Business Models of Digital Microsavings and Micro-investment Solutions

Redefinition of the Personal Investment Services Ecosystem

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Table of Contents

1 Overview ................................................................................................................................................. 7

2 Definitions and Background ...................................................................................................................... 9
  2.1 Business Models .............................................................................................................................. 10
  2.2 Financial Technology Companies ................................................................................................... 12
  2.3 The Personal Finance Sector .......................................................................................................... 13
    2.3.1 Savings and Investments ......................................................................................................... 14
    2.3.2 Personal Financial Management ............................................................................................ 16
  2.4 Technological Background .............................................................................................................. 17
    2.4.1 Artificial Intelligence .............................................................................................................. 18
    2.4.2 Robotic Process Automation .................................................................................................. 19
    2.4.3 Big Data Analysis .................................................................................................................. 20
    2.4.4 APIs ........................................................................................................................................ 20

3 Database Structure ................................................................................................................................... 21
  3.1 Data Research Method ...................................................................................................................... 21
  3.2 Basic Information Section ................................................................................................................... 22
  3.3 Business Model Section ..................................................................................................................... 23
    3.3.1 Value Proposition and Concept Group .................................................................................... 24
    3.3.2 Revenue Streams and Pricing Strategy .................................................................................... 24
    3.3.3 Key Partners ........................................................................................................................... 25
    3.3.4 Target Customer Segment ...................................................................................................... 25
  3.4 Quantitative Information Section ....................................................................................................... 25
    3.4.1 Total Funding ........................................................................................................................... 26
    3.4.2 Customer Number .................................................................................................................... 26
    3.4.3 Application Downloads and Webpage Visits ........................................................................... 26
    3.4.4 Estimated Valuation .................................................................................................................. 27
  3.5 Qualitative Information Section .......................................................................................................... 27
    3.5.1 Platform ................................................................................................................................... 27
    3.5.2 Growth Stages .......................................................................................................................... 28
    3.5.3 Latest Funding Round .............................................................................................................. 29
  3.6 Data Analysis ....................................................................................................................................... 30

4 Landscape of Personal Finance Solutions ............................................................................................... 31
  4.1 Microsavings Services ......................................................................................................................... 32
  4.2 Micro-investment Services ................................................................................................................... 33
  4.3 Wealth Management Solutions ........................................................................................................... 34
4.4 Robo-advisory .................................................................................................................. 35
4.5 Trading Platforms ........................................................................................................... 37
  4.5.1 Social Trading Platforms .......................................................................................... 37
  4.5.2 Cryptocurrency Exchanges ....................................................................................... 38
4.6 P2P Lending Platforms .................................................................................................. 39
4.7 Personal Financial Management Services ...................................................................... 40
4.8 Digital Wallets ................................................................................................................. 42

5 Business Models of Micro-investing and Microsavings Solutions .................................. 43
  5.1 Value Propositions ......................................................................................................... 44
    5.1.1 Spare Change Concept ......................................................................................... 45
    5.1.2 Goal-based Savings Concept ................................................................................. 46
    5.1.3 Access to Investment Products ............................................................................. 46
    5.1.4 Automatically Calculated Savings Concept ........................................................... 47
    5.1.5 Other Concepts ....................................................................................................... 48
    5.1.6 Core Technology .................................................................................................... 49
  5.2 Pricing Strategies ........................................................................................................... 50
    5.2.1 Basic and Tiered Subscription Models ..................................................................... 52
    5.2.2 The Free for Customer Model ............................................................................... 52
    5.2.3 Other Pricing Models ............................................................................................ 53
  5.3 Key Partnerships ........................................................................................................... 54
    5.3.1 Offering Related Partnerships ............................................................................... 54
    5.3.2 Customer Related Partnerships ............................................................................. 56
    5.3.3 Internal Operations Related Partnerships ............................................................... 56
  5.4 Target Customers .......................................................................................................... 57
  5.5 Cost Structure ............................................................................................................... 58

6 Success of Micro-investing and Microsavings Solutions .................................................. 59
  6.1 Luring New Investors .................................................................................................... 60
  6.2 Steadily Rising Valuations ........................................................................................... 63
  6.3 Popularity Among Customers ....................................................................................... 65

7 Conclusion ......................................................................................................................... 67

References ............................................................................................................................. 69
1 Overview

“FinTech is changing the way we invest, raise capital, borrow, lend, pay for goods and services and save for retirement. It is reinventing currency, democratizing the flow of capital and giving rise to an entirely new generation of tech-centric financial leaders” (Albright et al. 2016)

We are living in the era of the emergence of disruptive financial technology solutions which is a watershed in the transformation of the financial services ecosystem. As a Business Informatics student at the Corvinus University of Budapest and a former student at the Budapest Business School in the same field with a specialization in IT for Financial Institutions, I acquired solid knowledge in both financial services and information technology solutions. For this reason, also adding my personal interest in these fields, I have become passionate about cutting-edge technologies and how these can be leveraged by a new wave of services in the financial and insurance industries, enabling them to build disruptive business models.

In September 2017, I have started working at a leading consultancy firm as a FinTech Analyst where I had the chance to further deepen my knowledge by analyzing the business models of hundreds of innovative financial services providers and the technologies they are based upon. As a novice personal investor, I became interested in the personal finance sector with a focus on the micro-investment segment where I have also gained practical experience by trying out several solutions available in our country. For all these reasons, I have decided to write my thesis about the business models of micro-investment services providers and how they can redefine the whole personal investment sector by making investment products accessible and attractive to the masses like never before.

The goal of my thesis is to examine if fintech is not just a buzzword but a real game changer in the investment industry and it is here to stay even after the hype has faded away. However, fintechs have already been existing for more than 10 years now; they have just gained popularity in the media recently, along with the excessive hype around cryptocurrencies. The major question is whether these innovative fintech solutions will
be able to generate profit in the long run in spite of the fact that most of them still cannot break even and if so, which factors can lead to long-term success. In order to find the answer, I have collected 101 companies providing personal financial services in all of the key subsectors and stored all the information in a database. Thereafter I studied their business models with a focus on their key offerings and distinctive features to define the differences and similarities in their core concept, and I performed both quantitative and qualitative analysis to determine their current position in the financial services ecosystem and to define their future possibilities.

In the first part of my thesis, I am going to write a brief theoretical introduction about the financial and technological background of fintech solutions, and the current trends on the market regarding the changing customer needs and emerging opportunities. Thereafter I present the structure of the Database introducing the attributes and the reasons why I used them, the way I collected all the information, and the method of the data analysis which serves as the basis of my statements.

The first two part is followed by a more practical section about the current fintech landscape focusing on the personal finance sector including detailed examples for each of the categories I used to group these solutions, followed by the analysis of the business models of micro-investment and microsavings solutions describing and comparing the most relevant elements of their business models including value proposition, pricing models, target customers, key partners and cost structures.

In the last part of my thesis, I am going to assess the current success of these companies and highlight those factors in the business models which can increase the company’s chance to long-term profitability. As a conclusion, I also try to answer some of the most important questions regarding the overall relevancy of digital micro-investment solutions in the transformation of the financial services ecosystem and where the competition between digital attackers and incumbent financial services providers may lead us.
2 Definitions and Background

Although the banking industry has just recovered from the financial crisis recently, the rise of the revenue rate has slowed down globally in 2015 and remained sluggish thereafter. The average ROE in the sector is half as much as before the crisis, and it’s still trending sideways just like the market capitalization. Incumbent financial services providers seem to lose market share as customers don’t trust banks anymore as they did before the crisis. Changing customer needs along with the emerging competition from digital attackers and technology companies challenge the supremacy of traditional financial institutions. (Dietz 2017)

New startups, digital attackers and even established financial institutions all try to come up with innovative and disruptive business models following the changing customer needs. The financial services industry is experiencing a revolution ushered in by the mass digitization and automation of services and business processes, which is going to change when, why, how and where we bank. The emergence of these technologies can be a threat or an opportunity for the banks as well; it only depends on how they can leverage it. According to a McKinsey analysis made in 2015, the revenues of traditional banks may decrease by 10 to 40 percent by 2025 regarding the major retail businesses like consumer finance, retail payments, or wealth management services because of the emerging digital competition. (Dietz 2017)

When I write about emerging technologies, I refer to data-driven AI solutions, process automation, and blockchains. All these can serve different purposes and revolutionize the business processes of a financial company. For example, the potential advantages of automation are widespread and reach far beyond operational cost reduction. First of all, it improves the interaction with the customers from acquisition to retention throughout the whole lifecycle. Seamless online user experience is crucial when dealing with millennials. It also improves the quality of the services by extending the human expertise with technology-driven elements. And finally, it has a significant impact on the costs by decreasing them through better risk management, fraud detection, optimization of business processes, and the elimination of human errors.
In the following sections, I am going to present the theory on which my thesis is based, as their understanding is essential to the further discussion of fintech business models, and the complex analysis of micro-investment solutions. I am going to introduce the Business Model Canvas that I use to visualize the building blocks of these models and the relationships between them, followed by an introduction on how financial technology companies work and why they have become so popular these days. Thereafter I am going to write about the personal finance sector, with a particular focus on micro-investment, microsavings, and personal financial management solutions. Finally, I summarize the technological background these solutions are built upon, and briefly describe each of them.

2.1 Business Models

“A business model describes the rationale of how an organization creates, delivers and captures value” (Osterwalder and Pigneur 2011).

In order to be able to understand how fintech companies work, what they do, how they differ from established financial players, and how they make money, we have to analyze their core business model. For this reason, I have chosen to leverage the advantages of the so-called Business Model Canvas or BMC which serves as a blueprint of the company’s strategy and allows to analyze all the important elements of a company’s business model in a universal and comprehensive way. A BMC consists of 9 building blocks, i.e., customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure. I am going to analyze five elements out of the nine such as customer segments, value propositions, revenue streams, cost structure, and key partnerships in more details. (Osterwalder and Pigneur 2011)

The four elements, without the cost structure, used in the qualitative analysis will be described in more details when introducing the structure of the Database in the third chapter. The reason why I have picked these four elements is that in my opinion, these may be the key areas where fintech companies can leverage disruptive ideas and hence they can differentiate themselves. As for the other parts, financial technology ventures
tend to use the same channels to reach their customers and deliver their services following the digital-only concept, and the same goes for customer relationship, because B2C investment services providers are usually driven by strong customer acquisition strategy, which they can do at a significantly lower cost level than incumbent financial institutions. Key resources, activities, and cost structure falls outside of the main scope of my thesis, and are not strictly related to the analysis except for the cost structure. The figure below shows the Business Model Canvas with its 9 elements, and how they are related to each other.

Figure 1: Business Model Canvas (TechVentures.London 2014)

However, fintech companies offer financial services in many different sectors, they can be aggregated into several groups which have distinctive characteristics, but the companies are quite similar within the same group. Therefore, in addition to the base elements of the business model, I have created grouping attributes for value proposition and revenue streams such as core offering concept and pricing strategy. The personal financial sector has a strong competition due to the increasing number of fintech players; hence ventures have to find a solution to gain a competitive advantage by offering better, or more products at lower prices, or by reducing costs. Furthermore, investment solutions
do not just tend to become accessible to a way broader customer segment, but they also
tend to expand to a global market supported by the worldwide transforming regulations.

