Operations, Monitoring and Control at Intesa Sanpaolo, the company is just implementing a digital approach within the retail environment in order to increase revenues without a high degree of risks. Anyhow, we need to underline that this diversification strategy did not started within the previous period. In fact, in 2016, GS funded its first personal finance platform: Marcus; from this date, the platform managed to accumulate 45 Billion dollars in deposit and 5 Billion dollars in consumer loan (Armstrong, 2019). Working through the iPhone, the card will offer the following features:

- View Account Balance
- Transaction History

[36] In the specific, telecommunication companies were able to offer an effective service related to inclusive finance activities, especially in developing countries within the Central Africa.

- Daily Cash[37]
- Financial Planning

Even though the credit card does not present peculiar features with respect to the current offering within the market, we cannot state that it would be an unsuccess. In fact, while many players have got years of experience within the retail sector – e.g. Chase, Citigroup, GS will have as sustainable competitive advantage the fact of having of the biggest tech companies in the world as main ally; this will guarantee an effective follow up of the technological path, at least for the retail sector[38].

4.2 Amazon Pay

Consistently to the service developed by Alibaba, Amazon managed to create an offering which could enhance customer efficiency and security while performing a transaction. Opening an account with Amazon Pay signifies implementing just the link between your credit card and the platform, in order to ease your purchases within the e-commerce environment. Anyhow, the offer needs to be defined as a third-party service provider since it will not only work with the Amazon.com website, but also within other platforms[39]. Therefore, in this prior analysis, we might categorize the service as a direct competitor of instruments like PayPal; anyhow, we need always to consider the legal framework of the western countries and which are the possibility that those tech giants might be able to undertake. In fact, considering the European legal framework, Amazon could never implement its offering further if not through a specific license which, in terms of cost-benefit analysis, would not be advantageous for the company. Taking into account developing countries like India, the company has obtained the Prepaid Payment Instrument (PPI) license. The license is specifically issued by the Bank of India under the Companies Act, 1956-2013. In the specific, Amazon has obtained the Semi-closed System PPI license, peculiar for non-banks institutions. Thanks to this authorization, customers are able to use Amazon Pay in order to

[37] Every time the card is used the customer will receive a 2% daily cash; moreover, customer will get a 3% cash back on all purchases made directly with Apple Card. If purchases are made through the physical card, the cash back amount will be of 1% (Apple, n.d.)

[38] Goldman Sachs has always been defined has one of the largest and more influential Investment Banks in the world. Anyhow, after the 2008 financial crisis the financial institution had some issues in returning back to its initial wealth level; this diversification strategy and open banking approach could effectively help the bank to obtain a peculiar advantage among its competitors.

[39] Amazon is partnering with numerous websites, ensuring their customers the possibility to utilize the service in other websites – e.g. Trenitalia.

purchase goods and services and use specific financial services. Considering this fact, Amazon can consistently build a platform which could arrive to the standard imposed by Ant Financial; anyhow, within this specific marketplace, the company will need to face a high degree of competition and face firms like Alipay itself. In fact, in 2015, Ant Financial purchased 40% of the largest Indian e-commerce company, Paytm. Moreover, companies like Google managed to obtain the same license as Amazon and Alipay, leading the Indian market to represent of the strongest competitive arenas within the financial services offering.

4.3 Google Wallet

In 2011, Google managed to lunch a platform called Google Wallet. Within this analysis is crucial to mention the role of this platform in order to underline how much, in terms of technological innovations, those companies are advanced with respect to any other corporations in multiple sectors. Google, in the specific, managed to collect enormous amount of customer data, using it within its multisided platform business model in order to profitably sell ads to other companies. Anyhow, the access to customer information and their browsing behavior allowed the firm to develop effective solutions even if the enabled technology was not present yet. In fact, Google Wallet allowed you to pay using your smartphone: the system stored digitally the version of your credit cards and enabled you to pay using the mobile application through the contactless technology using the POS. Moreover, you could have store coupons, rewards card and boarding pass – e.g. when you paid within the grocery store, Google Wallet automatically applied the coupon discount on your purchase. Anyhow, Google required banks to share all the information regarding the customer transaction; being reluctant to do so, those financial institutions started to corner services like Google Wallet and preserve their monopolist behavior. Within the subsequent periods the company gradually reduced the amount invested in the platform and completely cancelled from the market. Anyhow, thanks regulations like the PSD2, those type of services are now able to effectively operate, obliging banks to share all possible information regarding transactions manner. Moreover, considering the enabling technologies, the finger print e face recognition technologies managed to further develop those offerings.

