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An Analysis of Business Models for Delivering Mobile Savings Services

BA Thesis in Banking and Finance

Michelle Lüchinger

Advisor: Annette Krauss

Full Text Version

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Executive Summary

The simple access to a functioning bank branch network is considered as one of the main differences between the Western and the developing world. In developing countries, banks' branch networks are for a large part poorly developed and expansive, causing people to rely on other savings mechanisms. With the spread of mobile phones in the developing world, modern mobile technologies are currently used to extend formal financial inclusion.

This thesis investigates and defines business models that are in use by players along the value chain in the developing world to offer "mobile savings". The term "mobile savings" describes the use of a mobile phone to access an account where funds can be accumulated. The author's objective is to evaluate the conditions, which influence the success of mobile savings services through a review of the concepts and literature on the mobile money scholar. The author evaluates three main types of business models for delivering mobile savings: the Partner Model, the Rider Model, and the Limited Model. In the Partner Model, two parties are offering the saving product in a partnership and provide the distribution channel together. Providers launching the saving product through the Rider Model use one or several existing mobile money platforms as an integral part of their delivery channel. Whereas a typical feature of the Limited model is that a non-deposit-licensed institution originates the saving product and is additionally in charge of the distribution network. The service may be tied to one or be provided over several mobile money systems.

The results of the analysis show that the favorably market situation is mainly influenced by the customers' perceived trust in the provider and the regulations in place. Moreover, the design of the product is an important condition for the success of any mobile saving scheme as it directly influences the key success factor, the adoption rate. While exploring the different business models the author observed that deploying a saving service requires several processes, which are managed differently in each model. In the Limited Model, the providers are challenged as they construct and manage all the procedures themselves, sometimes resulting in issues like liquidity shortages. However, outsourcing the delivery channel as within the Rider Model is not less challenging because of the lack of influence on the customer's experience, which can cause dissatisfaction and distrust. The Partner Model has the chance to simplify the maintenance of different processes as the strengths can be leveraged.

However, the functioning of the business model depends heavily on the working arrangement in place. The author's results show that conflicts of interest and rivalry influence the success of the mobile saving service within the Partner Model negatively. On the other hand, the Rider Model has issues when the provider of the mobile money system does not allow easy linkages to its system and as such troubles the processes in place. The Limited Model finally illustrates that reducing the working arrangements with a financial institution to a minimum may be successful. However, the negotiation process with the institution may not be simple.

Economically, a provided service can only be successfully in the long run if the financial conditions are favorable. Each business model is influenced by different cost and revenue drivers. The analysis of the different models reveals that the Limited Model might only be economically viable if the provider is offering a limited range of financial services, as they cannot intermediate the deposits. The author concludes that the Partner Model may influence the success of a mobile savings service negatively as all the partners have to profit from the arrangement, reducing customer's surplus regarding product features. The Rider Model on the other hand can reduce transaction costs for the providers. However, whether or not those cost savings can compensate for the ongoing system integration expenses and the required increased marketing and training costs has to be determined in further research.

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List of acronyms

Agent	Human attendant handling cash transactions
ATM	Automated Teller Machine
CBA	Commercial Bank of Africa
CBK	Central Bank of Kenya
E-	Electronic
HO	Head Office in coordinating agents
KNJCS	National Federation of Jua Kali Co-operative Society Limited
KSh	Kenyan Shilling
KYC	Know Your Customer
M-	Mobile
M-Kesho	Mobile-based bank account service
M-Pesa	Mobile-based money transfer service
Mbao	Mobile-based pension scheme
MFI	Microfinance Institution
MNO	Mobile Network Operator
P2P	People to People
PEST	Politics, Economics, Social, Technology
RBA	Retirement Benefits Authority
SIM	Subscriber Identity Module
SMS	Short Message Service
SOCCA	Savings And Credit Co-operatives
Superagent	Bank providing liquidity to agents
SWOT	Strengths, Weaknesses, Opportunities, Threads
VSLA	Village Savings and Loans Association

1. Introduction

The simple access to a functioning bank branch network is considered as one of the differences between the Western and the developing world. Whereas having a bank account is integral of the economic life for most people in Switzerland, quite a part of the population in the developing world is excluded from any financial service as the services are mostly too expensive and too far away. However, quick, safe and uncomplicated access to financial resources has the chance reduce the poverty rate of individuals and a society significantly (Must & Ludewig 2010, 27-28).

In the last few years, technology revolutionized the manner of how people are handling financial matters in the developing world. Especially since the great success of the deployment M-Pesa, a mobile money platform provided by a mobile network operator in Kenya, banking through mobile phones and retail outlets came to the center of attention. This success story travelled the world and through that the industry regarding handling money through mobile phones expanded heavily over the last years. The mobile telecom industry body Groupe Speciale Mobile Association (GSMA) (2013) now tracks 184 live and 98 planned such services globally. Whereas in the beginning these services mainly concentrated on transferring money from person to person through a mobile phone, the expansion attracted a wide range of different players seeking a business opportunity. As a result, the accumulation of funds with the help of a mobile phone - mobile savings – is brought more into the focus (Demombynes & Thegeya 2012, 2). Savings are an interesting topic especially in the developing world where poverty rates are still high. Accumulated money can help people to stabilize the ordinary household expenses, develop opportunities to improve their condition in the future and help people mitigate shocks such as bad weather conditions (Ravi & Tyler 2012, 3; Mas & Mayer 2011, 1).

This thesis aims to give an overview on the different business models, which are in use by players along the value chain in the developing world to offer mobile savings. In particular, the author investigates under which conditions mobile savings services are successful and when they are not. A literature review on mobile money is conducted to derive conclusions about the current state of the mobile savings industry. Given the topic and the new upcoming research field, the

literature review goes beyond banking and microfinance literature and also covers relevant work from mobile phone banking. The author only considers saving services where the customer uses his or her own mobile phone to make deposits. Additionally, the author is more interested in individual saving accounts provided over the mobile phone than in group accounts[1].

The observation starts with a closer definition and classification of mobile savings. On the one hand the origin of mobile savings is explained and on the other hand the perception of savings is observed for the demand and supply side. In chapter 3 the author introduces currently applied business models for delivering mobile saving services. Chapter 4 then describes how the analyzed projects for the business model analysis are selected and introduces the analytic framework. Further with a PEST analysis framework, the chapter takes a closer look at the country-specific environments in which the chosen business models operate, and analyzes the different structures of the saving schemes based on a description and a SWOT analysis. The findings and possible consequences for MFIs are discussed in chapter 6, which finally is followed by a conclusion on conditions influencing the success of mobile savings services.

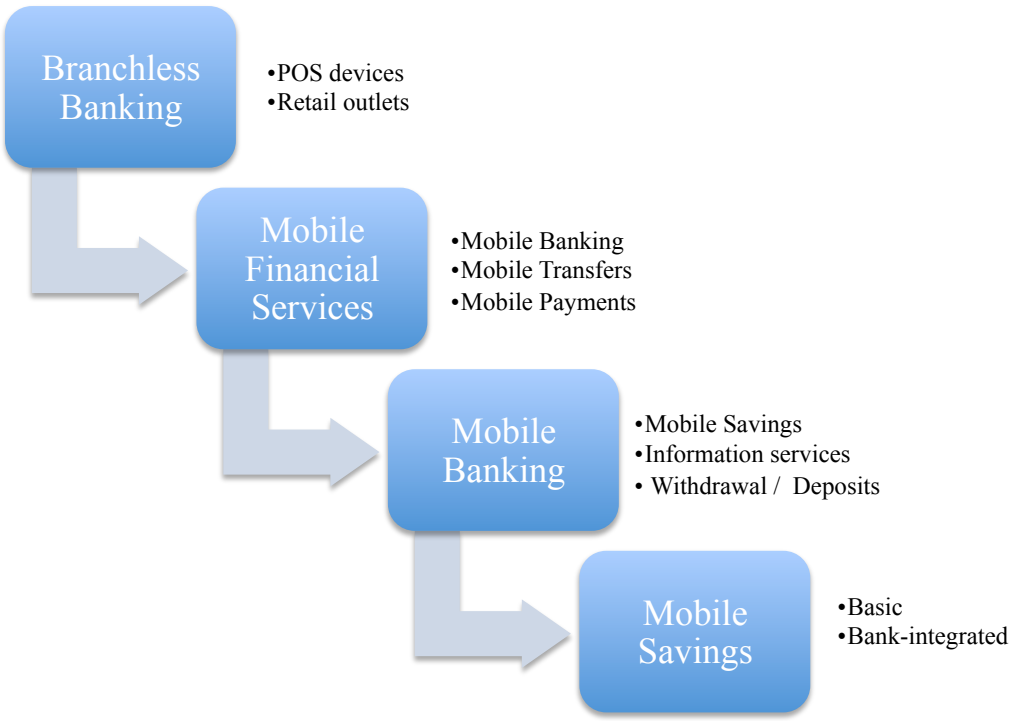
[1] Therefore, the pilot in Cambodia launched by the MFI "Angkor Mikroheranhvatho Kampuchea Co. Ltd (AMK)" and "Sub-K" launched by Basix Sub-k iTransactions Limited in which only agents are using their mobile phone for a transaction are not considered as mobile savings providers (Angkor Mikroheranhvatho Kampuchea Co. Ltd (ed.) 2013; Agoramicrofinance 2013; Sub-K 2013). Also CAREs partnership with Vodafone in Tanzania is not relevant for this thesis. In this pilot, group based M-Pesa accounts for Village Savings and Loans Associations (VSLA) are introduced (Hendricks & Chidiac 2011, 143-4).

2. Mobile savings

2.1 Definition and classification

The term "mobile savings" is referred to as a subcategory of mobile banking. Mobile banking is a form of mobile financials services, whereas mobile financial services are a form of branchless banking (Yousif et al. 2012, vii). The classification is illustrated in figure 1.

Figure 1: Classification Mobile Savings



Source: Own Research

The key-enabling factor of branchless banking is the existence of information and communications technologies which allow players to handle cash transactions outside branches. An automatic teller machine accepting, storing, and dispensing cash or a point-of-sale (POS) device placed at an outlet in combination with a human attendant handling the cash, called agent, are the most common forms of branchless banking. A POS device can be any hardware that can identify customers and receive instructions for the transfer of value. Hence, typical POS devices are mobile phones using the

mobile connection to send instructions to transfer value from one account to another (Ivatury 2006, 3-5). Since the advances in mobile technology and the greater affordability of mobile phones, mobile financial services gained much excitement (Yousif et al. 2012, 6).

Leveraging people's own mobile phones at the merchant and customer level brings several advantages for banks. One of most important is that today's customers are increasingly and strongly familiar with phones (Ivatury & Pickens 2006, 1). This trend is highlighted by the fact that in the developing world adaption of mobile phones are widespread (Yousif et al. 2012, 6). A study conducted in Kenya in 2006 estimated that 54.4% of Kenya's adult population owns or has access to a mobile phone whereas only 18.9% of the adult population benefits from formal banking services (Steadman Group Research Division (ed.) 2007, 13;34). Another advantage of the increasing mobile phone penetration for the banking industry is that mobile phones have a continuous connection to a network allowing real time transactions. Furthermore, information can be stored securely through the subscriber identity module (SIM) card in cell phones (Ivatury & Pickens 2006, 1; Ondiege 2010, 6).

Demombynes and Thegeya (2012, 2) distinguish between two main types of mobile savings: "basic mobile savings" and "bank-integrated mobile savings". Their common feature is that both offer an account that is accessible through a mobile phone. The first type, basic mobile savings, is defined by funds which can be stored securely in an electronic money account without the benefit of additional financial services. Whereas the other type, bank-integrated mobile savings, goes beyond the storage feature and introduces benefits such as interest or access to a loan. For the course of this thesis, both types are considered and analyzed.

Savings are typically not the first product provided over mobile phones. Mostly, mobile phones are used to move money over distance in form of people to people (P2P) or government to people (G2P) transfers or for bill payments. For several reasons, saving accounts are not as popular for providers. Sometimes it is just because of regulatory prohibitions or the lack of interest to expand the product range (McKay & Pickens 2010, 9-11). A second reason can be that the brand of the provider is not strong enough (Mas 2010a, 7). A third limitation can be that people are not willing to pay a lot for the possibility of savings and this makes it hard to establish a profitable economic model (Goss et al. 2011, 43). Additionally, most mobile systems are launched by Mobile Network Operators (MNOs). Thus, providing a liquid electronic wallet with various money transfer options is more similar to their core business

(McKay & Pickens 2010, 10). However, the mobile money industry has increased significantly in size and scope in the last few years. This expansion attracts a wide range of different players seeking a business opportunity and brings mobile saving more into the center of attention.

2.1.1 Savings from a customer's perspective

This section clarifies what features of savings products customers usually value most and why there is a need for savings in general. On the one hand, the author describes how the demand for savings products was fulfilled before the introduction of branchless banking. On the other hand, the main problems of formal, semi-formal and informal saving methods are briefly discussed. To complete the picture, the impact of mobile savings is demonstrated.

There is a considerable body of research proposing necessary features of a savings product and usual characteristics of providers to better fulfill the specific needs of poor people[2]. According to this research, savings services should be available conveniently and where people live and work. Additionally, users want to transact in low amounts at reasonable costs whenever they have the possibility to put money aside. Moreover, the provider has to be trustworthy so people can be sure that their money is available when needed (Mas 2010a, 6-7; Mas & Almazán 2011, 119-123). Zollma and Collins (2010, 3-4) held around 50 interviews with people from the Coast Province of Kenya who were using different saving mechanisms at that time. They concluded that low entry barriers and transparent fees are of great importance. Users want to be able to test the product and as such continually build up trust in the service and the provider.

Poor people mostly work without a contract, leading to erratic income streams. Most of the time, they are engaged in economic activities with very little or no productivity growth and are exposed to shocks such as illness or bad weather (Dittus & Klein 2011, 2-3; Christen & Mas 2009, 276-77; Chandy & Kharas 2012, 6). Thus, putting money aside has three main purposes. First, savings are required to stabilize the ordinary household expenses. Secondly, savings are needed so people can develop opportunities to improve their condition in the future. Thirdly, savings are there to

[2] Within this thesis, the poverty line, the cut-off point separating the poor from the non-poor, is monetary. Someone is poor when he or she does not have enough resources today to meet their basic needs (Haughton & Khandker 2009, 1).

mitigate shocks (Ravi & Tyler 2012, 3; Mas & Mayer 2011, 1). To fulfill these needs, people rely on three types of saving mechanisms:

1. Formal mechanisms such as commercial banks and pension funds
2. Semi-formal mechanisms like microfinance institutions (MFIs) as well as savings and credit co-operatives (SACCOs)
3. Informal mechanisms such as accumulating savings and credit associations, rotating saving and credit associations or simply "saving under the mattress" (Steadman Group Research Division (ed.) 2007, 14-15; Mas 2010a, 4-5)

In "financial diaries" by Collins et al. (2009) it was revealed that low-income families in Bangladesh, India, and South Africa used an average of eight different financial instruments to save. Mas (2010a, 4-5) came to the conclusion that the diversity of especially the informal mechanisms exists because none of them are ideal.