2.2 Financial Technology Companies

FinTechs or financial technology companies which can be startups, established
technology companies, joint ventures or subsidiaries of financial institutions, leverage
innovative information technology solutions to offer distinctive services to customers or
other businesses and fundamentally change the way we pay, transfer, borrow and invest
money. FinTech companies typically focus on one particular segment of the banking value
chain and try to solve a specific problem. For this reason, they require a staff of highly
specialized experts regarding both financial and IT knowledge. (Barberis 2016)

However, fintech companies already existed years before that the term became widely
known in the recent years. PayPal, established in 1998, is a good example of how to use
technology to offer innovative services by a non-bank player. The road was not always
easy, but as of today, PayPal is a worldwide accepted digital payment platform with more
than 200 million customers who produced $131 billion in total payment volume in 2017
which means a growth rate of 32% compared to the previous year. (PayPal 2018)

The hype around fintech is often compared to the dot-com boom as the investors keep
investing increasing amounts of money into new ventures with promising game-changer
ideas. The most important question is, that their business model is sustainable in the long
run or not? In spite of a large number of potential failures, fintech companies are
reshaping the fundamentals of the financial services sector, and some companies have
already reached significant success by transforming into an ecosystem-like financial
services provider like Alibaba or Google. Leading financial institutions tend to open
innovation hubs for fintech startups, and run incubator and accelerator programs, and see
partners in fintechs rather than competitors. (Biedermann 2015)

However, innovative financial services companies have a strong competitive advantage
as they can operate at a significantly lower cost than traditional institutions. It is because
they don’t need to maintain costly branches, and they provide digital solutions with high
level of automation regarding all of their business processes enabling these players to
offer better prices for customers. Therefore, banks are forced to cut customer fees which is a potential threat to their profitable operation.

2.3 The Personal Finance Sector

Personal finance refers to every activity related to financial decision making by individuals or households including all the savings and investment options for individuals such as budgeting, microsavings, pension funds, trading platforms, crowdfunding, P2P lending, and buying of insurance products (First Bank n. d.). It also includes the so-called personal financial management solutions that typically provide account aggregation services allowing users to manage their finances within one single platform and digital wallets that serve as innovative payment solutions enabling customers to execute payments with their smart device without the need to hold a debit or credit card. All these major categories will be discussed in the following sections.

Personal financial management used to be interesting only for wealthy people as low-income individuals didn’t have enough money to save up for investment purposes or budgeting and tracking the spendings have always been a tough challenge for those who didn’t have the time for doing it by themselves and also couldn’t afford an advisor or financial institution to manage their money. However, fintech startups may reshape the whole sector by allowing individuals to perform such activities by simply using their mobile devices easily. According to the Bill and Melinda Gates Foundation, around 2 billion people living in poverty will open a bank account in the next 15 years and get the chance to use their mobile phone to save, spend, and transfer money. (Sillin 2017)

Financial technology companies make personal financial services affordable and simple, and so accessible to large masses. It began with the appearance of online and later mobile banking applications enabling customers to manage their finances in a simpler and faster way such as track their spending history or deposit money to a separate savings account. The increasing number of comparison websites help people to find the best solution that fits their needs including loans, insurance, or investment products (Sillin 2017). As new generations, like millennials, emerge the customer needs are also changing. These generations are self-driven and more conscious about their financial health, so they are more likely to use digital solutions to make financial decisions.
2.3.1 Savings and Investments

We have many different choices when we want to save money for the future. It depends on individual preferences such as the purpose and term of the saving, how much risk we are willing to take, and on external circumstances like the overall condition of the economy and financial markets. A risk-averse person prefers to choose investments with lower risk levels which can be a savings account at a trusted large bank, a government bond with outstanding credit rate, or a bond of a large corporation which is not likely to default. However, a risk-prefering person is likely to choose more risky assets to invest in such as stocks and derivatives. (Mazzucato et al. 2010)

Investment strategies and preferred asset types change in the course of time. Regarding personal investors, long lasting bullish trends on the stock market may lure more people to invest in stocks and related financial products while in periods of depression alternative investments may seem to be more attractive. These trends are constantly changing, and it is important to mention, that the movements of stock prices are not predictable; hence they follow the so-called random-walk pattern. The plot below shows the yearly performance of S&P 500 from 1927 to 2018. The green bars refer to a bullish market while the red bars refer to bearish periods. As we can see, several major corrections happened in this period, but they never lasted longer than a few years.

Figure 2: S&P 500 Historical Annual Returns from 1928 to 2018 (Macrotrends 2018)
People save money for various purposes such as for unexpected future expenditure, to purchase a product or service (a new car or home), for retirement, and healthcare. People expect a return on savings which is higher than inflation, but the expected return is correlated with the risks of the investment. Financial products can be categorized by their risk level. The least risky products are savings accounts held by traditional banks or digital attackers followed by fixed income assets such as government and corporate bonds, and shares while derivatives are the riskiest hence they have the highest potential return. The table below presents the most typical investment products, their exposure to risks, and their short definition, ordered by their risk level from the least risky to the riskiest one. (Mazzucato et al. 2010)

Table 1: Definitions and risk levels of investment products (Own creation based on information in Parry 2003)

<table>
<thead>
<tr>
<th>Product name</th>
<th>Risk level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings account</td>
<td>Low</td>
<td>Money deposited at a financial institution which usually pays an interest on the funds.</td>
</tr>
<tr>
<td>Government bond</td>
<td>Low</td>
<td>A legal contract between a government and the holder, in which the borrower promises to pay the holder a predefined interest rate for a fixed duration and also redeems the face value on maturity.</td>
</tr>
<tr>
<td>Corporate bond</td>
<td>Medium</td>
<td>Same as government bonds, where the borrower is a corporation instead of a government.</td>
</tr>
<tr>
<td>Investment fund</td>
<td>Medium</td>
<td>A mean of pooling funds allowing investors to diversify their investment assets. It can be a mutual fund or an investment trust.</td>
</tr>
<tr>
<td>Shares</td>
<td>High</td>
<td>Stocks represent ownership in a given company and the right to receive a portion of the company’s profit in form of dividends.</td>
</tr>
<tr>
<td>Derivatives</td>
<td>Very High</td>
<td>Tradable instruments derived from other assets. They can be futures, options or swaps, and their pricing is based on a certain underlying asset which can be a commodity, currency or security. It is usually used to speculate on the asset’s movements.</td>
</tr>
</tbody>
</table>
Microsavings and Micro-investments

Microsavings refers to the act of saving and investing small amounts of money frequently which can add up in the long run. It can be useful for young or low-income people who don’t have enough assets to invest it at incumbent investment services providers (Williams 2016). The two terms, i.e., micro-investment and microsavings are often used interchangeably but they are slightly different. In case of microsavings, the deposited amounts are usually held at a savings account which can pay a low-interest rate but the main purpose is to keep the money at a safe place until the total deposits reach a specific goal. In case of micro-investment solutions, the money is not just simply held safely at a separate account, but it is also invested in any kind of financial instrument like ETFs, stocks, bonds, cryptocurrencies, etc.

According to a recent research, over 80% of the UK population doesn’t make regular savings as they think that they don’t have a disposable income. In addition, investing money is very unattractive to people and they find it boring to deal with personal financial management. Micro-investment solutions may provide a solution for this problem as it offers an easy and quick way to its customers to save even very small amounts of money frequently (Williams 2016). Another research states that 52% of millennials in the US have less than $1,000 in total savings, while this number is even bigger in the whole population with about 62%. (Berman 2015)

2.3.2 Personal Financial Management

Personal Financial Management or shortly PFM solutions allow customers to control their finances with a single application by enabling them to link one or more accounts so that they can track all their spending and income. Due to the account aggregation service, users are no more needed to sign in many different applications and can more easily handle their budgets. Some solutions provide AI-based algorithms that can analyze the spending habits of the user, categorizes all the transactions under labels like shopping, transport, or entertainment, and suggests monthly savings amounts that the user wouldn’t miss. Some major banks have already integrated such services within their original mobile banking application. (Barberis and Chishti 2016)
2.4 Technological Background

Fintech companies would not be able to offer disruptive solutions without the underlying innovative technologies. In this section, I present the most important technologies the fintech revolution is based upon and how these can be leveraged to improve services like enhanced product features, or customer care and internal operations like process automation, or advanced data analytics platforms. All the fintech solutions using any of these innovations are in a different stage of maturity and so having their specific place on the so-called Gartner hype curve which can be seen in the figure below.

Figure 3: Gartner Hype Cycle and fintech solutions (Own creation based on information in McKinsey 2017)

As the figure above shows the majority of the B2B solutions have already reached the productive phase, while the B2C solutions are mostly on the peak of the hype cycle. Robo-advisory, B2C payments and P2P lending solutions are currently in the phase of disillusionment, however the expectations from wealth management solutions, blockchain technology, artificial intelligence and machine learning solutions, and anti-fraud solutions are still surging towards the peak. (McKinsey 2017)
The Gartner hype cycle graphically represents the change of the expectations over the course of time for each emerging technology. The curve starts with the innovation trigger surging fast toward the peak of inflated expectations. After reaching the peak there comes the sudden plunge as a result of disillusionment. We can see this pattern often in history when looking at financial bubbles like in case of the tulip mania, the dot-com or the most recent cryptocurrency hype.

As the technology becomes more mature expectations begin to rise again following the slope of enlightenment until reaching the productive plateau. From a company’s point of view when investing in a new technology it is crucial to decide in which phase it wants to join. Early adopters chose to do it in the very early stage which means also a very high level of risk. Most companies chose to wait until the new technology matures and can be used more efficiently with less risk. (Gartner n. d.).

In the following sections I briefly introduce some of the major emerging technologies such as artificial intelligence including machine learning, deep learning, and natural language processing technologies, robotic process automation, big data analytics, and also open APIs that can be leveraged by financial technology companies. My purpose is not to dive deep into the theory and technological background of these solutions but rather allow to understand why and how they are relevant to fintech services and what are the benefits or risks to use them.

2.4.1 Artificial Intelligence

Artificial Intelligence developments began decades ago but after a great number of disappointments, the technology is mature enough to give beneficial advantages for the early adopters. AI is used in manufacturing, forecasting systems, customer care services, and many other industries let just think of self-driving vehicles. Some of these solutions are still in the experimental phase but in advanced data analytics, AI has already begun to show real benefits. Several companies have already built their core business around AI technology in both the B2B and B2C sector. (Bughin et al. 2017)
The financial services sector is one of the leading investors in artificial intelligence. The current adoption of AI technology among financial services companies is around 28%, just a few percent less than in case of the communication and automotive industry. In the following 3 years financial services companies plan to further increase AI spending with over 11%, outperforming all the other sectors. One of the most important area in AI technologies is deep-learning, which utilizes neural networks to generate high accuracy predictions. The learning process of these networks requires enormous amount of data which is rarely available and so limiting the performance of the predictions. The rapidly increasing computing power of today’s computers enables these technologies to be mainstream. (Chui et al. 2018)

2.4.2 Robotic Process Automation

Robotic Process Automation or RPA allows companies to automate routine tasks such as data manipulation, creating documents, or reporting. These robots use the same user interface to communicate with the system as a living person would do. RPA enables companies to significantly increase productivity by reducing conversion times in business processes, and by eliminating human errors. Established financial institutions began to leverage RPA in their day-to-day work-flow showing significant achievements. Intelligent Process Automation or IPA is a new tool that combines the benefits of more underlying technologies like RPA, machine learning, natural-language generation, and cognitive agents. IPA can not only reproduce human activities but it can also learn how to do it better over time, hence it is expected to significantly enhance efficiency. (Berruti et al. 2017)

Another benefit of automation is that it frees the human resource from repetitive routine tasks so that they can focus on more complex projects. By leveraging RPA and other business process automation tools both incumbent and digital attacker financial services providers can increase their productivity to a new level while also reducing costs and providing a higher quality customer experience. According to McKinsey, there will be a new wave of automation in the banking industry within the next years and they expect that 10 to 25 percent of the business processes will be automated and it will increase efficiency, consistency, and speed. (Weinberg et al. 2017)
2.4.3 Big Data Analysis

Big Data powered solutions are very popular among fintech companies. The financial services industry is one of the major consumer of Big Data technologies, especially for predictive analysis in the lending sector. Advanced predictive analytics platform enable online lending companies to quickly and effectively aggregate and analyze customer related data. This way of automated scoring and risk assessment helps lenders to reduce decision making time hence shorten the whole origination process. Customer data analytics is another example how companies can leverage Big Data. By accessing and analyzing all the available data for each customer fintech companies can increase offer value and further personalize services. (Kh 2017)

2.4.4 APIs

Application Programming Interfaces or APIs are an essential part of the fintech ecosystem as they enable financial institutions and digital attackers to connect and share real-time data with each other and third party applications in a standardized and secure way, therefore APIs help to strengthen the collaboration between banks and fintech startups from which the customers can benefit the most. In the future, large financial institutions may serve as back-end solutions providing direct access to financial data for fintech companies that offer the front-end with applications of high quality user experience. (Anzelone 2017)

Many sectors in the fintech landscape use APIs for their core offering. The major sectors are online lenders, payment gateways, authentication providers, and digital asset exchanges. Other solutions like Personal Financial Management applications use APIs to communicate with the user’s banks to aggregate all the data. These open “self-service” interfaces also help third-party ventures to reduce development time and costs by providing simple and easy integration.
3 Database Structure

The Database has 101 entries, each of them representing a company with a B2C business model operating in the personal financial services industry and it is referenced throughout the whole thesis with a capital first letter. The solutions are further grouped by subcategories and have a detailed profile including basic information, business model, quantitative and qualitative information using 19 different attributes in total. In this section, I present how I have collected the all the data into a database, which groups of information I have examined, and what kind of values can have each of the attributes.