In fact, the regulatory framework allowed the development of services like Apple Pay and Google Pay also within the European Framework. This example perfectly suits our analysis since, in the moment in which the regulations will be eased, those technological companies will be ready, traditional financial institutions will not.

4.4 Survey Result

The survey aimed at clarifying the needs of the market within the financial services sector in order to effectively gather information about which specific path to follow. The analysis was performed considering a sample of 52 people; the majority of those born within the 90'. The first questioned asked was related to the level of interaction with the online banking services in a scale from 1 to 5. 28 out of 52 people, more than 50% of the total sample, described a level of interaction with the banking service of 4. Considering the activities performed within the platform, the majority, almost 75% of the total sample, stated that the platform is mainly used for transaction control. Moreover, the platform is also used to perform money transfers and manage financial instruments. The last two questions are the most crucial ones concerning our analysis; in fact, when asking whether they were satisfied with the current online offering of their banks, 67.3% of the total sample answered no. Finally, when asked what features they would like to have within their personal bank mobile application, 69.2% answered that they would like a more efficient system in order to invest in short term securities. Other requirements underlined are related to the possibility of purchasing external goods or services like insurance products and financial planning options. More detailed information is included within the Appendix[40].

[40] Since the survey was undertaken among Italian citizens, all the questions and answer are in Italian.

Long-Term Effects and Scenarios of Legal and Financial Harmonization

Considering the legal framework described within the first chapter of the thesis, a service like Alipay could never be implemented in the European market without a specific banking license, which will carry multiple provisions to respect in terms of reserves and risk management activities. Anyhow, we need to take into account that new technological innovations, within the Financial Environment, are disrupting and fragmenting the market, opening the field for new incumbents. As explained in the introduction, as far as this restrictive legal framework holds, we will not observe any large incumbents within the European marketplace. Anyhow, if the assume that, due to a financial liberalization, third-party providers were allowed to hold funds from clients, large technological players, like the ones mentioned above, are likely to get involved. Finally, because of the strict regulations regarding money laundering and illicit payments, established in the PSD2, and because of the democratic belief within the Union, it is unlikely that a centralized clearing house could be implemented, if not specifically to preserve the role of the banking institutions. Anyhow, the regulation already dictates banks to share customer data with third-party providers; therefore, also the latter will be obliged to undertake the same activity. Consequently, even though we assume a transparent system were all transaction information are shared, banks, at their current stage, could never compete with the technological offering of the giants. Moreover, the introduction of advance payments systems like Alipay could significantly impact the revenues scheme of financial institutions with a projected loss of 43 Billion dollars[41]. Finally, given the uncertainty component and the economic system becoming more complex, banks should implement a customer experience consistent with the identified benchmark, applying an open innovation business model and gather new ideas and innovations from the external environment. Only in this case, banks could effectively contrast the new incumbents within the retail sector, given a legal framework which does not imposes any strict limitations on offer enhancing activities.

[41] Information retrieved by analysis performed by Kapronasia and Nilson Report.

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Table of Figures

Appendix

Computation of the λ value with 2018 Annual Report data.