Informal savings arrangements tend to be risky for several reasons. The major threat is that value might get stolen. 99% of clients in Uganda saving through informal mechanisms report to have lost money (Wright 2010, 5)[3]. In some cases, the savings are illiquid for example when invested in jewelry or animals. Moreover, all informal mechanisms are within the local community where people live and work. Thus, there is a lack of privacy (Mas 2010a, 4-5).

On the other hand, formal savings mechanisms are restricted through direct costs of opening and maintaining an account. In Kenya for example commercial banks charge an average minimum opening deposit for a current account of KSh 1900 (CHF 20.-). This is equal to 16% of Kenya's per capita monthly income. Comparing, opening an account at MFIs costs in average KSh 150 (CHF 1.60) (Ravi & Tyler 2012, 19-20).

Moreover, there are indirect costs to formal savings mechanisms like opportunity costs and travel expenses if branches are far away from where customers work and live (Mas & Almazán 2011, 120). In 2006, 68.1% of Kenyans noted that a bank is far away and that travelling to the branch would cost them around CHF 3.- (Steadman Group Research Division (ed.) 2007, 16; McKay & Pickens 2010, 8[4]). Per 100'000 people there are two bank branches in the poorest country quintile, whereas in the richest quintile there are 33. However, especially for savings, proximity is important (Alexandre et al. 2010, 2). People might travel long distances for getting and repaying credit, but hardly to save the little money they can spare (Mas 2010a, 6-7). Other

[3] There is no average value of losses noted, only that there is a huge variation.
[4] Citation from: Safaricom's Pauline Vaughan, presentation at "Branchless Banking: What's the Score So Far?" organized by CGAP, Nairobi, 17 May 2010.

restrictions are caused by "Know Your Customer" (KYC) requirements by regulatory authorities which sometimes are hard to fulfill (Mas 2010a, 5-6). Additionally, bank branches mostly face capacity issues, causing long queuing lines and low-income customers mostly perceive "fancy" banks as intimidating (Alexandre et al. 2011, 2). The Steadman Group Research Division (2007, 18) asked those who have saved in the past but are not currently saving, what saving mechanisms they used and why they stopped using the former. As listed in Table 1, the main reasons besides having no money were low interests, high or erroneous charges and the fear of losing money (Steadman Group Research Division (ed.) 2007, 18).

Table 1: Saving product used and reason for stopping use

BASE PREVIOUS USERS OF SAVINGS PRODUCTS (N=313)

Where they have saved previously		3 main reasons for stopping use [6]	
ROSCAs, chamas, merry-go-rounds	60.3	Stole my money	17.7%
		Too much effort to attend meeting	10.9%
		Fear of losing money	10.3%
Banks/Building societies	32.3	High charges	36.9%
		Erroneous charges	9.2%
		Staff did not treat them well	5.7%
SACCOs/Co-ops	15.0	Low interest on saving	20.0 %
		Erroneous charges	9.6%
		It's too far away	9.4%
ASCAs	10.3	Low interest on saving	17.9%
		High charges	17.3%
		Group disbanded	16.5%
Micro-finance institutions	2.8	Fear of losing money	27.1%
		Low interest on savings	27.1%
		Too much effort to attend meeting	19.6%

Percentages

Source: Steadman Group Research Division (ed.) 2007, 18

With the introduction of mobile savings services, consumers are now able to store their money conveniently in a secure place (Chandy & Kharas 2012, 6). Also, the

possibility of owning an account with the help of a mobile phone that is inaccessible to other family members, gave women additional empowerment (Demombynes & Thegeya 2012, 5). Mobile savings are either a formal or semi-formal savings mechanisms, depending on how the money is secured and who the provider of the account is. With the use of retail outlets and mobile phones, clients save money on travelling expenses and there are less incidents of lost or stolen cash (Peake 2012, 13). Safaricom, a provider of a mobile system in Kenya, says that 47% of their clients save an average of three hours in transport time and CHF 3.- in transport costs per transaction (McKay & Pickens 2010, 8[5]).

McKay and Pickens (2010, 5) report that branchless banking services such as mobile banking is 19% cheaper than traditional banking services. Clients can therefore save up to 50% compared to the medium term savings. Nevertheless, for short-term savings, branchless banking mechanisms are 43% more expensive than traditional banking services (McKay & Pickens 2010, 5-8). Whether or not this is a result of measurement problems cannot be concluded.

In Kenya a study revealed that 21% of the people see their mobile money wallet as the most important instrument to store money, 90% count it among the three most important ones. Additional data from the Philippines and Brazil suggest that this is not peculiar to Kenya (McKay & Pickens 2010, 9). Moreover, in Kenya it was shown that the possibility of mobile savings acts as a substitute for informal savings methods, whereas it is complementary for other formal mechanisms (Mbiti & Weil 2011, 17).

2.1.2 Savings from a provider's perspective

Having observed the customer perspective on savings and the influence of mobile phones the author now turns to the providers' point of view and wants to find out why formal financial institutions did not serve low-income people in rural areas before the upcoming of branchless banking, and what chances result from leveraging retail stores and mobile phones.

Within the last paragraph it was shown that poor people demand a saving product with which they can transact infrequently, in small amounts and at low costs, near where they work and live. But exactly these requirements are hard to profitably fulfill by financial service providers. This causes people to rely on informal mechanisms.

[5] Citation from: Safaricom's Pauline Vaughan, presentation at "Branchless Banking: What's the Score So Far?" organized by CGAP, Nairobi, 17 May 2010.

Most financial institutions do not have a revenue model that is consistent with the described customer needs. Moreover, the infrastructure and operational processes of banks are not geared towards dealing with millions of small transactions (Mas & Almazán 2011, 119; Goss et al. 2011, 45). Banks have high transaction costs for handling cash payments underlying every financial transaction (Mas 2010a, 5).

Furthermore, building and maintaining a branch network implies large fix costs such as investments in infrastructure, equipment, human resources, and security (McKay & Pickens 2010, 5). Additionally, costs can increase if regulations mandate high investments relative to the volume of business conducted (Mas & Almazán 2011, 119; Alexandre et al. 2011, 5). Thus, most financial institutions do not have the business model allowing them to serve the market segment of low-income, poor people. Consequently, banks stay away from that market and concentrate on areas with larger average transactions (Alexandre et al. 2011, 4).

Mobile banking allows providers to leverage their existing infrastructure such as retail outlets and prevalent mobile phones. The provider can therefore deliver the required level of proximity through existing stores in every neighborhood (Goss et al. 2011, 46). Moreover, this distribution channel diminishes an immense part of the costs associated with building and managing own branches. Because providers can shift low-value transactions to the cheaper variable cost channels at outlets, they can offer low transaction costs and values (Goss et al. 2011, 46). The Consultative Group to Assist the Poor (CGAP) estimated that in 2008 financial institutions could offer banking services at least 50% cheaper through branchless banking than through traditional channels (Ivatury & Mas 2008, 2). However, as seen in the previous chapter, prices for the clients did not decrease by this amount. Maybe this indicates that the possible cost savings were overestimated. The author has shown that short-term savings with POS devices and agents were even costlier for users. The author therefore assumes that the operating costs of small savings accounts are higher with branchless banking than without. Thus, causing higher prices for clients. The increased costs could result from the additional customers and additional transactions that are attracted by the convenience of mobile savings.

In a next step the author aims to clarify why a successful financial institution or other providers of banking services could see an opportunity in mobile banking. A first reason could be that with mobile banking, providers are able to access new markets. Contracting with retail outlets is a low-risk, low-investment way to test and identify new geographic places (Mas & Almazán 2011, 121). Secondly, providers can

introduce new or complementary services which help them to retain clients (Peake 2012, 13). And thirdly, by reaching more clients the transaction volumes can be increased, which opens up cross-selling and up-selling opportunities (Alexandre et al. 2011, 4). Therefore, with branchless banking there are several ways for an institution to find new revenue streams (Peake 2012, 13). Additionally, over-crowded branches are getting relieved since the cash in / cash out transactions are outsourced to retail outlets. Therefore, banks can focus on their core businesses of marketing appropriate financial services to different customer segments. Furthermore, the customer relationship can be improved significantly: bank assistants have more time to properly advise their clients and sell the appropriate products (Mas & Almazán 2011, 121-22). It has to be noted that even though private organizations are mostly profit-oriented, an additional incentive of providing some forms of branchless banking could simply be the wish to "bank the unbanked". The author found that especially governments are driven by this incentive, since they have to set the right environment to make branchless banking possible.

3. Business models for delivering mobile savings services

According to Lurie (2009), a business model is the way a business is designed to create, deliver and capture value. In the mobile money literature most types of business models targeting mobile financial services are defined generally. They are classified based on the identity of the provider who offers a mobile money platform. Yousif et al. (2012, 19-24) for example categorized the mobile financial services industry into four main types of business models:

- First and the most prominent is the "MNO-led" business model, in which the mobile financial services are provided by a MNO.
- Secondly and when a financial institution offers the service, it is the so-called "Bank/Financial institution-led" model.
- Thirdly and within the "Third party-led" model, the institution providing the service is one that is created specifically for that purpose.
- The fourth business model is referred to as "The hybrid model", a joint venture between an MNO and a financial institution aiming to offer mobile financial services.

For the purpose of this thesis, the author suggests to adjust the above definitions of business models to fit the service of mobile savings. As highlighted in chapter 2, most savings products are offered in a later stage, when a mobile money platform already exists. Therefore, the previous definitions are not sufficient for a categorization targeting mobile savings. Alexandre et al. (2011, 10) point out that the key distinction between branchless banking schemes is to which extend a bank is willing to delegate functions to non-bank players. This raises the question if a bank is always needed in the value chain of mobile savings. Davidson (2011, 4) observed in his study which players are essential to offer mobile money and came to the conclusion that a bank and a MNO always have to cooperate in some way. On one hand, the bank is needed to hold the deposits or at least to secure the mobile money stored in the customers' and agents' mobile wallets. On the other hand an operator is necessary to provide in minimum the transaction channel over the mobile phone (Davidson 2011, 4).

Alexandre et al. (2011, 9-10) determine that all branchless banking models need to be bank-based because the collected deposits must be intermediated by a bank under the full purview of prudential regulation and supervision. Within this thesis, the author focuses on the use of simple mobile money services as a repository for funds or on the use of accounts that can be accessed via mobile phone and which offer financial

services beyond the basic storage feature. Therefore, the two partners identified – banks and MNOs – are also irredeemable in the case of mobile savings and have to jointly form a business model in some way.

According to the author, four key questions have to be asked concerning mobile savings services:

1. **Who originates the mobile savings product?** This consideration should highlight the different possible partnerships that may or may not exist and identify the party or parties who drive the roll-out of such services.
2. **Who holds the deposits?** With this question the author aims to closely examine the identity of the deposit holder and find out whether or not it is the same party as the originator. Deposit taking is the regulated preserve of licensed institutions only. However, the situation can seem blurred when MNOs pool individual deposits into one aggregated account at a bank, which has no role in administering the underlying individual accounts. In the following analysis the author proposes that in such a case the bank is the holder of the deposits because the MNO could not provide the service without the financial institution.
3. **Who provides the distribution network?** It should be determined which party or parties are in charge of the distribution network. A distribution network is defined as the network of cash in / cash out points for customers.
4. **Is the mobile savings product dependent on a mobile money system?** The key issue here is whether the mobile savings service is tied to one mobile money system or could be linked to several. In recent mobile money literature, different players are identified which are building additional software solutions to connect to an existing mobile system to somehow "ride" on the underlying service.

The literature regarding mobile money services covers several mobile savings services in use. These services were more closely observed and the answers to the four key questions formulated above were elaborated. All the information is presented in a table 12 in the appendix. The author then clustered the answers. Based on these clusters, three main models for mobile savings business models could be identified. Table 2 summarizes the typical answers and gives examples for each model at the bottom.

Table 2: Mobile Saving Business Model

Model	**Limited Model**	**Partner Model**	**Rider Model**
Product Offerer	MNO/Third-party	MNO & Bank	Third-party, Bank
Mobile Money System	dependent/ independent	dependent	independent
Distribution Network	MNO/Third party	MNO & Bank	MNO
Holder of Deposits	Bank	Bank	Bank
Current Examples	M-Pesa, EKO's No Frills Accounts, Cashpor pilot	M-Kesho, M-Shwari, Khushaal Munafa	Mbao, Mamakiba, Jipange Kusave

Source: Own research

3.1 Limited Model

A typical feature of this model is that a non-deposit-licensed institution originates the savings product and is additionally in charge of the distribution network. The originators are not allowed to hold the collected deposits and are therefore limited in their service offerings. The service can either be tied to one mobile money system or can be provided over several.

3.2 Partner Model

A MNO and a financial institution originate a mobile savings product within the "Partner Model". Most of the time, the partners form a joint-venture or work in a very close partnership. Clients can make deposits in interaction with both partners, because they both provide some form of the delivery channel. This model is depended on one mobile money system - mainly because the partners are building the platform together or one of the partners already formed one before.

3.3 Rider Model

In this model, a range of players can offer the saving product. The key is that an existing mobile money platform is used as the distribution channel. It is therefore in general independent in the sense that the product could theoretically ride on several existing systems. The originator of the product does not provide the distribution network. The provider of the existing mobile money system is offering the cash in / cash out points for customers.

4. Analysis of mobile savings projects in Kenya

4.1 Project selection

The aim of this section is to identify real-world mobile savings projects with which the above introduced business models can be analyzed in detail. The author will illustrate how the projects for the following analysis are determined.

The projects analyzed below are selected taking four specific criteria into account: Their business model, the adoption level, the country they operate in and availability of data. Those criteria are discussed in detail below:

- **Business model:** The author's ultimate aim is to explore different business models in the developing world delivering mobile savings to find conditions influencing their success. In the previous chapter three models were introduced: The Limited Model, the Partner Model and the Rider Model. For each business model the author aims to find a specific example from the real world.
- **Adoption level:** The objective of the author's analysis of business models for mobile savings in developing countries is to understand under which conditions such services are successful. For this reason, the author distinguishes between successful, moderately successful and rather unsuccessful mobile savings projects. There are several ways to measure the success of a mobile savings services. Based on Caballero (2012, 16), who developed such criteria in his study regarding mobile money projects, the author develops a similar framework to analyze the adoption level of mobile savings business models. First, the number of transactions by customers can be a measurement and could highlight the total amount of activity on the scheme. However, this comes with the risk of accounting for a small number of users making a large share of transactions. Secondly, the total value of the savings could also account for the success. Nevertheless this measurement has the same limitation as described with the number of transactions. Thirdly, accounting for the number of people that use the provided mobile savings service can also be a measurement for success. Since most of the discussion of branchless banking is around integrating poor people into the financial systems, determining the adoption level as a success of any mobile savings project seems like a plausible way for the author.