The Database has been created in form of a Microsoft Excel workbook with two spreadsheets; the sheet with the database is called “Datasheet” and the sheet for all the analysis is called “Analysis”. On the first sheet, I included all the data I have collected about the companies in a table with 101 rows without the headers, and 22 columns including solution’s name, the attributes, and a column for information which did not fit any of the other attributes. The analysis of the data has also been performed using MS Excel, the detailed method will be explained in the last part of this section. The workbook is attached to the digital version of my thesis under the name “Fintech_Database.xlsx”.

3.1 Data Research Method

All the information in the Database has been gathered from public online sources such as company websites, official disclosures in forms of blogs and social media posts like Twitter and LinkedIn, or interviews made with representatives of the companies by reliable online journals like Financial Times and Forbes. Hence startup companies usually undergo rapid changes, especially in their seed and early growth stages, the information which was up to date when analyzing the Database has maybe already changed and outdated. The data collection has been performed by the end of February 2018 which means that any event that occurred since then is not included in the Database. In all of the cases when any relevant data for an attribute wasn’t available on either of the public sources, I put an “n/a” in the given cell.
The basic company data along with the funding information, i.e., funding stage and total funding amount relies on information available on Crunchbase\(^1\) and Dealroom\(^2\). In most cases, the number of monthly website visitors is also available on Dealroom, as well as an estimation of the valuation along with the date when the calculation happened.

The business models are described based on available detailed information on the providers’ proprietary websites including the key features of the products and services they offer, their pricing structure and some key metrics related to their past performance. All this information can be found either on the specific subpages to which we can navigate from the menu bar, or in the Frequently Asked Questions section. The base URL of these websites can be found in the basic information section for each company.

### 3.2 Basic Information Section

This section includes some basic information about the ventures in the list such as three levels of categories, launch year of the solution, headquarter of the company, and the base URL of the company’s webpage. This information can be used to better categorize and group the solutions, hence allowing to filter down for subcategories or specific geographical regions. The headquarter location is not necessarily showing the target region of the solution which can either be the same country, a broader area, or it can even serve the global market.

**Categories and Subcategories**

I distinguished four main categories in the Personal Finance sector such as Savings, Investment, Personal Financial Management, and Digital Wallet. Savings solutions can be specialized in Microsavings or savings for Pension, while Investment solutions have five different subcategories such as Micro-investment, Trading Platform, Wealth Management, P2P Lending, and Crowdfunding. Trading platforms are divided into two different groups such as Social Trading and Cryptocurrency Exchanges. Wealth Management has a special subcategory called Robo-advisory.

\(^{1}\) https://www.crunchbase.com/
\(^{2}\) https://app.dealroom.co/
All these categories will be explained in further sections and examples will be introduced in the fintech landscape. The figure below shows each category and the hierarchical relationship between them.

**Figure 4: Structure of the categories and subcategories used in the Database (Own creation based on the Database)**

3.3 Business Model Section

The business model section includes descriptive information about its most important elements such as value proposition, concept group, revenue streams, pricing strategy, key partners, and target customer segment. Proposition and revenue streams are the most detailed attributes of a solution because the deep understanding of these two building blocks of the business model can be especially useful when comparing these companies and examining the factors of their past, present, and potential future success. These attributes are also helpful in searching for differences and similarities. Information in this section has been gathered from the companies’ own websites and disclosures.
3.3.1 Value Proposition and Concept Group

The value proposition is ‘what’ the company offers in order to satisfy customer needs and to make profit at the same time, and it can be crucial in respect of long-term success. A well-defined, distinctive proposition in accordance with the whole business model is a solid ground for continuous and stable prosperity (Osterwalder and Pigneur 2011). This section is about the particular product or service the company offers to its customers, including the main features and the underlying technologies. The examined companies provide very similar products in each category, hence I created an attribute with the name Concept group, which supports the analysis of the business models by the categorization of the core concept of the value proposition.

3.3.2 Revenue Streams and Pricing Strategy

This section describes how the company makes money. The pricing strategy helps to group the solutions, while the revenue streams include detailed information about the way the company earns money. Companies use various pricing models such as subscription, tiered subscription, usage-based fees, commissions, freemium services, etc (Osterwalder and Pigneur 2011). In the revenue streams attribute, I included exact numbers related to the charged fees. The currencies used in this attribute may vary depending on the location of the company and the currencies they use on their websites.

Some solutions are free for the end-users, in these cases their revenue sources are either partner businesses or they plan to charge fees only after they have reached a certain number of users. I included all this information to every solution in the Database where the company has disclosed it on its proprietary website. The size of the user base plays an essential role in success, hence it is crucial for B2C startups to be able to lure enough customers in a given time period. It will be analyzed in later sections how successful these companies have built their customer base in order to pass an essential milestone in long-term viability.
3.3.3 Key Partners

Fintech startups, especially in their early growth stages, usually cannot generate enough revenue to make profit or just to break even, hence any kind of partnerships can be advantageous for them. These partnerships can either help to increase revenues or decrease any kind of costs. According to Osterwalder, there are four types of partnership such as strategic alliances between non-competitors, or competitors, joint ventures, and partnership with buyers and suppliers. Fintech ventures can leverage any kind of these relationships, the most common are strategic relationships. Information about partners is usually available on the company’s website, otherwise, I searched for them in articles of relevant online journals.

3.3.4 Target Customer Segment

This section defines the particular target market or markets of the solution which includes the target geographical region where the product is available, and any special characteristics of customers like their age, average income, consuming habits. Fintech startups mostly target a mass market including millennial retail customers. As for the income, targeted groups can be low-income, affluent, and high-net-worth individuals. Several solutions target more than one segment with different offers, for example, wealth management fintechs often provide tiered fees for customers based on the invested amount, and also provide private advisory services for wealthier clients.

3.4 Quantitative Information Section

This section consists of 5 different attributes that can be used for quantitative analysis, such as total funding, customer number, application downloads, monthly webpage visitors, and valuation. Some of these attributes contain additional information like the date of the given numbers or it is only an interval, hence in order to make these attributes useful for calculations I created auxiliary columns containing only numerical values based on the original ones, for example in case of intervals I calculated the means, and I erased the descriptive parts such as dates and resources.
3.4.1 Total Funding

This attribute represents the total received funding until the date the research has been done. It sums up all the funding rounds happened in the past with a disclosed amount by any kind of investors. This information has been disclosed in almost 80% of the cases either on Crunchbase or on Dealroom. Besides the valuation, it is one of the most important metrics in the Database that helps to determine the success of a company. Investors only fund ventures with huge potential growth in size and profits.

3.4.2 Customer Number

The customer number of a specific solution is often difficult to find or it is not disclosed anywhere at all. Some companies disclose it on their website but the majority keeps its numbers in secret, hence less than a half of the solutions in the Database has an up to date value for this attribute. It is important to mention that the date of these numbers may vary from 2016 until March 2018, considering the latest available information as a reliable measure of the scale of the customer base. Furthermore, under customer number, I always mean the size of the active users i.e. those who actively and recurrently use the particular product of the company, excluded those who only registered and deleted the application after the first use.

3.4.3 Application Downloads and Webpage Visits

These numbers can also help to estimate the popularity of the solution and hence also the size of the customer base in case there is no direct information disclosed. The application downloads numbers refer to the interval disclosed on Google Play at the date when the research took place. As Apple does not disclose such information this can also serve just as an estimation for the total number of downloads. However, most of the listed fintech solutions provide native mobile applications, some of them are only accessible via a web browser or desktop application. In case of a web-based solution the number of the monthly webpage visitors is the relevant choice to consider, but regarding multiplatform solutions both of these attributes can be important to check.
3.4.4 Estimated Valuation

All the valuations are estimations performed by Dealroom on different dates, hence I included the date of the creation of each value. In most cases, the estimation is not a specific number but an interval, hence they couldn’t be used for calculations, therefore I have created an auxiliary column in the table where I used the mean values of these intervals. This metric plays an important role in defining the success of the ventures because it is based upon the total assets of the company and the potential future cash-flows. However, in several cases, there was no available data about this metric.

3.5 Qualitative Information Section

The qualitative information section is divided into three important area, including the used platforms, the latest funding round, and the current growth stage. All these information can be used to group the solutions in the Database and to find correlations with other measures. The latest funding round and the current growth stage are closely related, they determine one another. To choose the right platforms, through which companies provide their products can be crucial to effectively address the target market.

3.5.1 Platform

Fintech companies have one thing in common, they all leverage technology not only to optimize and automate internal operations or to offer a disruptive product but also to improve customer relations, including the channel they use to reach their customers. Fintech services are all available online, the difference is only in the used platforms, which typically depends on the target customer segment. Solutions focusing on millennials often use the mobile first approach, as smartphones serve as the primary source of information for this segment. Wearables like smartwatches are also popular among millennials, which can be used also as a platform for interaction.
Some fintech providers offer a native mobile application, in this case, I use the mobile tag, and the same goes for the watch tag. Companies may prefer to develop a single web application, in which case the web tag is used. The advantage of this approach is that a web application is platform agnostic, so they are accessible from any kind of devices, all they need is an internet connection and a compatible browser. Some solutions don’t need a separate web application, so the functions can be integrated simply into their webpage. The web tag is used in this case as well.

3.5.2 Growth Stages

The business lifecycle of ventures consists of different stages, and each stage has specific characteristics. I use three distinct stages, starting with seed, which refers to the earliest period following the foundation. In this stage, ventures focus on developing their product, service or preparing for the market penetration. Therefore, they usually require investments in form of seed funding rounds, typically through venture capital firms, or angel investors, who are wealthy individuals. These investments are very risky, as the business models of seed stage ventures often undergo structural changes, redefining their target market or even their value proposition.

After a successful initial market penetration, ventures begin their early growth stage, which is a period of rapid growth in both customer acquisitions and revenues, although ventures rarely have positive cash-flows at this far. Series A and B funding rounds can be necessary to further develop their existing products, and to target a broader customer segment. (Whitehouse 2015)

Late growth stage ventures typically have a strong market presence with a well-known product. Businesses begin to generate stable profits but may need additional funding to sustain further growth as in forms of Series C, D, E, etc. rounds. Ventures may also start to position themselves for a potential exit, which can be an acquisition or a filing for an IPO\(^3\). Deciding whether to stay private or to go public is of utmost importance regarding the future of the company. (Whitehouse 2015)

\(^3\) Initial Public Offering - First offering of shares to the public by a private company. It is used to raise new funds and to achieve a listing on a stock exchange. (Parry 2003)
Exits can happen at all stages, but it is the most common when the venture reaches maturity. Large financial players such as established mortar banks, or digital attackers may see a great opportunity even in very early stage ventures, so they partner with them, or in many cases, acquire them. Ventures with a potential for sustainable further growth can decide to raise capital by going public, i.e. filing for an IPO. After this happens, the company’s shares will be publicly available on the stock exchange. (Petch 2016)

Unfortunately, not every fintech startup will be a success story, the risk of failure is really high especially in the seed and early growth stage. Closures can happen intentionally, or caused by internal or external events such as insolvency. As in case of any other industry, without a clear, well-structured business model, having a good idea is not a sufficient factor for a long-term success.