Sample

UniCredit		
Lease of ICT equipment and software	€ 7,435,400.00	6.0%
Software expenses: lease and maintenance	€ 22,165,000.00	18.0%
ICT communication systems	€ 7,498,800.00	6.1%
Services ICT in outsourcing	€ 73,652,900.00	59.7%
Financial information providers	€ 12,722,300.00	10.3%
Subtotal	€ 123,474,400.00	
Total Other and Administrative Expenses	€ 505,186,900.00	24.4%
Payout Ratio (2018)	0%	
Intesa Sanpaolo		
IT Service Expenses	€ 635,000,000.00	15.60%
Total Other and Administrative Expenses	€ 4,070,000,000.00	5.0%
(t-1)	€ 3,875,000,000.00	
Payout Ratio (2018)	85%	
Deutsche Bank		
IT Costs	€ 3,822,000,000.00	33.86%
Professional Service Fees	€ 1,530,000,000.00	13.56%
Total General and Administrative Expenses	€ 11,286,000,000.00	-5.74%
(t-1)	€ 11,973,000,000.00	
Payout Ratio (2018)	0%	

BNP Paribas		
Payout Ratio		50%
HSBC		
Payout Ratio		81%
JPMorgan		
	$ 8,802,000,000.00	29.07%
Technologies, communication and equipment	$ 30,277,000,000.00	
Total No compensation Expense	30%	
Payout Ratio		

Population

Bank of America		
Data Processing	$ 3,222,000,000.00	6.04%
Telecommunication	$ 699,000,000.00	1.31%
Subtotal	$ 3,921,000,000.00	7.35%
Total Noninterest Expense	$ 53,381,000,000.00	
Payout Ratio (2018)	20.31%	
Citi		
Technology/Communication	$ 7,193,000,000.00	17.19%
Total Operating Expenses	$ 41,841,000,000.00	
Payout Ratio (2018)	109%	

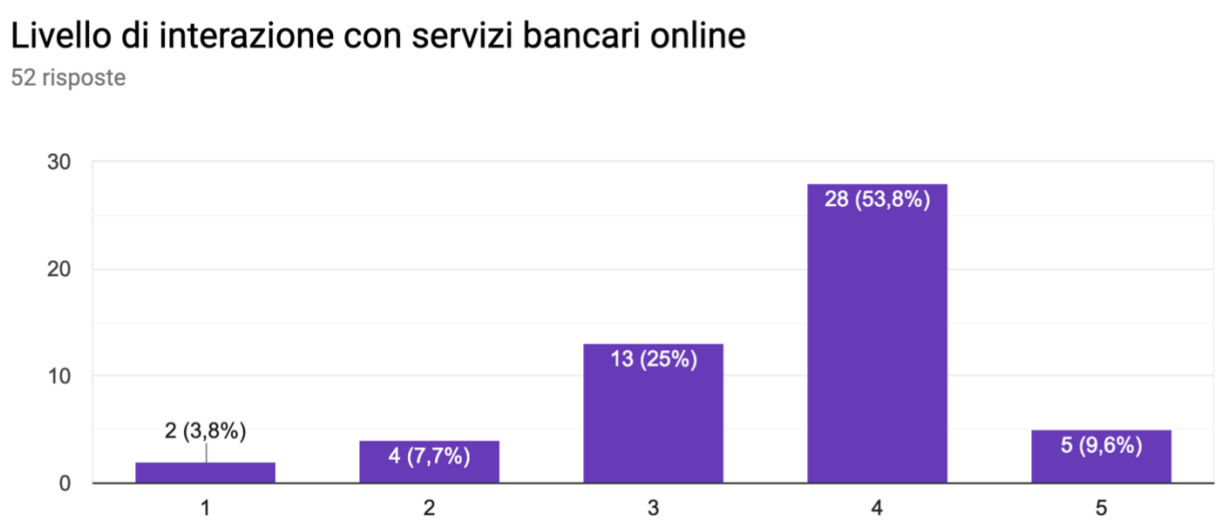
Wells Fargo		
Outside Data Processing	$ 660,000,000.00	1.18%
Telecommunication	$ 361,000,000.00	0.64%
Outside Professional Services	$ 3,306,000,000.00	5.89%
Total Noninterest Expenses	$ 56,126,000,000.00	
Payout Ratio (2018)	38.80%	
Goldman Sachs		
Communication and Technologies	$ 1,023,000,000.00	4.36%
Total Operating Expenses	$ 23,461,000,000.00	
Payout Ratio	12.50%	
Morgan Stanley		
Information Processing and Communications	$ 2,016,000,000.00	6.98%
Professional Services	$ 2,265,000,000.00	7.85%
Total Non-Interest Expenses	$ 28,870,000,000.00	
Payout Ratio	23.30%	
U.S. Bancorp		
Professional Services	$ 470,000,000.00	3.77%
Technologies and Communications	$ 978,000,000.00	7.85%
Total Non-Interest Expenses	$ 12,464,000,000.00	
Payout Ratio	32.30%	
TD Group US Holdings LLC		
Marketing and Business Development	$ 594,220,000.00	3.99%
Other Expenses	$ 2,721,720,000.00	18.26%