- **Country:** Dermish et al. (2011, 86) state that the prospects for success of any branchless banking endeavor depends in part on the context and setting in which such a project takes place. As such the author decided to draw the analyzed business models delivering mobile savings from one single country, as it simplifies the comparison and allows for a better isolation of the critical success factors of business models.
- **Data availability:** The following analysis is based on an empirical exploratory study of previous research by journals, academic material as well as literature from the mobile money community with a focus on mobile savings. As this thesis is based on a secondary research in a new and upcoming field of studies, relevant limitations appear when it comes to acquiring information, which refers to quantitative data such as the number of users as well as qualitative data for example challenges and limitations of providers.

As shown in the appendix in table 12, the author's review of the literature revealed several real world mobile savings services. These were closer observed and the answers to the above four criteria were evaluated. Taking those four criteria into account the author chose the projects summarized in table 3 for her analysis of business models delivering mobile savings.

Table 3: Project to Analyze

Business Model	Country	Project	Users
Limited Model	Kenya	**M-Pesa**	5'670'000[6]
Partner Model	Kenya	**M-Kesho**	800'000[7]
Rider Model	Kenya	**Mbao**	38'000[8]

Source: Own research in reference to Kwena & Turner (2013, 88), Nigigi (2012), Jack & Suri (2011, 22), Finacess (2009, 16), Safaricom (ed.) (2013)

[6] This number is calculated according to the estimated number of users saving via M-Pesa and the active users base of M-Pesa. The calculation is closer explained in the paragraph "Analysis of market aspects for M-Pesa" This number has to be used with caution as it is estimated.
[7] Rounded number from March 2012 (Ngigi 2012).
[8] Reported number from November 2012 (Kwena & Turner 2013, 88).

M-Pesa will be used as an example for the Limited Model within this thesis, with a high number of users. M-Kesho represents the Partner Model and has approximately 800'000 users. Mbao as an example for the Rider Model has a low user base compared to the other models.
All the projects are located in Kenya. The author selected Kenya as it is one of the few developing countries which is far progressed in financial inclusion and has climbed the ladder to a middle position of short-term electronic money storage and longer-term financial savings (Christen & Mas 2009, 279). Kenya also takes a leading role in the mobile money industry and as such received a lot of attention from researchers. Additionally, the country provides sample projects for all derived forms of business models.

4.2 Analytic framework for analysis of business models

This section outlines how the analysis is being completed for the chosen mobile saving schemes.

First, a PEST analysis highlights the market conditions within Kenya. PEST is an acronym and stands for politics, economics, social and technology. The PEST analysis framework is a simple and effective tool to identify the key external forces that affect an organization (Jurevicius 2013). The tool sets the context to understand the development and current state of the industry surrounding mobile savings. The PEST analysis within this thesis therefore mainly focuses on the economic landscape of Kenya.
Second, after a short introduction of each of the identified mobile savings schemes, the author evaluates how the analyzed business model functions in reference to Michael Lurie's five key elements of a business model. Lurie (2009) states a good working business model is determined by the following components:

1. **Markets**: This element gives an understanding of markets, customers, competitors and partners and the market position.
2. **Products**: The characteristic of the product and the customer's experience are the main features of this component. The value proposition of the product to both the target group and to the business is included.
3. **Processes**: This element consists of how the business creates, markets and delivers its products and services to its customers. Additionally it includes how the business manages and supports these core activities.

4. **People**: Within this component, the core stakeholders in the business are evaluated and their working arrangement is described.
5. **Economics**: This element comprises the key components of the economic model and highlights information such as revenue and investment.

Third, the author analyzes the business models with the help of a SWOT analysis. The objective of a SWOT analysis is to identify the strengths and weaknesses as well as the opportunities and threats for a product, place, industry or person. A category's strengths and weaknesses are based on internal factors, whereas opportunities and threats take external factors into account (Dyson 2004, 632-633). The advantage of this tool is that the arguments do not have to add up between the different categories. The author evaluates the SWOT analysis out of a macro-economic perspective. Out of this view, she will look for interactions between the company originating the savings product and the most important stakeholders it is connected to, in order to understand the critical success factors for mobile savings projects. The SWOT analysis allows to combine the business model description with the results of the PEST evaluation for Kenya.

4.3 PEST analysis for Kenya

The republic of Kenya is a developing country in Eastern Africa, 14 times larger than Switzerland. Approximately 43 million people live in Kenya with divers ethical backgrounds. The official languages are English and Swahili, the currency is the Kenyan shilling (KSh) (Marketline (ed.) 2013).

4.3.1 Political landscape

In 2002, Mwai Kibaki was elected by a popular vote as president. This vote ended the 40 years single party ruling system. A president is nominated for five years and can only be reelected for a second term. Kibaki guaranteed to reduce corruption while elected. Nevertheless, it is estimated that up to $1bn was lost due to bribery between 2002 and 2005 (Marketline (ed.) 2013, 10-11). In 2011, Kenya was ranked in the 19.4 percentile on the control of corruption parameter. Compared, Switzerland has a percentile rank of 95.7. In such a ranking 100 is the highest value a country can achieve and 0 the lowest. "Control of corruption measures the extent to which public power is exercised for private gain, including both petty and grand forms of

corruption, as well as capture of the state by elites and private interests" (Worldbank 2013a; Worldbank 2013b).

In Kenya, major political parties represent different ethnic backgrounds, leading to political mobilization on the basis of ethnicity (Marketline (ed.) 2013, 10-11). The period before the reelection of Kibaki in 2007 was characterized by heightened tensions between ethnic communities within the informal settlement. Banks' entanglement in ethnic disputes led to a distrust of such institutions (Morawczynski 2009, 9). It has to be noted that the collapse of multiple Kenyan banks in the mid 1980's and 1990's enhances this prevalent skeptical view on banks (Kelly 2012).

The outcome of the election led to politically and ethnically inspired violence, which was mediated through an intervention by the UN. Kenya was ranked at the 16.4 percentile on the rule of law parameter in 2011 whereas Switzerland has a percentile rank of 95.31. Rule of law measures "the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence" (Worldbank 2013a; Worldbank 2013b). The Kenyan government faces pressing problems such as high unemployment, crime and poverty. For this reason Kenya enforced an economic master plan called Vision 2030. Through constitutional reforms, high investments in education and the financial sector, Kenya aims to become a middle-income country by 2030 (Cracknell 2012, 6).

4.3.2 Economic landscape

Kenya represents the largest economy in Eastern Africa. The economy has grown at an average of 3.9% during the period between 2000 and 2010. Priority economic sectors include tourism, agriculture, wholesale and retail trade, manufacturing, IT enabled services and financial services (Cracknell 2012, 6). Even though Kenya is one of the most industrialized countries in Eastern Africa, the Kenyan economy heavily depends on agriculture. The industrial sector contributed 17.6% to the gross domestic product (GDP), whereas agriculture still represented 28.5% of GDP in 2011. The leading sector is services, contributing to 54% to the GDP (Marketline (ed.) 2013, 17-20).

Financial system regulation

The Central Bank of Kenya was established in 1966 through an act of parliament. Its major enforcements since then were the following:

- With the Microfinance Act No. 19 of 2006, microfinance institutions are enabled to accept deposits
- With the SACCO Societies Act in 2008, Kenya's deposit taking credit unions are strengthened and regulated
- In April 2010, the Central Bank of Kenya issued new agent banking regulations allowing banks to engage in a wide range of retail outlets for cash in / cash out handling and product promotion
- In May 2012, the Central Bank of Kenya allowed regulated deposit taking microfinance institutions to operate through third-party agents. Additionally, they are now allowed to operate agencies for deposit taking within their credit offices (Cracknell 2012, 7-8)
- The Finance Act in October 2012 introduces a 10% duty tax on money transaction fees: The tax is applicable on transfers through mobile, banks, or other agencies (Matinde 2013)

Those regulations encouraged many changes within the financial industry. In particular, there were diversifications in delivery channels, product innovations and institutional transformation observable.

Financial industry structure

Kenya has a relatively well developed and concentrated financial sector with the following players (Cracknell 2012, 3; Ravi & Tyler 2012, 5-14):

- 43 commercial banks
- 1 mortgage finance company
- An Association of Microfinance Institutions with 56 members
- 9 Deposit-licensed MFIs[9]
- 3,500 SACCOs
- 1 postal savings bank (Kenya Post Office Savings Bank)
- 125 foreign exchange bureaus
- A host of unlicensed lenders
- 4 MNOs.

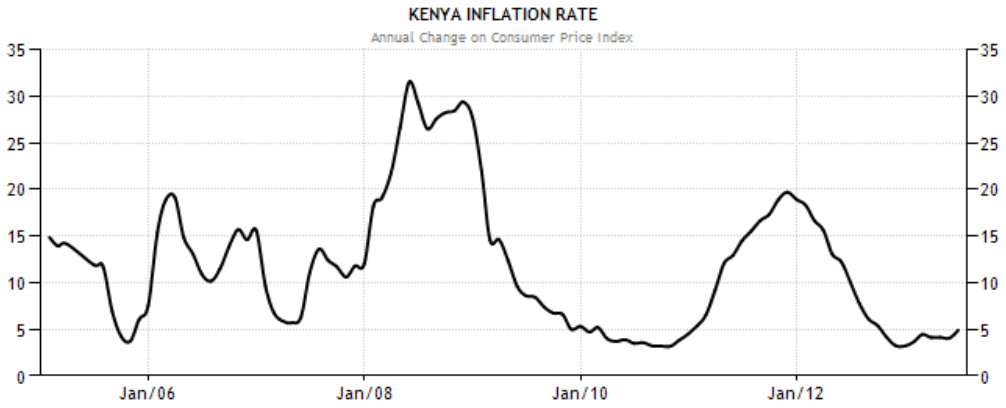
[9] Updated number according the „List of licensed deposit taking microfinance institutions" (Central Bank of Kenya, 2013)

Three banks – the Equity Bank, the Cooperative Bank and the Kenya Post Office Savings Bank – account for two thirds of the total of 14 million bank accounts. Encouraged by the new regulation from 2010, a total of 10 banks have now connected more than 10,600 bank agents. Kenya Women Finance (KWF), Faulu Kenya and Jamii Bora serve 70% of the microfinance market. KWF has quickly adopted the new freedoms the regulation provides and acts now through more than 200 deposit taking outlets and is therefore expanding his market share (Cracknell 2012, 3-4). Safaricom, Airtel, Orange, and Essar are the four MNOs offering mobile money services (Ravi & Tyler 2012, 13). Safaricom with its service called M-Pesa rolled out over 40'000 mobile payment agents and has had a market share of over 77% in September 2009 (International Finance Corporation (ed.) 2010, 8). Similarly high levels of concentration are also seen with SACCOs. Despite the global recession and credit crisis, the financial sector in Kenya continues to enjoy healthy levels of growth (Cracknell 2012, 4).

Consumer Price Index (CPI) inflation

Kenya is a country marked by high and volatile inflation rates as seen in figure 2. The CPI inflation rate in Kenya was recorded at 4.91% in June of 2013. From 2005 to 2013, Kenya's inflation rate averaged 11.77%, reaching an all-time high of 31.50% in May of 2008, and a record low of 3.18% in October of 2010 (Tradingeconmics 2013a). There is no consensus on the causes of the rise in inflation. Some think they are due to rises in food prices, whereas others allocate them to monetary expenses. It has to be noted that in 2008, Kenya was hit by the commodity-price hike as well as the financial crisis, combined with post-election violence (Durevall & Sjö 2012, 6). The other peak in 2011/2012 was mostly caused by increased food prices due to droughts and refugee streams (Marketline (ed.) 2013, 25).

Figure 2: Inflation Rate of Kenya



Source: Tradingeconomics 2013a

Unemployment

The unemployment rate measures the number of people actively looking for a job as a percentage of the labor force. The rate has been on the higher side over the last decade, averaging 22.43%. An all-time high of 40% was reached in 2011 (Tradingeconomics 2013b). Around 30% of Kenya's labor force is employed in the informal sector. Therefore, any legal framework or regulatory body has no influence on those people.

4.3.3 Social landscape

Kenya has a very young demographic structure and faces several important social issues. Especially high poverty levels and diseases such as HIV/AIDS have a drastic impact on social security arrangements. Drug and substance abuse as well as human trafficking are also an issue. Even though the poverty was reduced by 10% between 2000 and 2010, there are still 46% of people living below poverty line, having less than $2 per day to spend. The distribution of income is unequal. A study from the World Bank between 2000 and 2010 revealed that the highest 20% of the Kenyan population enjoy over 53% of the income share, whereas the lowest 20% of the population account for 4–5%.

Kenya's welfare system is not promoting universal accesses but rather centers on employment. Therefore, healthcare and pension systems include mostly those who are employed in the formal sector and who can afford the contribution to the system. Kenya has a tripartite social security system. First, there are public schemes in which membership is compulsory. Secondly, there are occupational schemes run by employers in which membership is voluntary. Thirdly, there are private individual programs that also promote a voluntary participation (Marketline (ed.) 2013, 27-30).
In 2006, 38.4% of adults were excluded from any financial service, whilst 18.9% of the adult population were included in the formal sector. 7.5% of Kenyans rely on semi-formal institutions and the rest is involved in informal offerings such as rotating saving and credit associations (Steadman Group Research Division (ed.) 2007, 14-15).

4.3.4 Technological landscape

The fixed-line telephone sector in Kenya is inadequate, small and is marked by inefficiency. However, the mobile sector has increased significantly within the last decade. Starting from a low user base of mobile phone subscribers, it grew by 78.34% from 2001 to 2011 (Marketline (ed.) 2013, 31). Over 57% of Kenyans have their own mobile phone. Additionally, the number of ATMs had doubled and the amount of debit cards has increased by more than 600% within five years. Thus, there are now several institutions utilizing mobile technologies for delivering and implementing savings products. Out of 20 financial institutions participating in the Savings for the Poor Innovation and Knowledge Network (SPINNAKER) study conducted in Kenya, 15 institutions reported the use of mobile phones to deliver over 30 savings products. 13 institutions provided their savings services through automated teller machines (ATMs), revealing it as the second most used technology (Ravi & Tyler 2012, 19). Additionally, the internet is an upcoming trend, as internet subscribers grew by 105.39% in 2011 to reach 11.82 million (Marketline (ed.) 2013, 31).

The PEST analysis is summarized in table 4.