3.5.3 Latest Funding Round

As already mentioned in the growth stages section, ventures may need funding in each of these phases with different purposes. Seed rounds happen in the seed stage, along with equity crowdfunding, convertible note, debt financing or angel investments, when capital is needed for product development and initial market penetration. In the early growth stage, investors inject capital into ventures which have a potential for long-term success, while ventures need capital mostly for customer acquisition and for rapid scaling. These can be Series A and B funding rounds, but Early Venture Capital and Venture Round terms are used as well. In the late growth stage, Series C, D, E, F and G rounds are used, along with Late Venture Capital. Even public companies may need capital from external sources, which can be a Post-IPO Equity funding.

The information about the latest funding round together with the total funding amount can serve as a reliable measure of the venture’s performance and future potential. Investors expect a certain return on their investments, hence they perform quantitative and qualitative analysis of the ventures’ historical performance, using it to predict future gains and losses.
3.6 Data Analysis

The quantitative and qualitative analysis of the data in the Database serves as the backbone of my thesis. The three levels of categorization and grouping attributes have made it easy to create reports from the original table. The analysis has been performed manually using MS Excel tools like pivot tables and charts to visualize the outcomes. All these reports and graphs are included in the Excel Database workbook on a sheet called “Analysis”.

In order to create simple and easily readable charts sometime I had to exclude the outliers which were remarkably common in the Database. It is because the ventures in the analyzed sector vary significantly in every quantitative aspects such as funding, valuation, customer numbers, etc. These differences made it sometimes difficult to compare the solutions especially those that has been launched in different years hence they were in different stages of growth and maturity.

When I used any information from the Database or drew conclusions after qualitative analysis of the information in it, I have always referenced the Database as the source. In case of figures I created the base visualizations in the Analysis spreadsheet of the Database and copied them to the thesis with an adequate formatting. I included nine figures in total based on the Database that represent either qualitative or quantitative analysis. As the last update of the Database was in February 2018, it shows only information until this date, however, some values may have already changed since then.
4 Landscape of Personal Finance Solutions

Fintech companies provide financial services to a larger customer segment than traditional banks do. Especially in developing countries and rural regions where a greater number of people are still underbanked either because they don’t have enough money to pay the high fees for banking services or they just don’t have an access to a physical branch nearby. However, they have at least a cell phone enabling them to use digital financial services. Despite their usually deficient infrastructure, they have the advantage that they lack legacy systems in the financial sector compared to developed countries, so they can implement the latest technology immediately without the need to comply with the already existing sophisticated systems and regulations. (Barberis and Chishti 2016)

As to create a personal finance landscape my intention was to discover the most popular solutions of the sector and also try to distinguish the different categories of these solutions based on their business models. I gathered altogether 101 fintech startups from all over the world which companies cover all the major categories in personal finance services. We can distinguish nine categories such as savings, investment, personal financial management, wealth management, robo-advisory, trading platform, p2p lending, digital wallet and crowdfunding solutions, with an emphasis on the first 6 categories which represent about 90% of the total count of the companies. The following figure shows the most popular players in six area which offer some kind of investment solution.

Figure 5: Personal Finance Fintech Landscape (Own creation based on the Database)

B2C Personal Finance Landscape
The focus of my thesis is on two subcategories of investment and savings solutions, i.e. microsavings and micro-investment services. There are 30 relevant solutions in the Database from which 9 are micro-investment and 21 microsavings solutions.

4.1 Microsavings Services

Microsavings solutions allow customers either to regularly save small amounts of money to reach specific financial goals, also called goal-based savings, or just to gain better control over their personal budget. The business models of this group of services will be examined in detail in the fifth chapter along with the closely related micro-investment services, however, the concept on which these solutions are based, tend to be the same. The user can link an existing current account from which small amounts of money will be deducted based on predetermined rules, purchases made with the linked debit or credit card, or manual transfers.

As we can see, the most important thing here is the capability of regularly and cost-effectively transferring very little amounts of money, usually less than $1, from one account to another. These solutions are relatively new to the market, 14 out of 21 have been launched after 2015 with Qapital having the earliest launch year as of 2012. The headquarters of these companies are mostly in the United States or Europe but there are a few solutions from Latin America and Africa as well. With only 3 exceptions (Oinky, Plum, SAVR), all the solutions provide a native application for mobile devices. Plum which is an AI powered chatbot solution, differs from the others as it operates within the Messenger application of Facebook and doesn’t provide a separate platform.

The 21 microsavings providers received nearly $127.5 million in total funding from 2012 to 2017 from which 52% was seed funding round and 29% early stage Series A and B rounds or equity crowdfunding. Excluding the 3 solutions in which case there is no available data, all the companies are still in the seed or early growth phase with an increasing but rather small customer base with 100,000 - 500,000 application downloads in most of the cases. The average estimated valuation of the companies within this sector is $40.38 million which figure is one of the lowest compared to sectors like robo-advisory, P2P lending, and cryptocurrency exchanges.
Important players of this sector are: BoostUp, Chime, Chip, Clink, Digit, Dreams, Emma, Limitless, Moneybox, Oinky, Pensumo, PiggyBank, Plum, Savedroid, Qapital, Rize, SAVR, Shift, Tip Yourself, Zave.

4.2 Micro-investment Services

Micro-investment solutions offer low cost and mostly automated investment services for individuals who don’t have time to deal with financial analysis or don’t have enough knowledge of financial markets. Just like microsavings solutions, generally, they also require a connected existing current account from which small amounts of money will be deposited to the specific investment account. These deposits are usually invested in ETFs\textsuperscript{4} which became a very popular choice among micro-investment services providers because of their multifarious advantages like low fees, and they are easy to trade. Due to the investment in this kind of security, customers are no longer required to meet minimum investment limits, hence they can have a diversified portfolio with as low as a few dollars.

The main goal of these services is that they provide access to financial markets for a way broader customer segment than established financial institutions such as mortar banks or investment funds do. All of these services try to lure millennials and first-time investors to get involved in financial markets, hence also offer them the opportunity to develop financial responsibility. Acorns and Robinhood show how popular these solutions are, the former has about 2 million while the latter has already over 3 million active users in the United States. 7 out of the 9 solutions in the Database are headquartered in the US and provide services only for US residents.

\textsuperscript{4} Exchange Traded Funds - Securities which track the price movements of a basket of different underlying assets, and can be traded like stocks allowing small investors to diversify their investments in a flexible way. (Parry 2003)
The other two solutions are Mylo from Canada which currently is in a beta testing stage, and Scripbox from India already having over 350,000 active users. Micro-investment solutions are present on the market relatively longer than microsavings services providers, 5 out of 9 companies has been founded before 2014 including the leaders of the sector.

Important players of this sector are: Acorns, Divy, Dvendo, Mylo, Robinhood, Scripbox, Stash, Stockpile.

4.3 Wealth Management Solutions

Wealth management services providers have been existing for almost 10 years now but new solutions launch almost every year. These fintech solutions provide access to investment products to a larger segment of customers than traditional institutions or brokerage firms. It is because they apply much lower fees and the required minimum amount can also be as low as a few hundreds of dollars. They can do this by offering low cost investment products like ETFs and mutual funds. These services are relevant to people who want to invest their savings but don’t have enough time to deal with capital markets personally. Online wealth managers usually leverage machine learning algorithms to analyze markets in order to build the best portfolios to minimize the potential loss by diversification. AI can also be used to analyze the client’s behavior and risk tolerance so that they can offer the best option.

Fintechs in this segment mostly use the same pricing strategy which is a tiered subscription model based on the invested amount of money usually ranging from 0.19% to 1% and the lower fees are applied for larger investments. This model is used by 69% of the examined solutions while the others provide either a commission based model or a free service for customers. In the latter case, the company earns money through the fund it invests in its customers’ money. The targeted customer segment may vary from solution to solution, some of them target affluent and high-net-worth individuals while others target the low-income population but in both cases, they offer their services significantly cheaper than established wealth managers do.
Strategic partnerships are essential especially for those players that hold the pooled investments at other investment providers like mutual funds, asset managers, or incumbent large banks. The 9 companies in the Database received $622 million in total funding and each startup got $52 million funding on average which is the fifth highest amount within the 9 sectors I analyze. Wealth management companies are typically more mature than for example micro-investment platforms. Only 2 ventures are in the seed stage and 3 others in the early growth phase while half of the solutions are in their late growth stage. There were two exits by acquisitions, FutureAdvisor has been acquired by BlackRock, the largest asset manager in the world with $6.3 trillion AUM, for $150 million and Wealthify has been acquired by Aviva, a British insurance company, for an undisclosed amount.

The solutions are provided as web and native mobile application with two exceptions which are only available via the web browser. Most of the mobile solutions are available for both iOS and Android platforms but 2 applications are only for Apple devices. Wealth management applications are quite popular with 150,000 downloads on average. Personal Capital and FundsIndia have the largest disclosed customer base with over 1 million users in both cases. The total valuation of these 9 companies slightly exceeds $0.5 billion and the average estimated valuation of a company is around $68 million. The majority of the companies is headquartered and operates in the United States or the United Kingdom, although there are some solutions from other countries such as Spain, Singapore, and India.

Important players of this sector are: Fisdom, FundsIndia, FutureAdvisor, Hedgeable, Indexa, Kapitall, Moneyfarm, Nutmeg, Personal Capital, SigFig, Smartly, Wealthify

4.4 Robo-advisory

Robo-advisors are quite similar to wealth management services, the difference is that they are fully automated investment solutions mainly targeting millennial and first-time investors. They provide a predetermined and well-diversified portfolio that is continuously managed by rebalancing algorithms. Robo-advisors usually have four distinct characteristics: they provide full digital access for users, leverage automatic
rebalancing algorithms, provide passive management, and are tailor-made based on individual goals and preferences. The most important advantage of these solutions is that they are significantly cheaper than their traditional competitors, while they are also simply accessible to a way broader market by democratizing wealth advisory services that have been previously available for only wealthy individuals. However, robo-advisors target not only the low-income population but also affluent and high-net-worth individuals. (Barberis and Chishti 2016)

I have analyzed 12 robo-advisors from three continents including North America, Europe, and Asia. The two most popular platforms Betterment and Wealthfront have been launched in the United States in 2008 and now have together over $19 billion assets under management. These numbers may seem to be quite small compared to traditional asset managers like Vanguard’s $5.1 trillion or BlackRock’s $6.3 trillion but according to experts, robo-advisors may increase their total assets under management by more than $800 billion in the next 5 years. The popularity of these solutions is soaring as they offer low-cost investment solutions with smart portfolio rebalancing and automated tax-harvesting services. (Friedberg 2018)

Robo-advisors just like wealth management solutions invest the customer’s money into a portfolio made of ETFs which allows them to keep fees low. All the solutions in the Database use a basic or a tiered subscription model with annual management fees ranging from 0 to 1.6% of the invested amount. In case of tiered subscription, fees are higher for low balance accounts. These companies mostly target millennials who are residents of the country they operate in, but there are a few solutions like ETFmatic, Easyvest, and StashAway which are accessible in several countries.

Important players of this sector are: Betterment, Easyfolio, Easyvest, ETFmatic, Evervest, Growney, StashAway, Vaamo, Wealthfront, Wealthsimple, WiseBanyan, Yomoni.
4.5 Trading Platforms

Trading platforms have become very popular recently. They provide access to different kind of financial assets and can be further divided into two special groups like social trading and cryptocurrency exchange platforms. Each of these categories has its own characteristics and specific business models and they are usually monetized by charging commission fees and using larger spreads. I am going to analyze each group below starting with social trading platforms.