Total Non-Interest Expenses	$ 14,901,380,000.00	
Payout Ratio	43.30%	
Capital One		
Professional Services	$ 1,145,000,000.00	7.68%
Communications and Data Processing	$ 1,260,000,000.00	8.46%
Total Non-Interest Expense	$ 14,902,000,000.00	
Payout Ratio	13.45%	
Bank of New York Mellon Corp.		
Software	$ 772,000,000.00	6.89%
Business Development	$ 228,000,000.00	2.03%
Total Non-Interest Expense	$ 11,211,000,000.00	
Payout Ratio	26%	
HSBC		
Equipment and Software	$ 53,000,000.00	9.41%
Professional Fee	$ 100,000,000.00	17.76%
Total Other Expenses	$ 563,000,000.00	
Charles Schwab		
Professional Services	$ 654,000,000.00	11.74%
Total Non-Interest Expense	$ 5,570,000,000.00	
Software	$ 1,699,000,000.00	96.04%
Information technology equipment	$ 206,000,000.00	11.64%
Telecommunications equipment	$ 69,000,000.00	3.90%

Total equipment, office facilities, and property — net	$ 1,769,000,000.00	31.76%
Payout Ratio	18.78%	
State Street Corp.		
Information systems and communications	$ 1,328,000,000.00	14.8%
Transaction processing services	$ 938,000,000.00	10.5%
Total Expenses	$ 8,968,000,000.00	
Payout Ratio	27.58%	
Banco Santander		
Information Technology	€ 1,550,000,000.00	7.62%
Administrative Expenses	€ 20,354,000,000.00	
Payout Ratio	31%	
SberBank of Russia		
Telecommunication expenses	€ 336,000,000.00	3.61%
Total staff costs and administrative expenses	€ 9,307,200,000.00	
Payout Ratio	43.50%	
ING Group		
IT related expenses	€ 779,000,000.00	14.83%
Other Operating Expenses	€ 5,252,000,000.00	
Payout Ratio	56.20%	
UBS		
Technology Expenses	€ 3,500,000,000.00	51.49%
General and administrative expenses	€ 6,797,000,000.00	
Total operating expenses	€ 24,222,000,000.00	14.45%
Payout Ratio	76%	

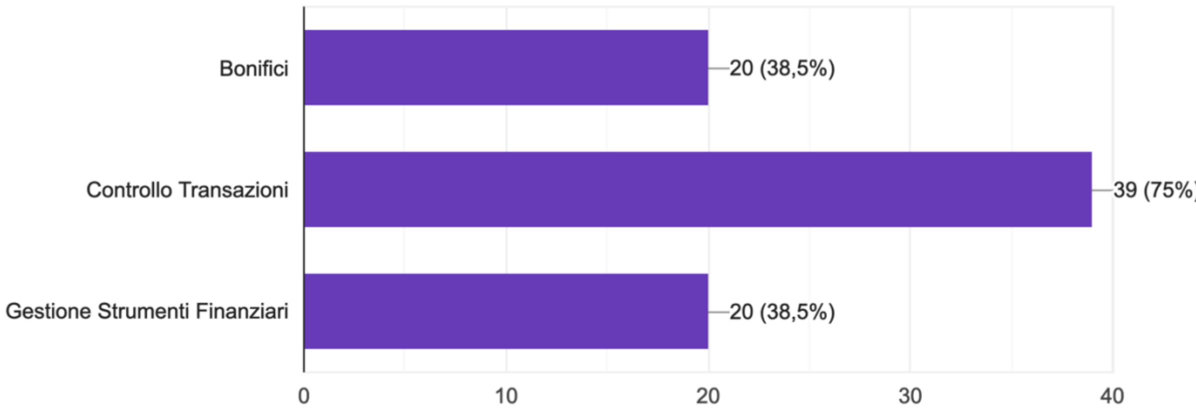
Royal Bank of Scotland Group		
Technology Costs	£ 171,000,000.00	1.91%
Administrative Expenses	£ 8,963,000,000.00	
Payout Ratio	40%	
Lloyds Banking Group		
Technology Costs	£ 786,400,000.00	16.00%
Other Expenses	£ 4,915,000,000.00	
Payout Ratio	57.60%	