Table 4: PEST Analysis of Kenya

Political landscape	Economic landscape
• Corruption • Banks entangled in ethnic disputes • Bank collapses a few decades ago • Low confidence in rules of society	• Largest economy in Eastern Africa • Agriculture main GDP driver • Financial industry changes through new regulations • Developed & concentrated financial sector • High & volatile inflation • 30% employed in informal sector
Social landscape	**Technological landscape**
• Poverty • HIV/Aids • No universal welfare system • Only 18.9% adults included in financial system	• Bad fixed-line telephone sector • Well-developed mobile sector • 57% Kenyans own mobile phone • Increase in ATMs • Increase in mobile technologies • Internet as upcoming trend

Source: Own research

4.4 Analysis of the Limited Model: M-Pesa

M-Pesa is a mobile phone based service for sending and storing money, offered by Safaricom. Safaricom customers can register for M-Pesa by visiting a merchant at a retail outlet who acts as an "agent" for account opening, handling of deposits and withdrawals into the customer's e-wallet. Customers can then use an application on their mobile phone to check their balance, send money to other people, pay bills, purchase mobile phone airtime and store money. Customer funds are held in special trust account at three Kenyan banks (Morawczynski 2009, 7).

M-Pesa was not designed to offer a saving opportunity. Nevertheless, it allows the customer a form of basic mobile savings where the electronic money account is used to store funds without earning interest. M-Pesa is a special form of the Limited Model because the individual deposits are secured in pooled accounts at several banks (Mas & Radcliffe 2011, 170). Compared, the other projects listed as examples of this business model offer No Frills Accounts (NFA) at a bank. In the case of the Cashpor pilot for example the accounts resemble a save storage place. The bank that holds the deposits does not provide interests on such accounts (ICICI Bank 2013). However, this is not a feature of the Limited Model as seen with the NFA accounts offered by

EKO, which include a 3.5% interest rate per anum (Nandhi 2012, 3). M-Pesa is picked as the analyzed example of the Limited Model because it is very well documented and additionally represents the underlying service of the other projects that are discussed below. For the following analysis of M-Pesa the focus lies on the storage features. The other products and features are only discussed briefly.

4.4.1 Analysis of market aspects for M-Pesa

M-Pesa (M stands for mobile and Pesa means money in Swahili) is owned, hosted and created by Vodafone and operated locally by its Kenyan affiliate Safaricom since March 2007 (Mas & Radcliffe 2011, 170). The Vodafone Group is a British multinational telecommunications company serving the communication needs of 403 million customers, with the group operating in more than 30 countries. Additionally, it has entered into more than 50 arrangements with network operators in countries where it does not hold an equity stake.

One partner working under these agreements is Safaricom (Vodafone Group 2013). Safaricom is the largest mobile network operator in Kenya, launched in 1997 (Morawczynski & Miscione 2008, 295). It had over 80% market share in the telecom industry before the development of M-Pesa. Safaricom was a respected company with a strong brand awareness that had introduced useful products such as prepaid airtime accounts and per-second billing. Kenyans perceive the company as a private sector business from Kenya that helps people with local problems (Mas & Ng'weno 2010, 7-8). This positive brand awareness was one of the main reasons why they successfully launched a banking service, as for this kind of banking service trust is very important, because customers deposit their money to be held in a virtual account managed by Safaricom (Morawczynski and Miscione 2008, 296). Morawczynski and Miscione (2008, 296) argue that many users also trust Safaricom because they believe that the CEO Michael Joseph[10] is politically neutral and will not spend their money in tribal affairs. Furthermore, customers think that a bank is more likely to be bankrupt than Safaricom will be (Morawczynski & Miscione 2008, 296)[11].

M-Pesa started out in a discussion about the Millennium Development Goals, in which the question of how the private sector could be engaged arose. In those goals, many nations have committed to reduce poverty by 50% within 25 years. With the

[10] As of November 1st 2010, Bob Collymore replaced Michael Joseph and is now the current CEO of Safaricom Limited (Safaricom 2013a).
[11] The roots for distrust towards banks were discussed in the PEST analysis for Kenya

help of a challenge fund the service M-Pesa was built step by step. Initially, M-Pesa was planned in a partnership with an MFI, to allow repayments of loans through the mobile phone. Therefore, technology is used to set up a platform that would allow a customer to make payments as conveniently and simply as if they would buy an airtime top-up. However, the pilot experience showed that a mass market launch with the MFI Faulu would be too complex. The service created was more favorable for the clients than for the MFI. Thus, by the end of the pilot a compelling consumer proposition around this institution was found with "Send Money Home" to satisfy the need of a cheap and quick way to transfer money to distance business associates, friends, or relatives (Eijkman et al. 2010, 220).

With this offer, M-Pesa operates in a market niche to provide enhanced financial services. With the payment mechanism it places itself somewhere between formal providers, such as banks, ATMs and Automated Clearing Houses (Jack & Suri 2011, 5), and informal possibilities, such as personal trips, friends, and public transport networks (Mas & Radcliffe 2011, 171). Additionally and even though not intended, M-Pesa targeted people who were looking for a save way to put money aside (Jack & Suri 2011, 22). Thus, M-Pesa offers some form of a semi-formal saving method, competing on one side directly with operators in the semi-formal market, and on the other side with providers in the formal and informal market.

Safaricom's main incentive to launch M-Pesa was to extend its service into a completely new kind of business, and as a Payment Service Provider gain access to a new revenue stream, as well as to strengthen customer maintenance. On the other hand, Vodafone saw a chance to increase its presence in the low-cost International Remittance Service, which is estimated to be a $300 billion business globally (Hughes & Lonie 2007, 77).

M-Pesa is especially targeting the "unbanked". However and in the beginning, customers mainly were represented by the wealthier, urban and banked population. With time, M-Pesa spread down market. Late adopters tended to be poorer, rural and unbanked parts of the population (Jack & Suri 2011, 13). M-Pesa stated in the financial year presentation to have over 17 Mio subscribed users, whereas 10.5 Mio are active consumers (Safaricom (ed.) 2013, 13).

M-Pesa was not designed to be a savings product, which is why the number of users leveraging it for this purpose can only be estimated. In the panel survey conducted in 2009 by Jack and Suri (2011, 22), 81% of the respondents indicated that they save via M-Pesa. However, in a national survey conducted in 2009 only 26% of users reported

using M-Pesa for this purpose (Finaccess 2009, 16). Taking the average of those values as an estimator derives that approximately 54% of M-Pesa users employ it as a saving vehicle. Taking the active customer base as a reference point, the author concludes 5.67 Mio savers.

Of course, this number has to be used with caution, as a lot of customers sign up because other services are linked to M-Pesa, and require a registration with this service. Morawczynski and Pickens (2009, 2-3) predicted in their study of 2009 that M-Pesa is being used as a storage mechanism by one-third of banked and one-fifth of unbanked users. Because the deployment is specifically targeting the unbanked, it had to be designed in the absence of a user bank account. However, the Central Bank of Kenya (CBK) insisted that all customer funds be deposited in a regulated financial institution to guarantee sufficient prudential comfort (Mas & Ng'weno 2010, 24). Regulation requires that e-money is always 100% backed by deposits in commercial banks (Jack et al. 2010, 93).

As neither Safaricom nor Vodafone have a banking-license, a partnership had to be formed. In the beginning, the Commercial Bank of Africa (CBA) stored customer's real money in a trust account on behalf of M-Pesa. However, with the immense expansion of the service, the risk regarding the increasing value of float is now diversified between CBA, Standard Chartered, and CFC Stanbic, a subsidiary of the Standard Bank (Davidson 2011, 16). Furthermore and to gain access to the target group and to provide a convenient service, Safaricom leverages the established distribution network of airtime resellers and other types of retail outlets. The so-called M-Pesa agents are the venue for cash in / cash out transactions (Hughes & Lonie 2007, 70). To have control over the customer experience at these outlets, Safaricom outsources some of the channel management functions to the company Top Image (Mas & Radcliff 2011, 179).

4.4.2 Analysis of product aspects for M-Pesa

M-Pesa offers an electronic money account or e-wallet (m-wallet, respectively) which is connected to the phone number of the customer. The account can be accessed through a SIM card (Koech 2012, 2). On such a card, the M-Pesa application is programmed on to (Hughes & Lonie 2007, 76-77). In exchange for cash deposits possible at any M-Pesa retail outlet, Safaricom issues e-float or e-money (m-money). This "currency" is measured in the same units as money (Jack & Suri 2011, 5). The e-money is added to the customer's wallet and managed on the M-Pesa technology platform, whereas the real amount of money is stored in a not-for-profit Trust Fund on behalf of M-Pesa. Thus, no interest is provided on the users' balances in the e-wallet (Mas & Radcliffe 2011, 174; Flaming et al. 2011, 81).

The e-money could initially be used only for P2P transfers and to buy prepaid airtime. Now, person-to-businesses transfers and business-to-person transfers as well as international money transfers are possible, too (Lyons 2010, 31). The customer uses his own phone to make such a transfer of e-money whereas the transaction information is communicated via the Safaricom mobile phone network (Flaming et al. 2011, 81).

M-Pesa does not require immediate payments or withdrawals because e-money can be accumulated over time and introduces a sort of savings instrument (Jack & Suri 2011, 22). When withdrawing at a cash in / cash out outlet, the users change e-float against cash in the maximum height of the funds in the e-wallet (Eijkman et al. 2010, 223). A text message (SMS) is issued to the customers phone after each transaction. This instant recording should assure and protect the users (Kwena & Turner 2013, 86). Additionally the accounts are supported with a 24/7 service provided by Safaricom and the Vodafone Group.

Safaricom designed the scheme to make it as easy as possible for customers to try the new service. This especially means that the end user does not need to have a bank account. However, the service implies the ownership of a mobile phone and the use of Safaricoms' mobile network (Hughes & Lonie 2007, 63;69). Clients can register for free at an authorized M-Pesa retail outlet to access the M-Pesa application (Mas & Radcliffe 2011, 170). For this process, they need an official form of identification such as the national ID card held by all Kenyans (Jack & Suri 2011, 5). If the customer's SIM card is not preloaded with the M-Pesa application, the merchant replaces it. Initially, such a SIM card upgrade was free of charge (Mas & Radcliffe 2011, 175). However, as all new cards are now M-Pesa enabled, Safaricom charges

customers CHF 0.2 (KSh 20) for a replacement. The initially free balance inquiry costs the customer now CHF 0.01 (KSh 1), because users checked their balances unreasonably frequently. Safaricom makes up for those charges by sending an SMS receipt with the available account balance (Mas & Ng'weno 2010, 8). Changing the pin number costs CHF 0.24 (22 KSh), whereas deposits are free, but a fee is charged for withdrawals and any transfers of e-money (Kwena & Turner 2013, 86).

M-Pesa states its fees in fixed currency terms and not as a percentage of the transaction value. This aims to make it easier for users to think of the fees in terms of the transaction's absolute value (Mas & Radcliffe 2011, 176-77). There is no minimum account balance but a maximum of CHF 1074 (KSh 100,000). The maximum daily transaction value is CHF 1504 (KSh 140,000) whereas the maximum per transaction is CHF 752 (KSh 70,000). At an agent outlet, users cannot withdraw less than CHF 0.53 (KSh 50) (Safaricom 2013b). The author assumes that the minimum deposit is equal to the minimum transaction size of CHF 0.1 (KSh 10). The customer is only able to make any transaction when the Safaricom line plus the M-Pesa account is active.

The author calculated the costs for a one way savings trip, both for a theoretical customer and Safaricom, based on the newest commission structures and tariffs in place. A one way saving trip represents one deposit and a later withdrawal. Table 5 shows these calculations. The costs of the provider are solely based on the commissions they pay to their agents for such transactions. All customers' tariffs are paid out of the e-wallet and therefore are not paid directly to the merchant who serves them. The author concludes that a round trip increases with the transaction size for customers and Safaricom. However, the provider has a negative profit in the higher transaction size categories. Safaricom makes the major margins in absolute value terms on medium size transactions. The revenue/expense ratio reaches a maximum with 87% for the category of CHF 80.58-107.43. However, the profit/transaction ratio is 0% on the categories over CHF 80, reaching its maximum with 3% in the category with an average size of CHF 3.73. In contrast and for customers, the ratio of the fee and value withdrawing lies for medium transaction sizes at around 2%, decreasing to 1% from CHF 80 and upward. When wanting to withdraw a small amount, users pay an average of 36% from the value withdrawing in the second category ranging from CHF 0.54-1.07. As such the service might not be attractive for low-income people who want to withdraw only small amounts.

Table 5: M-Pesa Costs in CHF[12]

M-Pesa	Transaction size ranges in CHF ◆					
Customers tarrifs	**0.54-1.07**	**1.08-5.37**	**16.12-26.86**	**80.58-107.43**	**107.44-161.14**	**537.16-752.01**
Deposit ✣	0.00	0.00	0.00	0.00	0.00	0.00
Withdrawal at agent ✣	0.11	0.29	0.29	1.18	1.71	3.55
Channel commission						
Deposit ⭘	0.04	0.09	0.12	0.30	0.43	2.04
Withdrawal ⭘	0.05	0.09	0.16	0.38	0.48	2.15
Round-trip savings transaction for costumer ⌘	0.11	0.29	0.29	1.18	1.71	3.55
Round-trip savings transaction for Safaricom ⌘	0.10	0.17	0.28	0.68	0.91	4.19
Profit for Safaricom ⌘	0.01	0.12	0.01	0.50	0.79	-0.64

✣ Tariffs as stated on Safaricoms Website (Safaricom 2013b)
⭘ Tariffs as stated in the agent bulletin (Mruttu 2012)
⌘ Own calculations
◆ Exchange rate of 93.0843 KSh/CHF on the 18.06.2013 (Exchange-Rates.org 2013)

Source: Own research in reference to Safaricom (2013b), Mruttu (2012), Exchange-Rates.org (2013)

4.4.3 Analysis of process aspects for M-Pesa

Registration

When a customer wants to sign up for M-Pesa, the merchants provide a paper registration form. The customer has to fill in his or her name, ID number, date of birth, occupation, and mobile phone number. After completion, the merchant checks the ID and inputs the customer's registration information into a special application in his mobile phone. Safaricom then sends both the customer and outlet a SMS confirming the transaction. The SMS provides the customer with a four-digit, one-time password, which is used to activate the account. Customers enter the password and ID number, and then choose a PIN. This completes the registration process (Mas & Radcliffe 2011, 175-76).

[12] The author wants to highlight that only the direct cost paid as commission to agents is taken into account. Indirect cost cannot be included as their are no numbers available and an approximation would exceed this observation.