4.5.1 Social Trading Platforms

Social trading platforms create a virtual community of novice and experienced personal traders similar to Twitter so that they can share their trading ideas with each other. These platforms not just enable customers to collaborate but also to follow and copy other users who have been trading successfully and have made high profits historically, hence novice investors without any financial knowledge and users who don’t have the time to deal with their investments and market trends regularly can also make high profits. These platforms use CFDs\(^5\) enabling users to invest any amount of money without the need to buy actual assets like shares, currencies, indices, or commodities. This technology enables customers to follow high capital investors with only a small amount of money, e.g. $200 in case of eToro, the pioneer of social trading. However, these solutions don’t apply direct fees, they use higher spreads than traditional trading platforms. (Kortekaas 2013)

Social trading platforms do not always provide a brokerage account for their users like it is the case with ZuluTrade as its users need to open an account at any of its partner brokerages and the trades initiated by the user will be executed by these partners. Users can be either individual, usually first-time investors, or institutional investors. Trading platforms in the Database are headquartered in Europe like Germany, Greece, the United Kingdom, and in Israel and Singapore. They are typically available globally except for Voleo which is only available for residents of the United States.

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\(^5\) Contract For Difference
These solutions have an extreme popularity, both TradeHero and ZuluTrade have a
customer base over 1 million and the leader of this category, eToro has already more than
6 million users and its mobile application has been downloaded over 1 million times. Due
to its free advanced analytics tools for traders available in both the web-based and native
application, eToro is used not just by its registered users but also by other investors and
those who are just interested in the capital markets which is the reason why its monthly
webpage visitor number reached 29 million recently.

These solutions have been existing more than ten years now and the newest one,
NagaTrader the largest social trading platform in Germany, has been launched in 2015.
From the 7 solutions in the Database, 2 solutions are in their seed and early growth stage,
and 3 companies in their late growth stage. eToro has already received a $27 million
Series D funding as of November 2014, reaching $72.9 million in total funding which
significantly exceeds the average funding in the category which is $21.9 million. If we
look at the estimated valuations we can see that Ayondo has the highest figure with $117
million, and TradeHero has the lowest with less than half that amount.

Important players of this sector are: Ayondo, eToro, Naga Trader, TradeHero, Tradeo,
Voleo, ZuluTrade.

4.5.2 Cryptocurrency Exchanges

Cryptocurrency exchanges became exceptionally popular recently hence many of them
experienced extremely high traffic because of the massive volume of trading and an
outstandingly large number of new customers, therefore there were several service
outages which made customers upset. The peak of this “hype” lasted from December
2017 to January 2018. As a result, some of them decided to raise the initial amount of
required deposit while others temporarily suspended the registration. However, since then
both the prices and the trading volumes have fallen significantly due to the widespread
disillusionment in digital assets. Although cryptocurrencies have been existing since the
launch of Bitcoin in 2009 their future is still not clear. The initial incentive was to create
an alternative way to pay for goods and services, however, crypto assets like Bitcoin or
Ethereum serve as a speculative trading vehicle on crypto exchanges rather than as a
means of payment.
The future of crypto assets depends on the national and international regulations. It is important to mention that the acceptance and regulation of cryptocurrencies vary from country to country. Regarding Bitcoin, 40% of all the countries in the world consider it legal or is at least neutral. Bitcoin is legal in almost whole Europe except for Macedonia and in most of the largest economies in the world including the United States, Canada, Brazil, Australia, Japan, and South Korea, and Turkey while most parts of Latin America, India, and Indonesia are neutral which means that Bitcoin is not legalized but neither are there any restrictions against it. (Amoros 2018)

In 17 countries cryptocurrencies are restricted or even completely illegal and criminalized. The most important countries in this group are China, Mexico, Saudi Arabia, and Egypt where there are many restrictions, and Russia, Algeria, Morocco, Ecuador, and Bolivia where Bitcoin is totally illegal. It is important that 53% of the countries, which represents 130 nations, have not yet commented on the legality of cryptocurrencies. If some of these countries like the major part of Africa and some other countries decide to ban crypto assets it may have a serious effect on future viability. (Amoros 2018)

Important players of this sector are: Bitfinex, Bitstamp, GDAX, Kraken

4.6 P2P Lending Platforms

Peer to peer lending platforms serve as another form of alternative investments. On the one hand, users can sign up for different types of loans – usually short-term and unsecured personal loans like payday or POS loans – with lower interest rates than they could do that at traditional banks. Not just the interest rates can be lower but the target customer segment is also way larger as these companies can reach the unbanked population who don’t have credit scoring yet and those who are considered too risky to get a loan from a traditional lender. Generally, P2P platforms use proprietary scoring algorithms to analyze the creditworthiness of their clients. Usually, the whole origination process is automated and doesn’t take longer than a few hours.
On the other hand, customers can invest their money by directly lending it to the borrowers so that they can get interest on their investments. P2P lending platforms offer higher returns on investments than most of the alternatives including equities and derivatives, however, investors have to take higher risks including capital loss, liquidity issues, and credit default. P2P lenders apply different strategies to protect customers against these risks, e.g. RateSetter set up a provision fund to protect against poorly performing loans, while in case of Mintos the loans are originated by third-party lenders who also provide buy-back guarantee for bad loans.

The first P2P lending solutions emerged a few years before the financial crisis. Zopa a UK based company and Prosper in the US have launched their P2P lending platform in 2005 followed by the other big players like Lending Club in 2007 and Funding Circle in 2010. Some of the most popular solutions are not just focusing on individuals but also provide funding solutions for micro and small businesses so that they can access to working capital to fuel future growth. It is important to mention that P2P lending providers have significantly lower operating costs compared to traditional competitors and they have also not strictly regulated so they don’t have to meet the capital requirements that stand for banks. However, the total volume of originated loans has been steadily increasing in the past years, the figures are still very small compared to the total lending market ruled by incumbent banks. (Barberis and Chishti 2016)

Important players of this sector are: Lending Club, Prosper, RateSetter, Funding Circle, Zopa, Mintos

4.7 Personal Financial Management Services

Personal Financial Management or PFM solutions enable customers to achieve better control over their finances. The Database includes 20 companies providing PFM solutions that are grouped by their core offering which can be simply a data aggregation solution, budgeting tools, insights on spending habits, or a mixture of any of these. Account aggregation is the basic service these applications offer, all the other services are built upon this.
Users have to link at least one of their current accounts to the applications allowing it to get access to transaction history and by that, it can analyze spending habits by automatically categorizing the transactions and some solutions can also forecast future spending and suggest how much money they can save in the given month. Some solutions offer additional features like payday loans, comparison solutions, financial education center, or loyalty programs.

The majority, 85% of the PFM solutions in the Database are completely free for customers and the others like Mvelopes and YNAB have a subscription model and Even has a freemium model with a premium subscription option. Those companies that don’t charge any fee for the users, generally make money from business partners like in case of Bud and Cloe which companies leverage targeted marketing by offering financial products of the partnered banks. In exchange, financial institutions pay for the PFM providers after every new customer.

More than half of the PFM providers are headquartered in the United States or in the United Kingdom and the others are mainly from Europe but there are a few solutions from Brazil, India, and Vietnam as well. The first solution has been launched in 2000 and the latest in 2017, however, the majority of the solutions are still in their seed or early growth stage and only 2 out of 20 companies have reached the late growth phase. The companies in this sector have received a total funding of $268 million and $22.4 million on average which is the third lowest value among all the nine sectors.

The average estimated valuation is $68.1 million which is relatively high compared to other sectors. Regarding customer numbers, there are some remarkably popular solutions like Money View from India having an application download number above 10 million which also means that this solution is the most downloaded one in the whole Database. Further five applications have reached at least 1 million downloads.

Important players of this sector are: Bittiq, Blockfolio, Bud, Cleo, Emma, Even, Fintonic, GuiaBolso, Mint, Money Lover, Money View, MoneyLion, Mvelopes, OnBudget, Openfolio, Pariti, The Moneyer, Tink, Wyze, YNAB.
4.8 Digital Wallets

Digital wallets or e-wallets are also part of the personal finance ecosystem. These solutions serve as a real wallet in a digital form which means that users can load money to their wallet and store it securely until they withdraw or pay with it. Digital wallets can store digital currencies that can be either a fiat or cryptocurrency. These solutions are an innovative alternative to payment cards as customers need to carry only their mobile devices instead of several plastic cards. Some wallets offer additional services like digital loyalty card function, online marketplace for financial services, etc.

There are two e-wallet providers in the Database as these solutions are also part of another huge fintech sector, the payment providers, which is not relevant to my main focus. However, digital wallets are interesting enough to briefly mention them. The two solutions are Coinbase from the United States and Coinjar from Australia. They are both e-wallets allowing customers to buy, store, and sell cryptocurrencies and in case of Coinjar fiat currencies as well. Coinbase applies larger spreads to generate revenue from trades while the other one charges commission fees per every trade.

While Coinjar is only in its seed stage and received $1.1 million in total funding, Coinbase is already in its late growth stage with over $217 million funding. Its customerbase is also extremely large, currently it exceeds 13 million users, and in monthly webpage visitors it has outperformed all the other solutions in the Database with over 170 million visits. Coinbase’s popularity started to soar in December 2017 when the crypto-hype reached its peak, and the estimated valuation of the company was $1.6 billion at this time.
5 Business Models of Micro-investing and Microsavings Solutions

This section is based on information included in the Database of fintech startup solutions. The in-depth analysis covers 30 personal finance solutions in the micro-investment (9) and microsavings (21) subcategories in the investment sector. My focus is on the comparison of the business models of these categories to find clusters with similar concepts and to find the distinctive features that can help a company to stand out and gain competitive advantage. Therefore, a unique value proposition plays an utterly important role in long-term profitability. In the in-depth analysis of the business models, I am going to analyze each element separately and determine the strengths and weaknesses for each concept.

I am going to analyze the value proposition and pricing strategy from the customer’s perspective hence I focus on the B2C side. However, some solutions especially those with a free for users concept usually generate revenue from a B2B offering which can be an upselling or cross-selling offer supported by targeted marketing. As I exclude these solutions from the core business model analysis, I will explain them in detail in the key partnerships section. Business partnerships aim to help the venture either to increase revenue or to reduce costs, therefore, they play an essential role in the long-term viability of fintech services providers without a massive cash-flow from the retail customers.

In the value proposition section I am not only going to present the core concept of the offerings, the exact services, and the distinctive features they have in details but also the technology these solutions are based upon. Innovative IT solutions can support several parts of the business model, i.e., to enhance the features and overall quality of the core offering, to improve the efficiency of internal and external operations, to reduce development, maintenance, and other costs, to mitigate all kind of risks by using advance analytical tools, and to provide an enhanced user experience throughout the whole user journey.
5.1 Value Propositions

Microsavings and micro-investment providers mostly use the spare change or goal-based concept, 47% of the solutions in the Database, or a mixture of both, while other popular offerings can be categorized either as regular savings, in which case the user sets the amount and frequency of the savings manually, or automatically calculated savings, in which case the amount and frequency is calculated by an artificial intelligence. As there are only one regular and one manual savings solution in the database, they have been merged with the single loyalty-based savings solution to a group called other. Some solutions, usually in the micro-investment sector, provide a direct access to different types of investment products such as ETFs and mutual funds. All the mentioned concepts and their ratios related to all of the companies can be seen in the figure below.