Survey Results



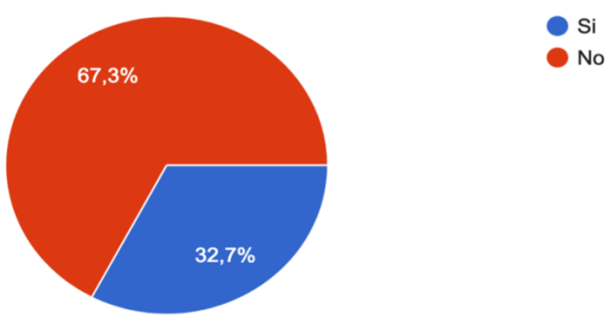
Quali tipi di servizi usi dalla tua piattaforma bancaria online?

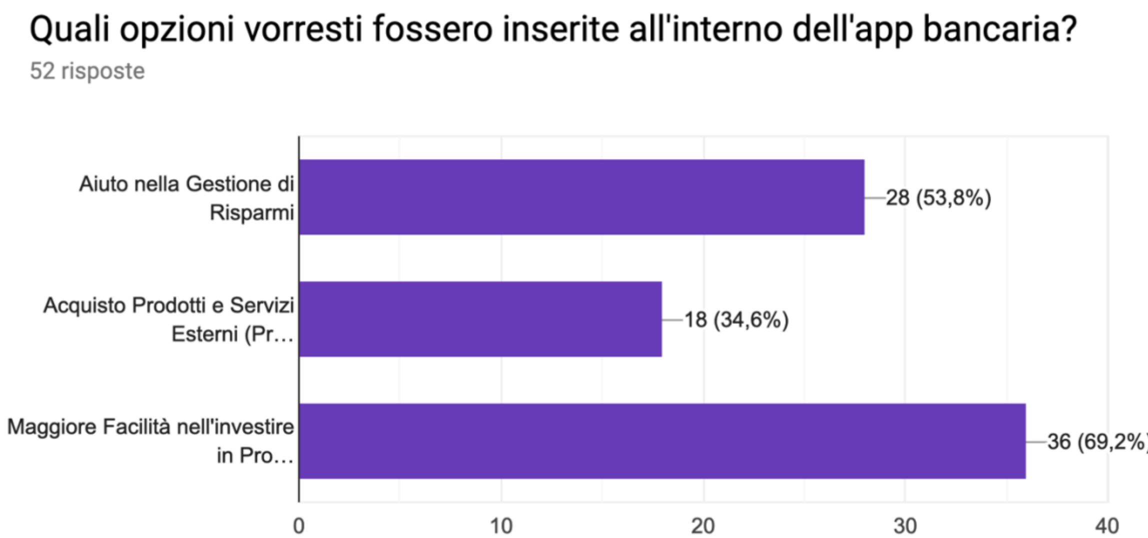
52 risposte



Pensi che l'attuale offerta bancaria online sia efficiente e soddisfi le tue esigenze?

52 risposte




Quali opzioni vorresti fossero inserite all'interno dell'app bancaria?
52 risposte
Aiuto nella Gestione di Risparmi
Acquisto Prodotti e Servizi Esterni (Pr…
Maggiore Facilità nell'investire in Pro…
28 (53,8%)
18 (34,6%)
36 (69,2%)
0
10
20
30
40