Deposit & Withdrawal

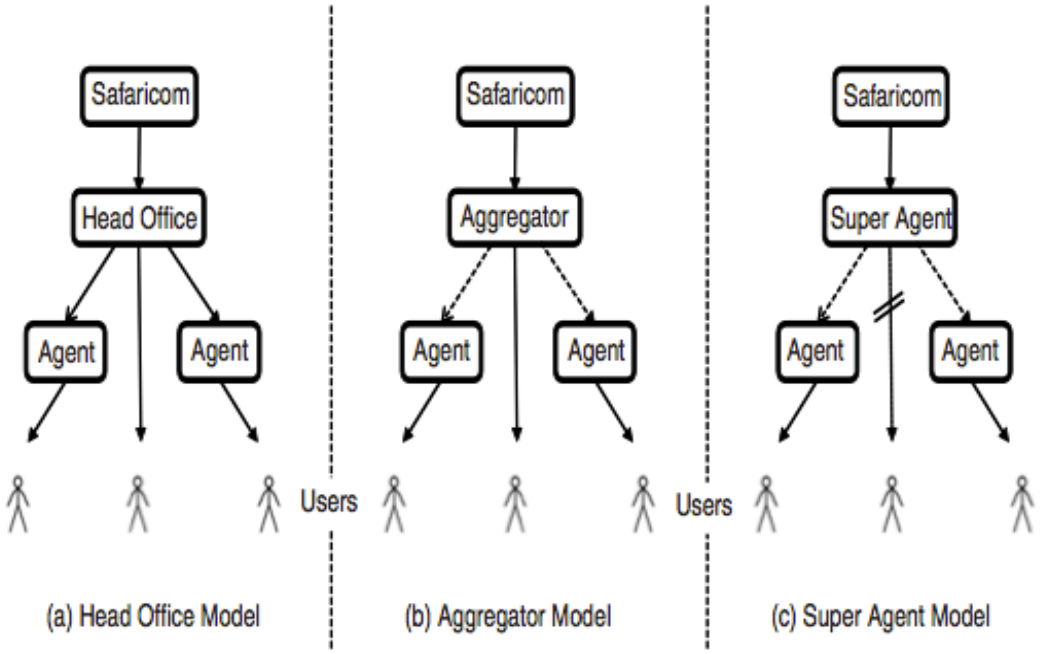
When a customer arrives at a M-Pesa retail outlet to make a cash in / cash out transaction, the merchants record the M-Pesa balance, the date, agent ID, transaction ID, transaction type, value, the customer's phone number, customer's name, and the customer's national ID number in a paper based logbook (Kwena & Turner 2013, 86; Mas & Radcliffe 2011, 176). Then the agent enters the customer's phone number and contribution amount into his M-Pesa menu on the cell phone. All the information is captured electronically by Safaricom and the customer waits around one minute to receive a text message confirming that the money has been transferred to the account (Kwena & Turner 2013, 86). The client then has to sign the log. One of the triplicate pages from the book is kept by the retail outlet for his own records, a second is passed on to the store's master agent, and the third is sent to Safaricom (Mas & Radcliffe 2011, 176).

Channel Management

Introducing a working channel structure is one of the biggest challenges Safaricom faces, as it has to manage over 40'000 stores. On the one hand the company wants to have tight control over the customer experience, and on the other hand wants to establish a scalable structure. As reported by Jack et al. (2010, 93-94) there are now three agent structures in operation by Safaricom, in which a central body manages and coordinates the tasks of subsidiary agents.

As shown in figure 3, these models are differentiated with regard to the formal status of the coordinating body, the ownership structure of the group, and whether the central body conducts direct transactions with individual users.

Figure 3: Channel Management Structure of M-Pesa



Notes: (a) The coordinating body is the "head office," which owns agents and can transact directly with customers. (b) The coordinating body is referred to as an "aggregator" and has arm's length contractual relationships with agents. (c) The coordinating body is a bank branch and is called a "super agent," but neither owns the agents nor transacts directly with customers.

Source: Jack et al. 2010, 94

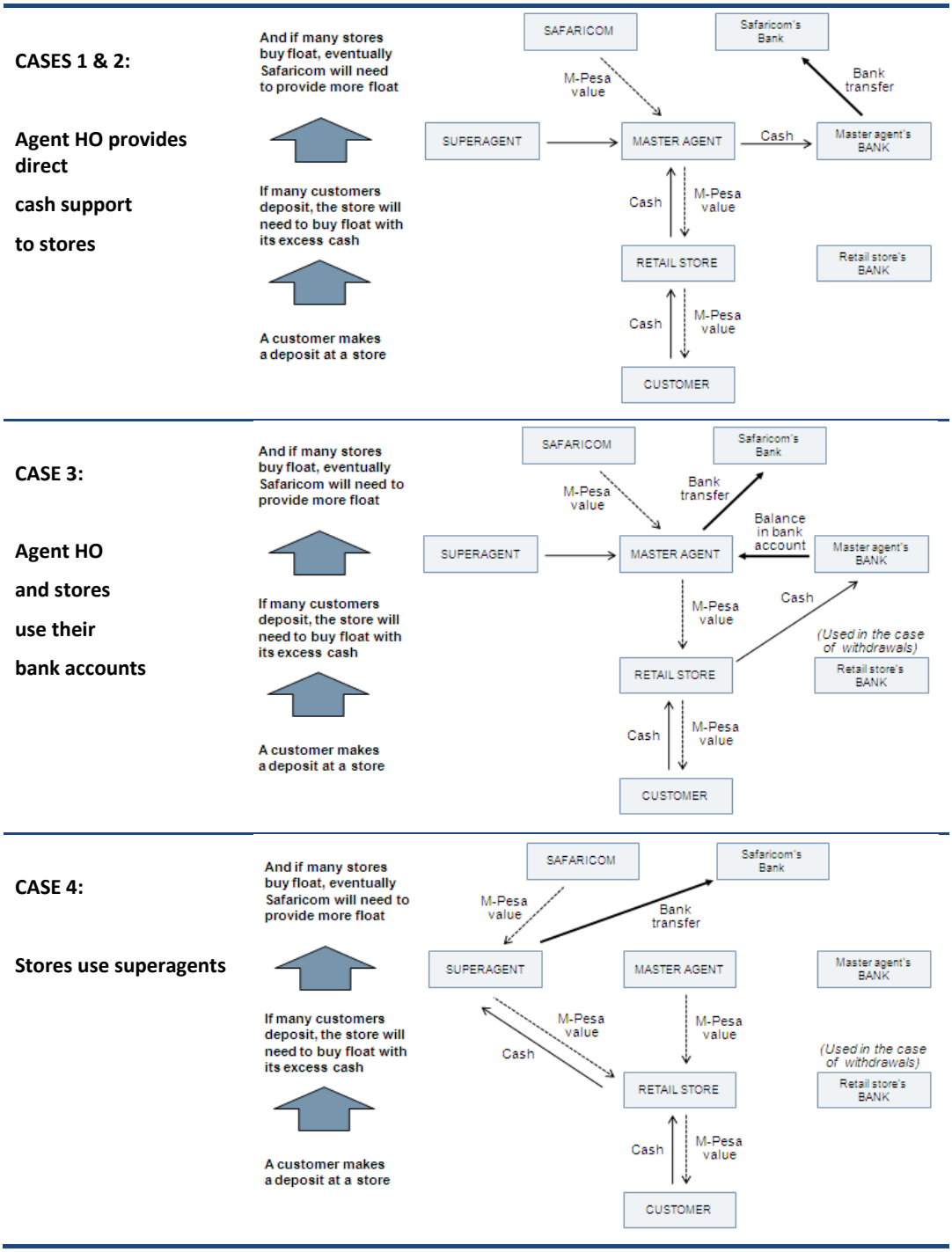
In the first model, a head office (HO) that directly deals with Safaricom is designated out of the agent group. The subsidiary agents are owned by the head office and manage their liquidity through transactions with the head office. Both the head office and the agents can transact directly with M-Pesa users. The second model is the aggregator model. The aggregator takes the function of the HO and is therefore dealing directly with Safaricom and managing the cash and e-float needs of agents. The difference to the first model is that agents can be independently owned entities with which the aggregator has a contractual relationship. A third model allows a bank branch, called "superagent," to make cash and e-money transactions with agents on an ad-hoc basis. Those banks are also directly dealing with Safaricom. However, it does not trade e-money with M-Pesa customers (Jack et al. 2010, 94).

Additionally and to maintain control over the customer experience, Safaricom outsources some management functions to the company Top Image. This company looks after evaluation, training, and on-site supervision of stores for Safaricom (Mas & Radcliffe 2011, 179). However, Mas and Ng'weno (2010, 9-10) noted that the aggregators would in addition to their traditional channel roles take over the functions of Top Image.

Liquidity Management

Liquidity management is strongly connected to the channel management structure. However, the author wants to discuss it separately because liquidity shortages are an important issue for Safaricom. Even though agents have special e-wallets with higher account balances, they often run out of cash or e-float and cannot meet the customers' needs to deposit and withdraw money. Stores have to rebalance their holdings of cash versus e-float. On the one hand and if they take too many deposits, they run out of e-float with which to facilitate further deposits. On the other hand and if they do too many withdrawals, they will accumulate e-float but will run out of cash. As seen in the channel management structure, Safaricom only interacts with certain agents and banks. If those parties want to buy e-float, they have to deposit the appropriate amount of money in Safaricom's account at one of the three custodian banks (Mas & Radcliffe 2011, 179; Eijkman et al. 2010, 224-25). This has to be done because regulation requires that e-money is always 100% backed by deposits in commercial banks. In turn, those agents buy and sell e-float from the agents that depend on them (Jack et al. 2010, 93-94). The selling of e-float works vice versa. As shown in figure 4, for subcategories of agents, Safaricom offers three main methods for liquidity management within its channel structure (Mas & Radcliffe 2011, 179; Eijkman et al. 2010, 224-25).

Figure 4: Liquidity Management of M-Pesa



Source: Mas & Ng'weno 2010, 13

The author wants to highlight that the HO could be a "typical" HO or an aggregator. As summarized in figure 4, the first option is that a HO provides direct cash support. The merchant as sub-agent either goes to the HO head office to deliver or offload cash, or the HO sends some cash runners to perform these functions. However, cash runners are nor very common. Under the second option, the HO and stores use their bank accounts. If a store for example needs to buy M-Pesa e-float from the HO, the store will deposit cash into the account of the agent HO at the nearest bank branch or ATM. When the HO confirms the receipt of the funds into its account, the HO transfers M-Pesa e-float to the store's M-Pesa account. If the store wants to sell e-float to get cash, the store transfers M-Pesa e-float to the agent HO. The agent HO then deposits money into the store's account at the branch of the store's bank. The store can then withdraw the cash at the nearest branch or ATM. In the third option, stores interact directly with a superagent. Stores need to have an account at a superagent bank. Then to rebalance their cash, sub-agents deposit and withdraw cash to / from their bank account at the nearest branch or ATM of the bank. The store then electronically buys and sells e-float in real time against their bank account (Mas & Radcliffe 2011, 179).

Marketing

Despite the knowledge that people are using their service to save money, Safaricom is not promoting this feature of M-Pesa. As the company can operate outside the banking-law it does not want to provoke the CBK in fear of stricter regulation (Mas & Radcliffe 2011, 180).

Customer support

Customer support is needed in general to build up trust in the service area and to attract users who are afraid of technology. One the other hand it is needed because of failed or wrong transactions. Additionally and because M-Pesa is targeting poorer people, many users are illiterate and unfamiliar with the functioning of their mobile phone and need further assistance (Mas & Radcliffe 2011, 175-76). Therefore, Safaricom and Vodafone introduced a 24/7 call center for M-Pesa (Hughes & Lonie 2007, 63). However, the initial center quickly reached its limits and customers or agents needed several hours to get through. Safaricom responded to this issue by expanding the M-Pesa stafff members to 350. Additionally, support is given at agent level (Mas & Radcliffe 2011, 176).

Anti-money laundering system

Safaricom built a bank-grade anti money laundering system to on the one hand provide the Central Bank of Kenya the required regulary reports and to decrease the possibility of fraud by agents or others. The system monitors each and every transaction done on the M-Pesa platform (Alexandre 2010, 8-9).

4.4.4 Analysis of people aspects for M-Pesa

In this paragraph the author takes a closer look at the providers and the most important stakeholders of M-Pesa and focuses on the reasons they are engaging with M-Pesa as well as their role for M-Pesa.

The originator of the service

Vodafone and its business objectives were already introduced in detail in Analysis of market aspects for M-Pesa. Therefore, the author just wants to highlight how Safaricom and Vodafone work together. Vodafone as the owner of the mobile money service holds a 40% stake in Safaricom, the provider of M-Pesa. The company licenses the M-Pesa platform via a managed service agreement to Safaricom. For this, Vodafone charges a fee of 30% of Safaricom's revenues on M-Pesa (Lyons 2010, 34).

Custodian Banks – CBA, Standard Chartered, CFC Stanbic

Custodian banks are needed to store the cash that backs the e-float by 100%. This role has to be outsourced because neither Safaricom nor Vodafone are allowed to hold deposits. Today, this role is split between three Kenyan banks: CBA, Standard Chartered, and CFC Stanbic. The banks and Safaricom set up a service level agreement to primarily provide guidelines on how long transactions should take to complete. Additionally, a senior account manager at the banks is in place to handle issues and to manage the relationship with M-Pesa (Davidson 2011, 16). The M-Pesa trust accounts are just like regular accounts. Safaricom has no restriction for access and the banks do not have any special reserve requirements except for the mandatory 6%. Because Safaricom has to continuously reconcile the value in the bank account with the value of e-money in M-Pesa, the company is responsible for creating and balancing e-money based on transaction reports that are delivered by the banks throughout the day (Jack & Suri 2011, 9). CBA initially was willing to take over this role, since they are not targeting the unbanked and therefore have no conflict of interest. Additionally and for the custodian banks there are three ways to make

money. First, they earn transaction fees since the agents have to make deposits or withdrawals at one of these three banks to rebalance their stock of e-float and cash. Secondly, because M-Pesa deposits are very stable they can benefit from the spread between what they charge borrowers and what interest rate they pay the M-Pesa Holding Company. The players negotiate the interest rate on a monthly basis. Thirdly, several agents are opening accounts at these banks because they can slightly faster rebalance their e-float and cash, which decreases their need of working capital (Davidson 2011, 16).

Agents

Using existing retail stores as cash-in / cash-out outlets reduces deployment costs for Safaricom and provides greater convenience and lower access costs to M-Pesa (Mas & Radcliffe 2011, 170). Safaricom rewards agents for their role in the M-Pesa system. The company has signed an agency agreement with those parties it buys and sells e-float from / to. Banks acting as superagents receive 1% of the value of the transactions they process as provider of liquidity services to agents (Flaming et al. 2011, 68). The other agents receive transaction as well as sign-up commissions at the end of each month. The average commission paid by Safaricom for a round trip savings transaction is CHF 1.25[13]. The HO or the aggregator can in maximum keep 20% of this profit and has to pass the rest on to the sub-agents working for them (Flaming 2011, 51)[14]. Additionally and being an M-Pesa agent brings indirect benefits in the form of increased foot traffic into the store and a reputation gain from the store's association with the powerful Safaricom brand (Eijkman et al. 2010, 225).