Figure 6: Ratios of the most popular core concepts (Own creation based on the Database)

In the following sections, I am going to separately analyze all the major value proposition concepts mentioned previously such as the spare change, goal-based savings, access to investment products, automatically calculated savings, and other concepts like manually or loyalty-based savings, and mixed solutions.
5.1.1 Spare Change Concept

Most microsavings and micro-investment solutions have a similar business model, however, there are some differences in the value proposition concepts. The largest group of these solutions automatically rounds up payments made from the connected current account and it can be set by the user that it should round up to the nearest dollar, ten, or hundred dollars but one thing is common, the spare change is deducted from the linked current account and then transferred to a special savings account held by the solution provider or a partner financial institution or fintech company. In some cases, the savings accounts serve only as a vault until reaching the required amount, however, there can be even a small percentage of interest on the deposited amount ranging from 0-5%.

The spare change concept is equally popular in both sectors and 8 out of the 30 solutions use purely this concept to offer value to their customers, however, there are some companies that combine this feature with other features or concepts like Qapital, a Swedish microsavings startup operating in the United States, which allows users to set specific financial goals and helps to achieve them by utilizing the spare change concept. Qapital has the seventh largest value in the sector and its application has been downloaded over 100,000 times.

The most successful venture using solely this concept is Acorns, a micro-investment solution launched in 2012 and available in the United States and Australia. Its customers can choose from five different portfolios to invest in, ranging from conservative to aggressive, based on their individual risk tolerance. The investments are diversified across over 7 thousand stocks and bonds hence mitigating the risks by still offering a higher return (Acorns 2018b). Acorns is remarkably popular among millennials in its target markets currently having over two million active users. It provides an additional feature called Found Money that offers cash backs when customers make purchases at the 31 partner brands including Airbnb, Apple, Nike, and Walmart. These cash backs are then automatically added to the users’ investments (Acorns 2018a). The company offers its services using a tiered subscription pricing model and is completely free for college students for up to four years.
5.1.2 Goal-based Savings Concept

Many companies enable their customers to set specific goals for their savings which can be for education, retirement, insurance or purchasing a new car or home. Trackable goals can be motivating to reach the required amount of savings. In these cases, deposits can be transferred automatically based on preset rules or calculated by machine learning algorithms which analyze the spending habits of the customers based on their spending history data. Rules can be set manually e.g. a given period of time, every week or month, or based on any triggering event. This solution can be combined with the spare change concept so that users can reach their predetermined goals by transferring their spare change without noticing it.

One-third of the microsavings solutions in the Database provides goal-based savings as their core offering but none of the micro-investment solutions. The largest players in this category are Squirrel, Savedroid, Dreams, and Zave. This concept is rather new on the market as the oldest solution, a Sweden-based startup has been launched only five years ago in 2013 hence all the ventures in this segment are still in their seed or very early growth stage. Goal-driven savings has just recently begun to gain popularity that is proven by the fact that Revolut, the fastest growing UK-based neobank in Europe, has just launched its new feature in April called Vault which is a combination of the goal-based, spare change, manual and regular savings concepts. The feature has been tested a week long with 30 thousand beta users before the official launch who saved more than $200,000 altogether. (Braileanu 2018)

5.1.3 Access to Investment Products

This concept is used by solutions that allow their customers to trade with different kind of investment products like online trading platforms including social trading and cryptocurrency exchanges, wealth management and robo-advisory platforms, and micro-investment solutions. Five out of the nine micro-investment companies use exclusively this concept including Robinhood and Stash, which have the highest estimated valuation in the whole Database with $1.3 billion and $200 million.
The main difference between micro-investment and online trading platforms is that these solutions allow customers to trade only fractions of shares hence the minimum investment limit can as low as a few dollars. These solutions always invest in ETFs or mutual funds like Scripbox, that are well-diversified and low cost alternatives to traditional assets like stocks, bonds, or commodities. The pricing strategy of these solutions varies from venture to venture; Divy and Stockpile charge commission fees per trades, Stash uses a tiered subscription model, Robinhood has a freemium strategy with a free and a premium subscription, and Scripbox which is free for customers and charges fees only for the mutual funds for providing additional services.

5.1.4 Automatically Calculated Savings Concept

This concept is used by 13% of the companies in the sector in the Database and all of them are microsavings solution providers in their seed or early growth stage which means that they are quite new to the market. There are altogether four solutions out of which Digit, a US-based venture, has a basic subscription strategy with a monthly $2.99 flat fee while the other three are headquartered in the UK and are completely free for their users. These solutions use AI-powered algorithms to calculate the amount of money which can be transferred to the separate savings account without that the customer would miss it. For this reason, it uses the data of the customer’s spending history and estimates the future incomes and expenses.

The predetermined amounts will be deducted automatically from the user’s current account on a regular basis and transferred to the particular savings account held by the company itself or a partner financial services provider like in case of Oinky and Plum that both partnered with MangoPay at which they hold their customer’s money. The advantage of this solution is that MangoPay pays an interest on the savings which will be split between Plum and the user. However, Plum plans to charge a monthly investment fee in the future allowing its users to invest the saved money by its partner RateSetter, a leading online P2P lending company. (Plum 2018)
5.1.5 Other Concepts

Regular Savings

I used this category for the solutions that don’t use automatic calculation algorithms hence users have to determine the amount they want to save on a regular basis and they also have to define the frequency how often they want to do it. There is only one microsavings solution in the Database using this concept. PiggyBank, a Nigerian fintech launched in 2016, provides a free recurring savings solution for millennial individuals. An additional feature of this solution is that users can lock their deposits for a longer period and earn interest on them.

Manual Savings

There is one solution in the Database that belongs to this concept group. Tip Yourself, a US-based microsavings service provider launched in 2015 enables customers to save money by rewarding themselves with tips which are manually set amounts of money transferred to the customer’s savings account. This solution gives the freedom to the users to decide when and how much they want to save but it is also a less comfortable way of saving because without any automation customers have to initiate the savings by opening the app, setting the amounts, and remembering to do this frequently. It is entirely free for customers, however, the application is being only used by a few thousand people.

Loyalty-Based Savings

There is a single company in the Database using this concept called Pensumo, a Spanish microsavings solution available through a mobile application for Spanish residents allows its users to build up savings by purchasing at physical and online merchants partnered with Pensumo. The merchants then contribute to the customer’s savings with a little amount after each purchase. Customers can save money besides shopping by simply acting responsibly such as using a bike instead of a car, recycling waste, etc.
The application is completely free for the users and generates revenue only from the B2B side as merchants pay a small percentage of the sales made through the platform. However, this solution is not that popular with only a few thousands of downloads from Google Play and customers have made around 9 thousand purchases within the application.

**Mixed Concepts**

I used this category for companies combining at least two out of the concepts mentioned above. There are four microsavings ventures offering a mixed value proposition to their customers including Qapital, the largest player in this group. Qapital combines the goal-based and spare change savings concepts while also providing a current account with a Visa debit card so that users don’t have to link their current account held by another bank to the application. Shift offers the same without the debit card and in-house current account.

Another solution from the Netherlands called Limitless provides a combination of goal oriented and automatic regular savings. In this case, a predetermined percentage of the spending is automatically transferred to a separate savings account held by Limitless’ partner bunq which a fully digital bank in the Netherlands. The fourth solution in the group called Emma, is a mobile-only application helping users to have better control over their finances by avoiding unnecessary fees like overdrafts or subscriptions. It also offers a microsavings solution by automatically calculating the amount of money, which can be saved without that the user would miss it, based on the spending history data of the users.

5.1.6 Core Technology

Microsavings and micro-investment solutions can also leverage innovative technologies to offer enhanced features for their customers. I included this technology related section in the value proposition because in every case of the examined 30 solutions advanced technology supports the core offerings. The mostly adapted technology among them was artificial intelligence and related solutions such as machine learning algorithms, natural language processing, and advanced data analytics.
However, only 10% of the companies disclosed officially on their websites that they use any of these technologies. There are two microsavings services providers, Chip and Plum, that leverage artificial intelligence to perform automated calculations how much the customers can afford to put aside in the current month. In order to do this, users have to connect their current account and grant read-only access to these solutions so that they can analyze the historical transaction data and predict the future spending.

In addition to this core feature, Plum provides a chatbot integrated into the Facebook Messenger application enabling users to manage their finances by simply interacting with the chatbot. Besides these two solutions Mylo, a Canadian micro-investment provider leverages AI as well by offering personalized recommendations for better financial decisions.

5.2 Pricing Strategies

All the players in the sector typically use five basic B2C pricing strategies, i.e., basic and tiered subscription, commission-based, freemium, and free models. However, each sector tends to favor some of these concepts. Microsavings solutions often don’t charge any fees to their customers and offer all their services completely free hence 13 out of 14 free concept providers are in the microsavings segment.

Only 38% of microsavings services providers use B2C pricing models, which are mostly basic and tiered subscription solutions but there is a freemium and a pay-what-you-want solution as well. In the latter case, users can decide how much they are willing to pay for the service based on their financial situation and satisfaction with the application. Unlike microsavings solutions, companies in the micro-investment sector prefer to apply different fees to their customers which can be a commission or a monthly subscription fee depending on the invested amount. The figure below presents the major B2C pricing strategies in the two sectors altogether and how often they are used.
Whatever fees these solutions charge on the customers they are remarkably lower than those utilized by traditional financial services providers. The following table contains data about different fees applied by banks based on the Q1 2017 Bank Fee Finder Report which shows data from individuals holding US bank accounts at 5 major banks, i.e., Bank of America, CitiBank, JPMorgan Chase, Wells Fargo and U.S. Bank (Chime 2018).

Table 3: Types and average amounts of fees charged by the five major bank in the United States (Chime 2018)

<table>
<thead>
<tr>
<th>Type of fee</th>
<th>Amount of fee ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdraft</td>
<td>38/overdraft</td>
</tr>
<tr>
<td>Monthly maintenance</td>
<td>12-23/month</td>
</tr>
<tr>
<td>Minimum balance</td>
<td>6-15/policy violation</td>
</tr>
<tr>
<td>ACH transfer</td>
<td>3-10/transfer</td>
</tr>
<tr>
<td>Card replacement</td>
<td>5-25/replacement</td>
</tr>
<tr>
<td>ATM</td>
<td>0-2.5/transaction</td>
</tr>
<tr>
<td>Foreign transaction</td>
<td>3%/transaction</td>
</tr>
</tbody>
</table>
All these fees add up in the long run and decrease the available returns on deposits held in a current or savings account. Fully digital savings and investment solutions provide not just significantly lower fees but they do it in a transparent way so that the users can easily calculate with it. In the following section I am going to describe each major pricing model in more details.

5.2.1 Basic and Tiered Subscription Models

Companies using these pricing strategies charge monthly or annual subscription fees on the customers. In case of a basic subscription model, every customer has to pay the same fee which can either be a percentage of the investments or it can be a flat fee independent of the invested amount of money. A tiered subscription model means that the company charges monthly subscription fees on the users based on the amount of their deposit. There can be two or more tiers and the customer has to pay the fees applied for the relevant interval. For lower investments, there can be a higher fee which can be decreased by increasing money until getting into a higher tier which may take longer as 6 out of the 9 solutions in this category uses the spare change concept for their core offering.

For amounts under a specific threshold – usually around $5,000 – companies with a tiered subscription model tend to charge a flat monthly fee around $1 while for accounts above that there is an annual percentage fee charged monthly which ranges between 0.25% and 0.45%, however, sometimes like in case of Moneybox users have to pay additional 0.23% fund provider fee which is excluded from the subscription fee. We can see that these solutions are remarkably cheaper than traditional investment providers.

5.2.2 The Free for Customer Model

Half of the companies including large players like Chime, Dreams, and Qapital don’t charge any fees on the B2C side so they are entirely free for the users. However, all the companies using this concept belong to the microsavings sector except for Scripbox, which is the only micro-investment platform that doesn’t charge any fees on customers. These microsavings solutions have various offerings and core concepts, the only common characteristic is that they are completely free for customer or just charge penalty fees in
case of unplanned events like early withdrawal of money before the end date of the savings.