[13] The calculation is based on table 5: M-Pesa Costs in CHF

[14] It was indicated by Flaming et al. (2011, 62) that the whole agent structure might has changed in 2011. Apparently, Safaricom announced that sub-agents must establish a direct contractual relationship with Safaricom and that the company now pays every agent itself. However, the author did not find newer research supporting those indications. The author therefore sticks to the predominantly splitting method discussed in several papers and to the three channel models introduced earlier.

Top Image

As indicated earlier, it is not clear if the local firm Top Image is still performing some marketing and service functions of the channel management or if they were replaced through M-Pesa aggregators. Through Top Image, Safaricom centralizes control over the key elements of the customer experience. Top Image is on the one hand responsible for evaluating and training new agents, and on the other hand has to ensure that stores meet guidelines and are offering reasonable service. This local company acts as a direct subcontractor to Safaricom (Mas & Ng'weno 2010, 9).

Government - Regulator

Safaricom maintains an active relationship with the Kenyan regulator CBK. It is an important stakeholder because a service like M-Pesa is dependent on favorable regulation. The Kenyan regulator is a consultant of Safaricom since the beginning of the idea. It has been actively involved in the development of M-Pesa. CBK allows Safaricom to operate M-Pesa as a payments system, outside the provisions of the banking law. In turn, Safaricom had to introduce limits on transaction sizes to address anti-money laundering concerns and the deposits had to be stored in a not-for-profit trust fund at a regulated financial institution. CBK mostly supports the development of M-Pesa because of the country's objective for financial inclusion (Mas & Ng'weno 2010, 24).

4.4.5 Analysis of economic aspects for M-Pesa

M-Pesa probably would not exist without the early funding of U.K.'s Department for International Development. On the one hand it sponsored the market research survey "FinAccess", and on the other hand provided seed funding to Vodafone for the pilot experiments with M-Pesa (Mas & Radcliffe 2011, 173). Such an external funding was needed because private companies such as Vodafone usually allocate funds to internal projects and not to long-term risky development initiatives (Hughes & Lonie 2007, 66-67). Lyons (2010) synthesized in his study the historical performance of M-Pesa, using the mobile money framework and monthly mobile money customer / agent data reported by Safaricom. His analysis indicates that M-Pesa did not break even for the first two years of operation. Looking at the M-Pesa service as of today, the yearly customer growth has flattened to 2.4% over the past year, versus 69% just two years ago. Safaricom had 29.5% growth in M-Pesa revenue over the last financial year reaching CHF 245 million (KSh 21.8bn). The growth was mainly driven by the

increase in active users and the increase in the number of transactions (Safaricom (ed.) 2013, 12-15). The main revenue drivers are P2P transfers, as M-Pesa's pricing structure is designed to benefit from money transfers (Lyons 2010, 32). A survey conducted in 2009 showed that the average M-Pesa balance including savings is CHF 12.- (Ksh.1080) (Sadana et al. 2011, 19). However, Safaricom does not earn money from such stored value because it cannot intermediate the funds. Additionally, M-Pesa provides a free service for cash in transactions. As such, the saving "product" is not a profitable source for Safaricom. For a one way saving transaction, the company only earns money on withdrawals whereas it pays commission on cash in and cash out transactions to agents. The author calculated an average profit of CHF 0.54 per saving trip over the different transaction categories.

4.4.6 SWOT analysis of the M-Pesa business model

A major strength for Safaricom is that over 17 million users signed up for the M-Pesa service within five years, bringing a new revenue stream to the provider (Safaricom (ed.) 2013, 12-15). As calculated previously by the author, there are approximately 5.67 Mio savers using M-Pesa. This shows that even though M-Pesa is not a structured savings product, it attracts customers with several useful features. As shown in the paragraph about an Analysis of product aspects for M-Pesa, Safaricom provides its users with a highly accessible and safe account through the over 40'000 agents. After a simple registration process, people can make deposits and maintain their account for free, thus making it a cheap savings vehicle. Any transactions are easy and quick to make through the simple user-interface on the user's mobile phone.
There is no requirement for customers to open a formal bank account. Therefore, people before excluded from the financial system gain access, fulfilling the goal of the government to strengthen the financial inclusion. As described in the section about savings from a customer's perspective, financial access introduces the opportunity for customers to overcome poverty, to stabilize the ordinary household expenses and to mitigate shocks. As shown, the success of M-Pesa has rested in part on the trust that customers have in Safaricom. This is a major strength of the provider. The author also mentioned that there is a general distrust towards banks, caused by ethnical disputes and collapses. If faith in the banking system erodes, a run on M-Pesa could follow, thereby threatening the position of the custodian banks (Jack & Suri 2011, 9). However, the deposits in the M-Pesa m-wallet would also be jeopardized, because the M-Pesa accounts are issued by Safaricom and are not under full prudential

supervision by the CBK. The reason is that Safaricom can provide its services outside of the banking law, which is an advantage for the provider as less standards have to be fulfilled. However, a weakness is that the company cannot benefit financially from interests on float held and has to keep balance limits in place. It further precludes the provider from paying interests to the users or promoting M-Pesa as a savings service because of fear of more regulation (Morawczynski 2009, 12). This is why some users today still not know about this storing feature of the M-Pesa service. They have to discover it by themselves or hear it through the grapevine.

A weakness for the provider is that setting up a channel management structure with a functioning liquidity process is very time consuming, challenging and costly. As mentioned in the previous paragraphs, liquidity shortages by agents were one of the major issues for Safaricom. Merchants have problems with managing liquidity for several reasons. For example they fear that their employees are stealing money when they leave large amounts of cash in their hands. Furthermore and when having a large amount of cash in stores, merchants are exposed to the risk of being robbed. Travel expenses such as money and time to the next bank, HO or ATM and the high working capital investments also hinder agents from maintaining enough cash and e-float (Eijkman et al. 2010, 226). If merchants run out of e-float or cash, customers are not able to make their cash in / cash out transactions. This introduces a threat for the provider as dissatisfaction in the service could motivate customers to switch the provider.

Another issue leading to queries of customers is network interruption. Jack and Suri (2011, 25-26) reported that this caused 50% of delays in 2009. However, 81% of them were resolved within a day (Jack & Suri 2011, 25-26). Even though the mobile network of Safaricom is well developed, the author assumes that an increasing demand for the service could threaten the capability of the system, causing further interruptions.

As introduced, agents benefit from M-Pesa through commissions paid by Safaricom, and through increased foot-traffic allowing to sell other products. Additionally, the merchants benefit from a reputation gain since the stores labeled with the logo are associated with the good image of Safaricom (Mas & Ng'weno 2010, 7). Custodian banks benefit from additional revenues and have no special reserve requirements for the M-Pesa trust account. However, the author concludes that these banks might also lose customers to M-Pesa, because clients may not see enough benefits in having a bank account anymore.

Safaricom is threatened to lose customers as well. Several MNOs set up a mobile service platform, increasing the direct market competition. Additionally, other Kenyan companies are now delivering financial products, leveraging agents and technology as distribution channel. For example, the Kenya Post Office Savings Bank automated its manual systems with POS devices, offering customers a card-based account in minutes. The bank with a countrywide network is providing its services with additional agents (Cracknell 2012, 9). This increasing competition is causing pressure on Safaricom's revenue and market share.

On the one hand an opportunity for Safaricom could be to try and get a banking license, which would enable the company to intermediate the deposits and further develop and promote savings services. On the other hand Morawczynski (2009, 12) proposes that a formal institution could issue the M-Pesa accounts. The deposits would then be stored on behalf of the customer under full prudential protection. Under this approach, Safaricom would still operate all individual accounts and their collective value would be registered as a pooled deposit account or account payable in its banks. To make this happen, further regulation changes are needed, permitting a higher degree of outsourcing of banking operations to non-banks (Morawczynski 2009, 12). This change would be following the other examples listed in the Limited Model. Where the service is originated by MFIs, but the NFAs are issued in the name of a bank.

The results from the SWOT analysis above are summarized in table 6.

Table 6: SWOT Analysis M-Pesa

Strengths	Weaknesses
For Provider: • Over 17 million M-Pesa users • M-Pesa as revenue source • Providance of service outside the banking law • Viewed as trustworthy operator to store money **For Customers:** • Cheap saving product • Highly accessible deposits • Safe accounts • Easy mechanism to store money • No bank account needed **For Government:** • Includes unbanked people into the formal financial system **For Agents:** • Additional revenue stream • Reputation gain • Cross selling **For Custodian Banks:** • Additional revenue stream • No additional reserve requirements	**For Provider:** • No interest earned on deposits • Challenging channel and liquidity management **For Customers:** • No interest provided • Not a structured saving product • Customers unawareness of saving opportunity • Unprotected Deposits • Balance limits **For Government:** • Deposits not supervised by CBK **For Agents:** • Expensive need of high working capital • Travel expenses for maintaining liquidity
Opportunities	**Threads**
For Provider: • Obtaining banking-license **For Customers:** • Overcome poverty, stable living expences, mitigate shocks **For Government:** • Change regulation	**For Provider:** • Losing customers from dissatisfaction • Stricter regulation • Network problems through excessive demand **For Agents:** • Risk of robbery by employees or outsiders **For Custodian Banks:** • Loss of customers to M-PESA • Collapse through bank run

Source: Own research

4.5 Analysis of the Partnership Model: M-Kesho

M-Kesho is a mobile phone-based savings account that provides additional access to credit and insurance, offered by Safaricom, Kenya's largest mobile service provider and Equity Bank, Kenya's largest bank. M-Pesa customers can register for M-Kesho by visiting a branch of Equity or a designated M-Pesa agent. The service works via the customer's M-Pesa mobile account on the phone or Equitiy's own mobile banking software (Sadana et al. 2011, 1). At any M-Pesa outlet, value can be moved to and from M-Kesho accounts and M-Pesa wallets, and from M-Kesho to other Equity Bank accounts (McKay & Pickens 2010, 10). For an analysis of the M-Kesho business model, the available data is limited. It therefore is not possible to provide such a detailed description as for the M-Pesa business model. However and as this service is dependent on the underlying service of M-Pesa, the author could leverage the previous findings for the description of the M-Kesho business model.

4.5.1 Analysis of market aspects for M-Kesho

M-Kesho (M stands for mobile and Kesho means future in Swahili) is a full savings account created in a partnership by the Equity Bank and Safaricom in May 2010 (McKay & Pickens 2010, 10). The accounts are issued by Equity Bank but marketed as M-Pesa Equity accounts (Financial Access Initiative 2010). At this time, the MNO Safaricom had established the successful M-Pesa platform providing a new kind of business as a Payment Service Provider. Especially targeting the unbanked, Safaricom reached over 8 million people through the M-Pesa platform in 2010 (Mas & Ng'weno 2010, 1-3). Equity Bank is Kenya's largest bank with around 4.3 million bank accounts. In the past the bank was originally a "building society" until it transformed to a full bank in early 2004. Equity experienced massive growth since then. It has taken a commercial approach to financial inclusion and wants to provide a bank account to every Kenyan adult (Davidson 2011, 17). Equity viewed the M-Pesa service as a competitive threat and therefore thought about engagement possibilities. First, the bank hypothesized to work as a superagent, because many Equity Bank customers were small business owners who served as M-Pesa agents. The company found that providing liquidity to these agents when they visited the branch would be a valuable service. However, Equity is not promoting this service because they evaluated that commissions paid by Safaricom were too low. After a meeting between the then CEOs of Equity and Safaricom, the collaboration that would lead to M-Kesho was set in motion. Senior representatives from both companies spent the next year

together designing, developing, and testing the service. A compelling consumer proposition offering users the ability to access sophisticated financial services via the familiar M-Pesa interface was established (Davidson 2011, 17).

The provided Equity account is allowing people to store money while earning interests on the deposits, and gives easy access to credit and insurance (Sadana et al. 2011, 1). This product offering mostly targets people who previously did not have access to the formal financial system. The service is compensating the shortcomings of the M-Pesa storing option and is aiming especially the dissatisfied M-Pesa savers. Equity's main incentive was to acquire more customers. The bank wanted to sign up three million M-Kesho users within eight months. Safaricom saw enhanced value by driving more transactions, so the company expected an increase of users for M-Pesa as it is the underlying transactional service of M-Kesho. Additionally the providers hoped that M-Kesho drives higher account balances and to profit from the interests on float held on M-Kesho accounts that can be appropriated by Equity Bank (Mas 2010b).

As mentioned, M-Kesho is aimed at low-income clients who previously may not have had access to any financial offering. However, Demombynes and Thegeya (2012, 11) revealed that customers using M-Kesho are more likely to be wealthier, married, more educated, and male. In their study, only 0.2% of poor people are saving with the help of this service. By November 2010, 650'000 customers had signed up for the service, depositing a total of CHF 6.5 million (KSh 600 million) into M-Kesho savings accounts (Davidson 2011, 17). As of February 2013 the number increased by around 23%, reaching 800'000 opened accounts (Ngigi 2013). To gain access to the target group and to provide a convenient service, M-Kesho leverages Equity's branches and the established M-Pesa agents. Additionally, Equity Bank placed a bank representative to open accounts at a subset of some M-Pesa stores (Mas 2010b).

4.5.2 Analysis of product aspects for M-Kesho

M-Kesho offers interest-bearing accounts at Equity Bank that are accessible through the M-Pesa phone menu (McKay & Pickens 2010, 10). After signing up for the service, the M-Pesa menu will get refreshed. A submenu then allows customers to fully manage their M-Kesho account. They can transfer money to and from their M-Pesa account, request a balance inquiry or mini-statement for the last five transactions and apply for the loan or insurance facilities.

Additionally to the M-Pesa menu, M-Kesho accounts can be managed through Equity's own mobile phone user interface. Equity's menu is available 24/7 through a number of channels: JAVA, WAP and USSD. M-Kesho allows only electronic transactions, offering no direct cash in / cash out possibilities. The accounts that are offering full deposit protection are held in a server managed by Equity (Financial Access Initiative 2010).

Safaricom and Equity designed the scheme to make it easy for customers to try the new service. The customer does not need to have a bank account but optionally can have one with Equity Bank. However, the service implies the ownership of a mobile phone and the use of Safaricoms' mobile network, as well as the sign-up with the underlying service M-Pesa (Mas 2010b). Clients can register for free at any Equity Bank branch and with designated M-Pesa agents to access the M-Kesho application (Sadana et al. 2011, 8). For this process they need the national ID card held by all Kenyans (Mas 2010b). The M-Kesho accounts have neither minimum nor maximum balances. Interests per year are provided for the balances as following:

- CHF 0.01-21 (KSh 1-2000) receive 0.5%
- CHF 21-54 (KSh 2001-5000) receive 1%
- CHF 54-107 (KSh 5001-10000) receive 2%
- CHF 107< (KSh 10000<) receive 3%

Funds can be transferred without a fee from M-Pesa to M-Kesho, although transfer back to the M-Pesa wallet costs the user the transfer tariff of M-Pesa which is payable to Equity (Mbiti & Weil 2011, 4; Financial Access Initiative 2010). M-Pesa's minimum transaction size of CHF 0.11 (KSh 10) and maximum transaction size of CHF 752 (KSh 70000[15]) also apply to M-Kesho (Safaricom 2013d; Financial Access Initiative 2010). Customers can then cash out at any M-Pesa agent paying the normal tariffs of M-Pesa to Safaricom (Mas 2010b).