The fact that these solutions are free don’t mean that they don’t generate revenue streams at all, in fact they do it by charging the B2B side. The source of this revenue can be a percentage charged after the sales of the partner’s product made within the application like in case of Pensumo, or if the company holds the users’ deposit at another financial institution or invests it like Plum, the venture can keep a percentage of the interest earned on these deposits. Fees can be also charged on outgoing money transfers. Considering Qapital it generates revenue as a percentage of the Visa debit card fee charged by the card issuer to the vendors for accepting it.

Some companies currently offer their services for free but they plan to charge fees later, after reaching a certain customer number like it is the case with Plum. Other solutions plan to leverage targeted marketing promoting the products of the partnered merchants or financial institutions.

5.2.3 Other Pricing Models

**Freemium Model**

Some companies don’t charge any fees for customers for their basic services but they provide enhanced or additional services for a monthly subscription fee. Trading on Robinhood’s platform, the largest micro-investment provider in the sector, is entirely commission free but they provide a Gold membership with an access to after-hours trading and higher buying power for as low as a $6 monthly fee (Robinhood 2018). The other startup using the freemium model is Savedroid, a German microsavings solution which offers its basic functionalities for free but they charge extra fees on additional services.

**Commission Fees**

Charging commission fees is not so common in the sector and there is only two US-based micro-investing solution using this pricing model. Both solutions allow customers to
trade with fractional shares with a minimum investment amount of $5 - $10. The commission fee is $0.1 in case of Divy and $0.99 in case of Stockpile and is charged after each trade. The advantage of this option is that fees apply in a usage-based form so those who don’t trade several times a day will have to pay less, however, even those who actively trade have to pay significantly lower fees than they had to do that at traditional trading platforms.

5.3 Key Partnerships

Partnerships are paramount for fintech startups in the micro-investment and microsavings sector just like for those in any other sector. These ventures launch with a disruptive offering that is sometimes just an MVP developed by a couple of individuals with an entrepreneurial spirit and they try to lure as many customers as they can before they would burn all the initial money invested.

Therefore, ventures not just have to find private or institutional investors to get another funding round but they also have to build strong partnerships which can serve different purposes and support any element of the business model. These can be offering related including the core and additional features of the product, customer related serving acquisition and retention, or internal operations related improving any kind of business process to increase efficiency.

5.3.1 Offering Related Partnerships

These partnerships aim to help one or both of the companies improving their core product or service that can happen by supporting or even enhance the features with a new technology or adding more or exclusive features to the basic functionalities. I am going to show examples for each of these options in the following sections.

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6 Minimal Viable Product
Aiming the Core Offering

Some microsavings solution provide a savings account for the customers while the others partner with a financial institution or a digital bank and the deposits of the customers are held by a separate account at one of these partners. Dreams, Oinky and Qapital hold the savings of their customers at incumbent institutions such as Åland Bank, ING and Wells Fargo while in case of Limitless and Plum the savings accounts are held at other fintech startups such as bunq and MangoPay. Using these partnerships the mentioned ventures can also generate revenue as they usually split the interest payed on the deposits between the customers and themselves.

In case of Pensumo, a Spanish a loyalty-based microsavings provider, the partnership with merchants is the fundamental part of its core offering. It allows customers to save money by purchasing at the partner merchants that in exchange contribute to the savings with a small amount of cash-back. Acorns provides a similar options to its customers but in that case it is not part of the base offering.

Aiming Additional Features

In this case the partner businesses provides additional services for the core offering and by that making the product more attractive to the end users. For example, Plum partnered with RateSetter to offer its customers the possibility to earn interest on their savings by investing it through the online P2P lender.

A slightly different option is to provide exclusive offers to the customers which can be a reward, coupon, cash-back, etc. BoostUp, a US-based microsavings solution, provides exclusive offers for its users like discounts at its partners including Quicken Loans and Hyundai. Acorns partnered with 31 companies to offer a cash-back solution for its users called FoundMoney. This feature is accessible from within the application and allows customers to get a small amount of their spending back, which can be a percentage of the purchase usually between 1 and 10% or it can be a predefined amount around $5-30 it will be transferred directly to the user’s investment account. The triggering event can be a new subscription to the partner’s services or a purchase above a certain amount.
The partnered merchants include Airbnb, Apple, DirecTV, Earnest, Hotel Tonight, Nike, Walmart, and Zipcar. (Acorns 2018a)

5.3.2 Customer Related Partnerships

These partnerships enable companies either to get access to the user base of the partner business and by that increase the number of potential customers or to access a new channel to reach out for new customers which can be an upselling or cross-selling functionality. This type of partnership is common by digital wallet and personal financial management application providers that usually serve as a marketplace for the financial products of partnered businesses.

Emma, a UK-based personal financial management and microsavings solution partnered with Monzo and Starling Bank, both of which provide fully digital banking services, to integrate its services into their existing mobile applications. Partners can access all the functionalities through Emma’s APIs providing a simple and easy way to integrate it into the existing platforms. This partnership is beneficial for Emma as it can reach the customers of the two digital banks and the banks can provide PFM and microsavings solutions to their customers without the need to develop such a functionality in-house. (Moreni 2018)

5.3.3 Internal Operations Related Partnerships

The aim of these partnerships is to improve internal operations by the automation of several existing business processes and mitigating any kind of risk so that the costs can be reduced. Digital credit risk management solution providers often partner with online P2P lenders as they have to decide creditworthiness as soon as possible hence they don’t have the time for using traditional scoring systems. Another option is to improve the efficiency of the processes by reducing the durations and the potential errors.

Robinhood, the US-based micro-investment application allowing individuals to trade with fractional shares, has partnered with Plaid, another fintech startup from the United
States providing ACH\(^7\) authentication services for financial services providers in. Through Plaid’s API customers can securely connect their existing bank accounts to transfer money to and from Robinhood’s investment account helping the venture to reduce costs and process time across the value chain. (Ryan 2017)

5.4 Target Customers

Target customers refer to the end users of the companies and in most of the cases the main or even the only source of revenue. However, several solutions with a B2C offering are completely free for the end users and they generate revenue streams from business partners as discussed in the key partnerships section. Due to the strict regulations in the financial services sector and especially to the fact that they may differ significantly from country to country, fintech ventures typically focus on one region with the same or very similar regulations. 72% of all the companies in the Database operates only in their base country. Some solutions serve larger regions like whole Europe, the European Union, North America, or Latin America, and only 16 solutions are available globally which are usually online trading platforms.

As my focus is on the B2C sector the ventures in the Database target individuals with specific characteristics like residency, annual income, age group, minority, etc. Regarding income, some solutions target especially affluent and high-net-worth individuals, typically wealth management and robo-advisory solutions while others focus on the low-income and underbanked population like Dvendo which offers a micro-investment solution for the low-income Hispanic community living in the United States. Generally, customers have to be residents of the country in which they want to use the solution.

Considering the age groups, microsavings and micro-investment services providers, like the majority of the fintech solutions with a B2C business model, usually focus on millennials, i.e., individuals born between 1981 and 1996 who are also called as generation Z (Dimock 2018). The customer needs of this generation significantly differs from those of the previous generations as millennials use their mobile device as the first platform to access information, communicate, or to buy goods or services. Therefore

\(^7\) Automated Clearing House
fintechs targeting this segment have to provide a mobile application with seamless user experience throughout the whole user journey.

5.5 Cost Structure

The total cost of these companies is significantly lower than of traditional players, including operational and development, marketing and other customer-related costs throughout the whole customer lifecycle like acquisition and retention. It is because these companies leverage innovative IT solutions with agile development processes and high level of scalability compared to incumbent financial services providers using sophisticated and ineffective legacy systems making it difficult and expensive to change. Furthermore they don’t have to maintain a network of costly physical branches and front offices, as they only use digital channels to reach their customers which has many benefits not just for the company with the lower costs and more simple business processes, but also for the customers providing them more personalized services through high-quality user experience. These solutions just like all the fintech companies in the personal finance sector leverage the social media instead of traditional marketing strategies. Customer acquisition fees for fintech startups can be as low as $5 while for a traditional bank it can cost up to $2000 which is a significant difference (Macheel 2017).

Almost every solution has a Twitter, Facebook, and Linkedin account and they post frequently in order to gain more followers. Social media is not just for marketing purposes it can help to build a community where they can for example directly ask the customers what they think about a new feature or what they are missing from the current solution.

This kind of feedback is extremely helpful for these startups in such a competitive environment and costs nothing at all. Furthermore, these companies typically follow agile and lean methodologies as they don’t have robust legacy systems. They can easily roll out an MVP in a significantly shorter time-frame than an established financial institution could do and by giving access to their social media community for a beta testing can be a real advantage. Ventures in the sector usually start with only a few employees and are become rarely larger than a few tens or hundreds of people. These employees are typically tech savvy and highly skilled individuals with entrepreneurial ambitions.
6 Success of Micro-investment and Microsavings Solutions

If we look at the personal finance fintech sector we can see an exponentially increasing number of new solutions launched by startups, incumbent technology companies, or established financial institutions. Many of these won’t do it further than a seed stage venture but we can see examples of extreme successes. The first instant success story I would like to mention is Kakao Bank, a South Korean digital bank founded back in July 2017. At the end of the first day, they have launched already 300 thousand accounts have been registered with over $62 million in deposit and around $50 million in granted loans and the rally just began afterward. In one week they already had over one and a half million customers and over two million by the end of the second week pushing Kakao Bank to a market leader position in the household loans market. One month after the initial launch they have served more than three million users. (Ray 2017)

Another recent success story which I find important to mention is Revolut, a UK-based digital bank. The bank is available for residents of any country in the European Economic Area and Switzerland and they plan to expand globally to important markets like North America or Australia. Revolut has just announced a $250 million funding round raising its estimated valuation to $1.7 billion making the company to the fifth European fintech unicorn8. It also means that the current value of the venture is almost five times higher than it was in October 2017. (Smith 2018)

We can ask what the recipe is for success if there is one, or maybe it all just depends on just good or bad luck. We can see thousands of innovative ideas failing to be viable in the long run. A good idea alone is not enough; a good idea supported by a well-structured business model can be. But fintech startups just like ventures in other sectors are vulnerable in their seed and early growth phase and are highly dependent on external funding. For this reason, I am going to analyze how attractive these solutions are for private and institutional investors. In the following section, I examine the sector from the investors’ perspective including the funding of the ventures

8 A private company with a valuation exceeding the $1billion treshold
6.1 Luring New Investors

6.1.1 Funding of the Sector

The total estimated valuation of companies in the Database is $9.13 billion and the average valuation is $165.96 million. As for the growth stages, more than half of the ventures is still in the seed or early growth stage, the other half is in late growth except for 2 exits due to an acquisition and a filing for an IPO. The figure below shows the average of the total funding in each category. P2P lending sector is excluded from the chart as its value significantly exceed all the other sectors. The sum of the total funding in this segment is $1.4 billion and the average total funding of a P2P lender is $201 million. We can see that the average funding per company is the highest in case of digital wallets exceeding $100 million, while the lowest numbers can be found by microsavings services providers with only $7 million on average.

Figure 8: Average of the total funding of all companies in each sector (Own creation based on the Database)

We can see that the most attractive segments for investors are online P2P lenders and digital wallet providers followed by robo-advisors and micro-investment services providers. On the other hand, microsavings solutions have received the least funding in the last years. In order to find the reason for this inequality, we have to determine why a private or institutional investor wants to invest money into the sector. The answer is, as in any other cases, to make a profit.
When investors fund a venture, usually they receive equity in exchange so they are interested in the future increase in the value of their proportion in the company’s equity so that they can sell their part at a higher price earning interest. In order to meet these expectations ventures have to produce growth from year to year and ideally to generate a positive cash-flow as well and it means that the revenues have to exceed the total costs of the company.

6.1.2 Potential Profitability

With a B2B revenue model, it is easier to generate massive revenue streams than with a B2C model; it is because business clients have more money to spend on financial services and they are also more willing to do this in order to improve their core business processes, offering, or customer relationship. Retail customers except for affluent and high-net-worth individuals, however, want to spare as much money as they can by minimizing the fees they spend on financial or other services rather than to choose a higher quality but more expensive offer.