[15] On the Safaricom Website they note a maximum transaction size of KSh 35000 (Safaricom 2013c). However, the author assumes that this part of the website has not been updated as the maximum transaction size of M-Pesa changed to KSh 70000 (Safaricom 2013b).

M-Kesho fees are deducted directly by Equity Bank from customers' M-Kesho account, whereas the Safaricom fees are paid out of the M-Pesa wallet. Equity additionally charges customers for each balance inquiry and mini statement with CHF 0.05 (KSh 5) (Financial Access Initiative 2010). It was noted that for the transfer from M-Pesa to M-Kesho Equity has to pay a fee to Safaricom. Sadana et al. (2011, 8) mentioned the amount of KSh.10 (CHF 0.11). However, the author assumes this amount varies with different transaction categories, but did not find any further information regarding this topic. As such, the author only calculated a one-way savings trip for customers, which is presented in table 7 below.

Table 7: M-Kesho Costs in CHF

M-Kesho	**Transaction size ranges in CHF ◆**					
Customers tarrifs	**0.54-1.07**	**1.08-5.37**	**16.12-26.86**	**80.58-107.43**	**107.44-161.14**	**537.16-752.01**
Deposit into M-PESA ¤	0.00	0.00	0.00	0.00	0.00	0.00
Deposit from M-PESA to M-KESHO ✣	0.00	0.00	0.00	0.00	0.00	0.00
Transaction from M-KESHO to M-PESA (transfer prices) ¤	0.05	0.29	0.35	0.59	0.59	1.18
Withdrawal (at agent) ¤	0.29	0.29	0.29	1.18	1.71	3.55
Round-trip savings transaction for a costumer ⌘	0.34	0.58	0.64	1.77	2.30	4.73

✣ Mbiti and Weil (2011, 4)
¤ Tariffs as stated on Safaricoms Website (Safaricom 2013b)
⌘ Own calculation
◆ Exchange rate of 93.0843 KSh/CHF on the 18.06.2013 (Exchange-Rates.org 2013)

Source: Own research in reference to Safaricom (2013b), Exchange-Rates.org (2013), Mbiti and Weil (2011, 4)

The round-trip-saving-costs are increasing with the value transacting. However, the ratio from costs and value transacting decreases. For the transaction size category averaging CHF 0.87 (KSh 75) a round trip savings trip through M-Kesho cost the customer 42% of the value transacting. However, this value decreases rapidly. For medium size transaction averaging CHF 20, customer pay 2% of the value transacting whereas 1% for transactions of CHF 107 and more.

4.5.3 Analysis of process aspects for M-Kesho

Research & Development

A team built from senior representatives from Safaricom and from Equity designed, developed and tested M-Kesho within a 12 month time frame. The project was carried out in secret to avoid any news leaking about the offering before the launch. The design process was slow because the commercial negotiation between the two partners was challenging (Davidson 2011, 17). Davidson (2011, 17) noted that Equity Bank wanted to retain all transaction revenues charged for offering financial services whereas Safaricom felt this was inappropriate given the distribution costs they were saving the bank.

Deposit and withdrawal

Users wanting to make a deposit have to first cash into their M-Pesa wallet or Equity Account and then transfer the amount into M-Kesho with the mobile phone. Making a deposit to M-Kesho through the M-Pesa user interface will entail two SMS confirmations. One of them comes from Safaricom, confirming that the M-Pesa account has been credited, and one from Equity confirming that the M-Kesho account has been debited. The M-Pesa SMS typically comes within seconds after the transaction request. However, the M-Kesho confirmation may take 1-5 minutes. Equity claims that this is an issue of Safaricom. The process for withdrawals works vices versa. Users need to transfer the money into the M-Pesa wallet or Equity account before withdrawal (Financial Access Initiative 2010). How transactions work through Equity's SMS based platform Easy 24x7 service was not described in the literature.

Registration process

Agent banking regulations in Kenya state that account opening cannot be delegated to agents. Therefore, account opening can only take place at an Equity Bank branch or a subset of around 5000 M-Pesa agents at which Equity Bank placed a bank representative (Financial Access Initiative 2010). For registration, clients must bring their original plus a photocopy of the ID and two photographs. Passports and other forms of identification are not allowed to open the M-Kesho account (Safaricom 2013d). When opening the account at agent locations the picture will be taken on the spot with a digital camera. Customers have to complete a short and simple application form (Cracknell 2012, 25). The back-office team at Equity responsible for processing

account openings will then check the forms (Davidson 2011, 17). After around 48 hours, the M-Pesa menu will get refreshed automatically over the air upon registration and the accounts will be active. A submenu under the M-Pesa user interface appears (Financial Access Initiative 2010).

Marketing

Safaricom and Equity Bank have a joint marketing plan and funds (Financial Access Initiative 2010). Equity Bank is also allowed to promote M-Kesho at M-Pesa agent points. Agents earn a commission for new M-Kesho accounts (Sadana et al. 2011, 12). There are frequent meetings by Safaricom and Equity to discuss the marketing plan (Davidson 2011, 17). However, it was noted that M-Kesho has not been promoted subsequently (Demombynes & Thegeya 2012, 15).

The processes "channel management" and "liquidity management" are still a main part of this kind of business model. Those functions are carried out by the partner Safaricom, which is why they are equivalent to the ones described in the paragraph about process aspects for M-Pesa.

4.5.4 Analysis of people aspects for M-Kesho

Providers: Equity Bank and Safaricom

The server holding the M-Kesho accounts is owned, hosted and operated by Equity Bank. Safaricom and Equity Bank jointly own the brand and logo and have developed a joint marketing plan with joint funding (Mas 2010b). Additionally, IT and regulatory engagements are performed together. Therefore, frequent meetings take place to discuss topics on the operational level, such as customer care, agents, marketing and IT. However, there are no full-time resources at Safaricom or at Equity dedicated to M-Kesho. The only exception is the back-office team at Equity handling the account opening forms (Davidson 2011, 17). Safaricom brings two main features which make a partnership attractive for Equity Bank. First, it has a channel of retail outlets that in 2010 was around 120 times more extensive than the Equity Bank's network of 140 branches, bringing greater convenience to customers. Secondly and through its ownership of customers' SIM cards, Safaricom can present a very convenient user interface and a secure communications channel (Financial Access Initiative 2010). On the other hand Equity's major strengths for this partnership are its vast network and experience with the ordinary customer (Safaricom 2013d).

Agents:

How and why agents are engaging themselves in the service is highlighted in the paragraph about people aspects for M-Pesa. Additionally. M-Kesho is an incremental revenue source to agents. Besides earning commissions for M-Pesa transactions, agents also are rewarded for opening M-Kesho accounts with CHF 0.32 (KSh.30) and another CHF 0.32 for the first deposit of the user (Sadana et al. 2011, 15).

Government – Regulation

This business model of M-Kesho was only made possible by CBK in April 2010. It issued new agent banking regulations allowing banks to engage in a wide range of retail outlets for cash in / cash out handling and product promotion (Cracknell 2012, 7). The author supposes that these changes in regulation were established while discussing the design of M-Kesho. The government benefits from such changes were likely the chance to increase financial access and the control of CBK. As savings in the e-wallets of M-Pesa are not supervised by the Central Bank, they are creating a possible threat for the government. Trying to move away these savings in the M-Pesa wallet into an account issued by a bank brings the deposits back under control of the CBK.

4.5.5 Analysis of economic aspects for M-Kesho

As mentioned, around 650'000 M-Kesho accounts were opened by the end of 2010, highly missing the target of three million. Since then, the user base grew by 23% reaching 800'000 in February 2013. Apart from these numbers the author did not find any further information regarding the economic performance of M-Kesho.

4.5.6 SWOT Analysis of the M-Kesho business model

Regular bank account holders can handle their financial needs only at the bank's branches. Equity's M-Kesho customers however, are able to transact at any of the retail outlets that accept M-Pesa. This makes it a convenient service that not only saves travelling expenses, but also reduces the risk associated with carrying cash around (Sadana et al. 2011, 12).

Through Equity's bank branch tellers and designated agents, M-Kesho accounts can be opened easily. There is no requirement for customers to open a formal bank account. No charge for opening the M-Kesho account, no periodic fees, and no minimum or maximum balance are encouraging people to try M-Kesho (Mbiti & Weil

2011, 4). However, the minimum and maximum transaction fees of M-Pesa also apply for M-Kesho, making the service inconvenient for people saving large and very small amounts. M-Kesho savings accounts are supervised by the Central Bank and earn interests. However, it is dubious whether the lower interest rates compensate for the extra layer of transaction fees for withdrawals. As shown, customers first pay a transfer fee to move cash to their M-Pesa accounts and then again for the cash-out out of their M-Pesa wallets. In the PEST analysis it was seen that Kenya has high and volatile inflation rates. Therefore the possibility of interests may not matter much for savings decisions (Demombynes & Thegeya 2012, 15).

Another shortcoming of M-Kesho is missing customer support. There is no team designated to M-Kesho, neither at Safaricom nor Equity, and agents are also not capable to give assistance. They do not fully understand the functioning of the system (Berman 2011, 42). This causes issues as problems are frequent since the integration of Safaricom's and Equitiy's proprietary platforms. Customers complaints of delays in crediting their accounts, delays in confirmation, and data-entry errors that result in money ending up in an account that is not their own (Sadana et al. 2011, 11-14).

Leveraging the core strengths of each partner, Safaricom and Equity probably gained additional customers. However, they severely missed their user acquisition goal and are not reaching their target group of low-income people. A possible explanation for the slow growth of M-Kesho may be the complex partnership required for the service. The profit has to be shared between the two parties depending on their relative bargaining power. The partnership probably reduces the surplus for consumers, as the service has to be constructed that both partners profit out of the arrangement. This may be the prime reason for the rather low interest rates offered by M-Kesho. Additionally, the bank and mobile service provider must negotiate on account ownership and other tasks regarding the offer.

The author noted that M-Kesho has not been promoted subsequently. This probably reflects how much Equity Bank and Safaricom struggle in working with the Partner Model (Demombynes & Thegeya 2012, 15). Maybe they ought to change their collaboration where one partner pulls back following the partnership approach between Safaricom and CBK. CKB and Safaricom are deploying the savings and loan product M-Shwari. However, CBK has no interest in co-branding the service and there is no rivalry between the partners (Mas & Omwansa 2012). M-Shwari also highlights that several other providers are seeking partnerships with Safaricom, threatening M-Kesho's market position and revenues. Additionally, banks are

building their own agent networks to strengthen their bargaining position in accessing mobile service platforms (Demombynes & Thegeya 2012, 9).

An opportunity for the regulators would be to facilitate the account opening process. Regulations could change allowing account openings without a bank representative at any agent outlet. This would on the one hand drive customers sign-ups and on the other hand financial inclusion.

The author's SWOT analysis is summarized in table 8. Included are the strengths, weaknesses, opportunities and threads for agents as described in the SWOT analysis for the M-Pesa business model, as they did not change under the deployment of M-Kesho.

Table 8: SWOT Analysis M-Kesho

Strengths	Weaknesses
For Provider: • Leverage the core strenghts of the partners • Customer aquisition **For Customers:** • Interest on deposits • Structured saving product • No bank account needed • Easy account opening and maintaining • No balance limits • Deposit protection • Convenient access **For Government:** • Supervised deposits by CBK • Drive financial access **For Agents:** • Additional revenue stream • Reputation gain • Cross selling	**For Provider:** • Complexity of partnership • Integration of proprietary platforms • Surplus split up • Low user acquisition rate • Not reaching target group **For Customers:** • Low interest rate • M-PESA account and daily transaction limits • Lack of customer service • Extra layer of transaction fees • No reliability and low system speed **For Agents:** • Expensive need of high working capital • Travel expenses for maintaining liquidity • No utter simplicity
Opportunities	**Threads**
For Provider: • Different collaboration **For Government:** • Change regulation	**For Provider:** • Inflation • Competition **For Agents:** • Risk of robbery by employees or outsiders

Source: Own research

4.6 Analysis of the Rider Model: Mbao

The Mbao Pension Plan is a voluntary individual account savings plan offered by the Retirement Benefits Authority (RBA) in Kenya, along with the National Federation of Jua Kali Co-operative Society Limited (KNJCS). Mbao members can make their contribution through the two mobile money transfer systems, M-Pesa and Aritel Money, using the Pay Bill function in the application menu. Customer funds are held by a custodian and are invested according to the trustee's investment decisions (Kwena & Turner 2013). For an analysis of the Mbao business model, the available data is limited. It therefore is not possible to provide such a detailed description as for the M-Pesa business model. However and as this service is dependent on the underlying service of M-Pesa, the author could leverage the previous findings for the description of the Mbao business model.

4.6.1 Analysis of market aspects for Mbao

The Retirement Benefits Authority in Kenya along with the National Federation of Jua Kali Co-operative Society Limited launched the Mbao Pension Plan at the end of June 2011. Mbao is Swahili slang for 20 shillings referring to the minimum contribution of the pension plan. While this is the popular name for the product, the official name of the pension plan is the Blue MSMEs Jua Kali Individual Retirement Benefit Scheme – in which blue is representing the color of the KSh 20 note, and MSMEs (medium small and micro enterprises) stands for the informal employment sector.

KNJCS is representing the Kenyan self-employed informal sector workers (Kwena & Turner 2013, 87). The members are spread over all 47 counties in Kenya (Retirement Benefits Authority (ed.) 2011a, 3). The RBA is the retirement benefits sector regulator in Kenya, licensing all service providers of pension schemes in Kenya (Kwena & Turner 2013, 91). The authority has a mandate to promote the development of the retirement benefits sector (Retirement Benefits Authority 2013). As highlighted in the PEST analysis for Kenya, around 30% of Kenya's labor force is employed in the informal sector. These workers are mostly not covered by any social security benefit programs. Only about 15% of workers are covered in the formal sector due to the voluntary nature of setting up schemes, the fast growing informal sector and the high poverty rate.

The main incentive of the providers was to facilitate the development of the retirement benefits sector to create individual retirement saving plans for workers who

do not have retirement pensions. As such, RBA is recommending policies that ensure coverage and are extended to the informal sector. Additionally, the authority wanted to educate and train members of Mbao regarding the importance of savings for retirement.

Mbao is a new product in the pension market (Retirement Benefits Authority (ed.) 2011a, 1-3). Social security programs are designed originally for the formal sector, whereas Mbao is targeting the informal sector and is using mobile money as an integral component of the delivery channel. With Mbao, Jua Kali workers' need of small, convenient, and frequent contribution to an affordable pension system is targeted.