In order to increase the revenue and at least to break even companies in the B2C sector have to offer their services at the lowest possible price that the customers are willing to pay and to keep the cash-flow positive they have to minimize costs at the same time. Another critical element is the customer base because these solutions use very low fees they have to expand the number of their active customers as large as possible. An effective pricing model can help the company to generate large enough revenue by also not to lose potential customers.

In the micro-investment sector the tiered and basic subscription model is the most popular hence I am going to examine how much revenue these solutions can generate based on their hypothetical customer base. The particular solutions are Acorns, Dvendo, Mylo, and Stash from which Acorns, Dvendo, and Stash use the same pricing, i.e., $1 monthly fee for accounts up to $5,000 and 0.25% annual fee for accounts above that. Mylo uses a standard subscription fee which is $1 monthly.

Firstly, I estimate the potential revenue streams for each company if they had one million users of which 75% were millennials and the other 25% would be aged 33-44. It is
because these solutions typically target the younger generations like Robinhood as 78% of its users are under 35. As all of the examined companies are available in the United States, I calculate with the median savings of US residents; people under 35 have typically $1,580 savings while people between 35 and 44 have $5,000 (Smith 2018). The following table shows the monthly and annual revenues generated by the given customers assuming that customers in the second age group have exactly $5,000 savings to invest.

Table 4: Hypothetical annual revenue streams of ventures with tiered subscription models with one million customers (Own creation based on the Database)

<table>
<thead>
<tr>
<th>Name of the solution</th>
<th>Annual fee (below $5k)</th>
<th>Annual fee (above $5k)</th>
<th>Annual revenue (below $5k)</th>
<th>Annual revenue (above $5k)</th>
<th>Total revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acorns, Dvendo, Stash</td>
<td>$12</td>
<td>0.25%</td>
<td>$9,000,000</td>
<td>$3,125,000</td>
<td><strong>$12,125,000</strong></td>
</tr>
<tr>
<td>Mylo</td>
<td>$12</td>
<td>$12</td>
<td>$9,000,000</td>
<td>$3,000,000</td>
<td><strong>$12,000,000</strong></td>
</tr>
</tbody>
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We can see that companies using the tiered subscription model, generates higher profit with 4.2% compared to those with a basic subscription, however, the majority of the customers belong to the first tier which costs the same in all cases. It is because 12 dollars is the 0.25% of $4,800 hence up to this amount 1 dollar monthly fee means higher returns than it would do with the percentage-based annual fee but for accounts above $4,800, the percentage-based option means higher revenue. When looking at the fees charged for each tier, some robo-advisory solutions there are even more than 5 tiers, we can see the same pattern.

However, the customer acquisition fee of fintech startups is significantly lower (about 5-10 dollars per customer) than of traditional banks it takes almost a year until the new user starts to generate profit. Regarding all these facts, we can see that to get external funding is critical for growing ventures in the sector. Even if a company produces massive losses in the present it doesn’t mean that it will not be profitable in the long run and investors can see this potential. Hence if we look at only the current profitability we cannot estimate the future success of these solutions but if we look at the steadily rising valuations we can see clear tendencies.
6.2 Steadily Rising Valuations

It is difficult to find information about the financial performance of fintech startups as they usually don’t disclose information about their financial health. Therefore I use several indicators to estimate the potential historical and future profitability. Such indicators can be the growth stage, total funding received, size of customer base, application downloads, and any other financial measures if available.

The average estimated valuation of these solutions altogether is $130.25 million but if we look at them separately, we can see that there is a significant difference. The average value of microsavings fintechs is $40.38, which is quite low compared to the $295 million average value of micro-investment solutions. Looking at the average total funding of a company belonging to one of these segments, we can see the same difference; it is $7 million in the microsavings and $58.2 million in the micro-investment sector. The reason for this remarkable difference may be in the fundamentals of their business models. The average estimated valuation of each segment in the personal investment sector is shown in the figure below.

Figure 9: Average estimated valuation of fintech startups in each major segment of the personal investment sector (Own creation based on the Database)
Solutions with the lowest valuation are mostly free for customers or in some cases they have a basic subscription model, while companies with the highest valuation use a freemium model with a premium subscription option to access enhanced or exclusive features or a tiered subscription model. The most successful among these solutions is Robinhood, launched in 2013 in the United States, a commission-free stock trading mobile application that uses a freemium pricing strategy to generate revenue.

According to the latest news, the company is about to get a new funding round of $350 million and the same investors value Robinhood at $5.6 billion which is more than four times higher than its valuation as of April 2017 (Cheng 2018). This surge in valuation along with the steadily increasing customer number, which is now over 4 million that is twice as much as it was in August 2017, shows the popularity of the trading application. The reason for this may be its opening towards cryptocurrencies which is supported by the fact that 78% of its users are under the age 35. (Harris 2017)

The figure below presents the estimated valuation of the major players in the examined sectors (blue for micro-investment and green for microsavings) with at least $10 million value excluding Robinhood as it exceeds the second highest figure multiple times and would distort the graph. Stash is the second highest valuated company reaching $200 million while Scripbox has slightly even exceeded the $10 million threshold.

Figure 10: Estimated valuation of fintechs in the sector (Own creation based on the Database)
It is important to mention that there were no exits among the 30 companies in the sector that I have collected in the Database. This may be the case because these players are relatively new in the market and the majority is still in the seed or early growth stage, however, some solutions like Acorns or Robinhood are already in their late growth stage with millions of active customers. In spite of these facts, incumbent players don’t seem to be interested in these solutions. In other sectors, however, there were several acquisitions like FutureAdvisor, an online wealth management platform, has been acquired by BlackRock, Mint, a personal financial management solution, has been acquired by Intuit, Aviva acquired Wealthify, another wealth management platform, and TradeHero, an online social trading platform, has been acquired by Ayondo.

6.3 Popularity Among Customers

As profitability of fintech ventures highly depends on the size of their active user base it is important to look at the number of users from the Database and when this information is not available I try to estimate it based on the number downloads from Google Play in case of a mobile application, the monthly webpage visitors in case of a web-based platform, and both of them in case of a multi-platform solution. The figure below shows the average downloads of the mobile app for each major value proposition concept.

Figure 11: Average application downloads in each major concept group (Own creation based on the Database)
We can see that the access to investment products is the most popular concept provided by micro-investment solutions, exceeding 1.6 million downloads on average. The most successful players in this group are Robinhood and Stash, each of them having an average download number of 3 million but the other applications have also been downloaded about 300 thousand times. Three out of the four ventures serves the US market and only Scripbox operates in India.

The figure below shows the six most popular solutions which officially disclosed their customer number. I used different colors for the three different concept they belong to, i.e., blue for access to investment products, green for spare change, and red for goal-based savings. As the figure shows, solutions providing access to investment products and spare change services are the most successful in terms of active users.

Figure 12: Disclosed customer numbers of the six most popular fintech solutions in the examined sectors (Own creation based on the Database)

Another conclusion we can draw from the previously mentioned numbers is that only a few solutions have become really popular and could build a significant customer base. Only 37% of the total 30 solutions could reach an application download number exceeding 100 thousand and only three ventures managed to reach at least one million. It is important to mention that the solutions with the highest customer numbers have been launched around 2012 and 2013 so they are way longer on the market than the others.
7 Conclusion

After the analysis of the 101 fintech startups in the nine major sectors with a special focus on micro-investment and microsavings solutions, we can draw some significant conclusions from the results. First of all, fintech companies have been existing over ten years now and there are some really big players like PayPal, Stripe, SoFi, and Credit Karma all of them having a valuation at least $3 billion and the number of unicorns is continuously rising in the sector (Peterson 2017). However, regarding the two focus sectors of my analysis, there is only one startup, Robinhood, a US-based micro-investment solution in the Database with a valuation exceeding one billion dollars and a customer number above three million. As the analysis of the Database also showed there is a huge difference in the success of fintech solutions.

Looking at the personal investment sector, online P2P lenders have the highest valuations and average total funding which means that investors see the largest potential in these solutions while micro-investment solutions have the second place. On the other hand, ventures offering solely microsavings services seem to be remarkably less attractive as these solutions have the lowest average valuation in the Database. If we divide this sector by the concept of the core offering, we can see that the spare change and automatically calculated savings solutions are the most popular among customers and they have received the most funding in the segment.

In spite of the fact that most of the microsavings solutions offering exclusively goal-based savings services are quite popular among customers, they have the lowest valuations and funding. A reason for this can be the unclear source of future revenue streams as most of these services are currently free of charge for the end users and earn some revenue from additional services or from partnered businesses. After reaching a certain size of active customer base and maturity, these solutions tend to introduce fees like Digit has done it recently. (Gensler 2017)

According to my former analysis also supported by a CB Insights report, a good pricing model is essential for fintechs using a B2C model and we can say that tiered subscription and freemium solutions are the most successful strategies. However, a well-defined pricing model alone doesn’t mean massive revenue streams, it is also paramount to have
a certain size of customer base. For that reason, ventures have to target the exact persona they want to serve and in most of the cases, they are millennial individuals. Ventures try to come up with disruptive ideas how to improve customer acquisition and retention, like Robinhood did it by creating a waiting list and referral program before their official launch, already having one million potential users by the time they have rolled out their application. Mobile-first approach with a seamless user experience can help to keep the users engaged as millennial customers find it boring to spend too much time on financial activities. (CB Insights 2017)

All in all, microsavings solutions are quite new to the market existing only for a few years, however, their core offerings like saving the spare change, setting saving goals, and automatically calculated amounts of savings became popular among those who want to start saving money without the hassle to deal with it personally. Although microsavings providers are not as successful as fintechs in other segments in terms of company value and funding, their presence inspired incumbent financial institutions and digital attacker banks to integrate these features into their existing platform such as Revolut has launched its savings solution named Vault which is a combination of the spare change and goal-based savings concepts. Regarding this trend, ventures offering solely microsavings services are going to lose market share hence will be either integrated as part of an existing financial application like a mobile bank or cease to exist in the long run.

All facts considered, digital microsavings and micro-investment solutions have given the opportunity to everyone including low-income individuals to better manage their finances by allowing them to save small amounts of money in a secure and simple way and by giving access to the financial markets enabling customers to invest their money by trading fractional shares or ETFs. All these innovative services have triggered the transformation of the personal finance ecosystem along with the changing customer needs. Whatever the future for these ventures may bring, their disruptive concepts have fundamentally changed the way how we spend, save, and invest money.
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Table of Figures

Figure 1: Business Model Canvas (TechVentures.London 2014) .......................................................... 11

Figure 2: S&P 500 Historical Annual Returns from 1928 to 2018 (Macrotrends 2018) 14

Figure 3: Gartner Hype Cycle and fintech solutions (Own creation based on information in McKinsey 2017) .................................................................................................................. 17

Figure 4: Structure of the categories and subcategories used in the Database (Own creation based on the Database) .................................................................................................................. 23

Figure 5: Personal Finance Fintech Landscape (Own creation based on the Database) 31

Figure 6: Ratios of the most popular core concepts (Own creation based on the Database) ................................................................................................................................. 44

Figure 7: Ratios of the most common B2C pricing strategies (Own creation based on the Database) ................................................................................................................................. 51

Figure 8: Average of the total funding of all companies in each sector (Own creation based on the Database) ................................................................................................................................. 60

Figure 9: Average estimated valuation of fintech startups in each major segment of the personal investment sector (Own creation based on the Database) ................................................. 63

Figure 10: Estimated valuation of fintechs in the sector (Own creation based on the Database) ................................................................................................................................. 64

Figure 11: Average application downloads in each major concept group (Own creation based on the Database) ................................................................................................................................. 65

Figure 12: Disclosed customer numbers of the six most popular fintech solutions in the examined sectors (Own creation based on the Database) ................................................................. 66