The establishment of the Mbao pension plan started after a corporate social investment initiative "Operation Ear Drop Kenya Hearing Conservation Programme" with the Kamukunji Jua Kali Association based in Nairobi. The RBA teamed up with ear, nose and throat specialists to provide free check-ups for artisans. During this initiative the RBA sensitized the workers to the importance of saving for retirement. Several meetings followed between different parties to discuss the modalities of setting up the new pension scheme. It took around nine months for the establishment of Mbao. This rather lengthy process was due to initial funding issues. The scheme was first piloted in Nairobi before extended to other parts of the country (Retirement Benefits Authority (ed.) 2011a, 2).

Technology is primary used to allow members to make their payments in an efficient way. Technology increases the convenience of the scheme for users and decreases the cost of deployment for the providers (Retirement Benefits Authority (ed.) 2011a, 2-3; Retirement Benefits Authority (ed.) 2011b, 3). The Mbao service is primarily targeting low-income workers who are not participating in social security. For them, Mbao is a substitute for social security. However, it can also be used as a complement to other pension schemes (Kwena & Turner 2013, 85). A survey found that 42% of the informal-sector workers participating in the Mbao Pension Plan earned less than KES 6,000 (approx. CHF 64) a month (Anami 2012). Thus, the service is successfully reaching its target group. As of Novemer 2012 there were 38'000 people participating in the Mbao pension plan (Kwena & Turner 2013, 83). To offer the service, the RBA along with KNJCS is working together with Safaricom and Airtel, two mobile network operators. Additionally and to run a professional pension scheme, the providers cooperate with Co-op Trust Investment Services, Eagle Africa Insurance Brokers and Kenya Commercial Bank (KCB) Group (Kwena & Turner 2013, 92).

4.6.2 Analysis of product aspects for Mbao

Mbao is a micro-pension scheme. However, even though it is designed and marketed as a pension system, the service can also be used for other saving purposes. Mbao is providing a plan where low-income workers can make small contributions at flexible intervals of their choice (Kwena & Turner 2013, 87). Members contribute to the scheme through mobile money services offered by the two leading mobile networks in Kenya, Safaricom and Airtel (Retirement Benefits Authority (ed.) 2011a, 2-3). Members then can assign up to 60% of their accumulated pension toward a mortgage. Such an utilization was enabled through the Retirement Benefits Act in June 2009. The government wanted to encourage participation in the Mbao Pension Plan and other pension schemes in Kenya (Kwena & Turner 2013, 89). Mbao members receive education to learn about savings and retirement issues and benefit from favorable tax treatment (Kwena & Turner 2013, 89-94). A fund manager then invests the pooled contributions of the members (Njuguna 2012, 86). As noted by Herman (2011), the members earn at least 7% interest per year on their savings. Additionally Mbao includes an annual statement that is delivered directly to the member's phone (Kwena & Turner 2013, 87).

In the Mbao pension scheme, any individual above the age of 18 may join. To register workers must initially pay CHF 1.07 (KSh 100), need a national photo identification card and have a M-Pesa or Aritel account (Kwena & Turner 2013, 87). Members of Mbao commit to contribute at least CHF 0.21 (KSh 20) per day, adding up to CHF 1.07 (KSh 100) a week and CHF 5.37 (KSh 500) a month. Following these numbers, a member would acquire around CHF 64.- (Ksh 6000) per year. A person out of the target group would contribute around one month of his income per year. However, contributions are not mandatory and no penalty is charged for not paying.

The Mbao Pension Plan does not have a maximum contribution, but the mobile phone companies' daily maximum remittance also apply for the service (Kwena & Turner 2013, 88-89). As shown, for M-Pesa the maximum daily transaction value is CHF 1504.- (KSh 140,000) whereas the maximum per transaction is CHF 752.- (KSh 70,000). Based on Kwena and Turner (2013) the author assumes that for contribution M-Pesa worker pay the set transfer fee of Safaricom. Mbao has to compensate Safaricom for such transactions. Alternatively Airtel charges workers a 10% fee for very small contributions. Having fees for contributions implies a relatively short duration of participation is less advantageous than longer-term participation (Kwena & Turner 2013, 89).

Individual savings can only be drawn down as a lump-sum payment. A withdrawal can be made for free at any age, after a year of participation in the plan. However, if the Mbao Pension Plan is used for backing a mortgage, users cannot make a withdrawal from the plan until the mortgage is paid off (Kwena & Turner 2013, 90). For early withdrawal within the first year there is a minimal penalty fee[16]. Upon death of the account holder, the plan makes the payment to the designated beneficiary (Kwena & Turner 2013, 89-91).

Until now no other fees apply to the workers for the first three years of operation of the Mbao Pension Plan. All the service providers, except the two mobile phone companies, have agreed to waive their fees (Kwena & Turner 2013, 93). To bear the costs of running the scheme, a percentage from the contributions and interests accrued will be charged (Retirement Benefits Authority (ed.) 2011a, 2-3). Kwena (2012, 93) noted that the total fees would be 95 basis points, or 0.95% of assets per year. Those charges are 0.35% for custody, 0.3% for administration, and 0.3% for the fund manager.

The author calculated a one way savings trip for members who make their contribution via M-Pesa, which is summarized in table 9. Assuming that a worker is making the suggested daily contribution of CHF 0.21, he or she will pay CHF 0.03 (KSh 3) for every transaction. For such a transaction in the range of KSh 10 to KSh 49, Safaricom charges the Mbao Pension Plan a fee of CHF 0.02 (KES 2). The fee rises in steps with transaction categories, However, the percentage is lower the higher the contribution (Kwena & Turner 2013, 89). The customer would pay CHF 9.67 per year[17] on transaction costs. Whereas the Mbao Pension Plan compensates Safaricom with CHF 6.-. Following these payment intervals and amounts, a worker would have accumulated a total of CHF 64.- within one year. Earning the stated minimum interest rate of 7% per year, the amount would increase to CHF 68.-. Thus, the total transaction cost amount to 14% of the accumulated value with interest for the customer per year.

[16] An exact number was not noted.
[17] For this calculation a year has 300 days.

Table 9: Mbao Costs in CHF

Mbao	Transaction size ranges in CHF ◆							
Customers tarrifs	**0.21-0.53**	**0.54-1.07**	**1.08-5.37**	**16.12-26.86**	**53.72-80.57**	**80.58-107.43**	**107.44-161.14**	**537.16-752.01**
Deposit into M-PESA ¤	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Deposit from M-PESA to Mbao (transfer prices) ¤	0.03	0.05	0.29	0.35	0.59	0.59	0.59	1.18
Withdrawal from programm (1 year <) ✣	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Round-trip savings transaction for costumer ⌘	0.03	0.05	0.29	0.35	0.59	0.59	0.59	1.18

✣ Kwena & Turner (2013, 90)
¤ Tariffs as stated on Safaricoms Website (Safaricom 2013b)
⌘ Own calculation
◆ Exchange rate of 93.0843 KSh/CHF on the 18.06.2013 (Exchange-Rates.org 2013)

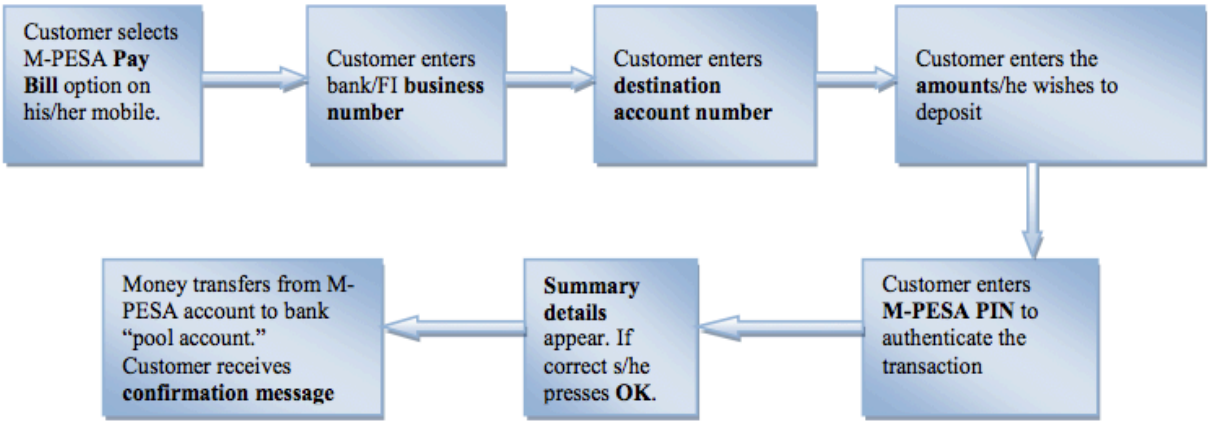
Source: Own research in reference to Safaricom (2013b), Exchange-Rates.org (2013), Kwena and Turner (2013, 90)

4.6.3 Analysis of process aspects for Mbao

Contributions to Mbao

The author wants to highlight the process based on the use of M-Pesa. KCB holding the funds of the members has linked to M-Pesa's "Pay Bill" platform to facilitate customer deposits. The customer first makes a deposit into their M-Pesa wallet as described in the section about process aspects for M-Pesa above. Then the user selects the pay bill function in the M-Pesa SIM menu and enters the short code for the recipient called "business number", the destination account number and the amount to transfer. After entering the PIN and confirming the summary of the inserted details the transaction is released. Money is transferred out of the M-Pesa account into the bank's pool account with M-Pesa. M-Pesa then sends a confirmation message for this part of the transaction. However, the transfer is not completed until the bank confirms the deposit. When money ends up in a different account it is the responsibility of the customer and the financial institution to trace such wrongly assigned deposits because the MNO is not legally obligated to do so (Sadana et al. 2011, 15). After a completed transaction KCB transfers the money into the Mbao Pension Plan (Sadana et al. 2011, 6). The different M-Pesa transactions are summarized in figure 5.

Figure 5: Contributions to Mbao



Source: Sadana et al. 2011, 6

Registration process

When registering, the workers have to fill out a registration form and present a valid ID documentation. The forms are then sent to the fund administrator's office. Kwena and Turner (2013, 87-88) noted that the registration process would change in the near future as the administrator is updating the platform to cater for full electronic registration using the phone.

Withdrawal process

According to Herman (2011), when the member wants to withdraw from the program he or she must notify the head office with a letter of request to exit from the program. Then the contributions are issued in approximately two weeks through a check that can be picked from a chapter office. However, she noted that in the future contributions would be disbursed through M-Pesa or Aritel (Herman 2011).

Training/Marketing

During the launch of the scheme the government regulator sponsored training on the Mbao Pension Plan for two opinion leaders called "champions" from each of the 47 counties across Kenya. These champions were equipped with knowledge on the scheme and are now sharing the information acquired with their members within the respective counties (Kwena & Turner 2013, 93-94). Mbao also gets promoted through road shows and radio features (Retirement Benefits Authority (ed.) 2012, 10-11). Additionally, RBA releases information about Mbao prominently on its website (Kwena & Turner 2013, 93-94).

4.6.4 Analysis of people aspects for Mbao

Providers: KNJCS as sponsor and RBA as pension regulator

The author highlighted the providers before, however wants to give a better overview about their functions concerning Mbao. All pension schemes have to be established through a sponsor. In the case of Mbao the sponsor of the plan is the Kenya National Jua Kali Co-operative Society. The company had to make the declaration of a "trust deed" for the retirement benefits scheme to be established. Additionally KNJCS appointed service providers like fund manager, trustee and custodian to ensure efficient administration of Mbao. Like any other pension system in Kenya, Mbao is officially registered with the pension regulator RBA (Kwena & Turner 2013, 91

Trustee and custodian: KCB Group

The trustee and custodian for the Mbao Pension Plan is Kenya Commercial Bank Group. By law in Kenya, the trustee must be different from the sponsor of the plan. KCB holds the funds and allows its customers to transfer money from the mobile money transfer platform providers M-Pesa and Aritel. The bank was chosen because it is well known and widely trusted. Trust by workers has been viewed as unavoidable to the success of the Mbao Pension Plan, especially since the fraud of the Ponzi scheme in 1920 where many people lost money (Kwena & Turner 2013, 91).

Mobile money transfer platforms: M-Pesa and Aritel

Safaricom's M-Pesa and Aritel's Airtel Money are the mobile money transfer platforms. RBA and Jua Kali Association are working with those private sector companies because mobile money is integral to the delivery model of Mbao. Mobile money decreases the transaction cost of administering low contributions, making such a scheme like Mbao possible in the first place (Retirement Benefits Authority (ed.) 2011b, 3) Additionally, leveraging a mobile money system allows a greater outreach to customers and provides them with greater convenience (Sadana et al. 2011, 6). Safaricom is willing to participate in such a service as they are benefiting of more transactions. Mbao members as well as the Mbao Pension Plan compensate Safaricom for the service it is providing. Safaricom also hopes to gain more subscribers who bring more revenues to the company (Sadana et al. 2011, 12).

There are several others engaged in the pension scheme Mbao. For example and as the Mbao Pension Plan receives preferential tax treatment, it has to be officially registered with the tax authority "Kenya Revenue Authority". Additionally, the trustee is engaging the company Co-op Trust Investment Services as fund manager to carry out their investment decision. Whereas Eagle Africa Insurance Brokers the fund administrator handles the registration of new members and also keeps records for the scheme (Kwena & Turner 2013, 91).

4.6.5 Analysis of economic aspects for Mbao

Just a few days after the official launch of the Mbao Pension plan, 7'898 members had signed up contributing a total fund value of KSh 143'708 (Retirement Benefits Authority (ed.) 2011c). As of November 2012 the plan had 38,000 members who saved KSh 37 million (Kwena & Turner 2013, 83). Therefore, the user base grew by 481% over approximately one and a half years. Additionally, the average contribution increased from CHF 0.19 to CHF 10.14 by 5351%. The Mbao Pension Plan was invested entirely in interest bearing assets per December 2012. More than a third (37.8%) was put into Kenyan government bonds, and another third (37.0%) in fixed-term bank deposits. The rest was invested in corporate bonds (15.6%) and cash (9.6%) (Kwena & Turner 2013, 90). The rate of return for 2012 of the investments by the corporate trustee was not declared (Kwena & Turner 2013, 90).

4.6.6 SWOT analysis of the Mbao business model

The SWOT analysis of Mbao should mainly focus on the consequences of leveraging an existing mobile money platform.

As highlighted, through Mbao low-income people gain access to a pension system, fulfilling the goal of the providers to facilitate the development of the retirement benefits sector. As described in the customer perspective, financial access helps them to overcome poverty, stabilize the ordinary household expenses and to mitigate shocks.

Formal system, where contributions interval and rates are fixed and penalties occur when not contributions are mostly not affordable for low-income people (Kwena & Turner 2013, 81). With Mbao however, there are no penalties for not contributing. Thus, making it possible for low-income people to save whenever they can afford it. Additional strengths are: Users earn interest on their contributions, get training and receive an annual statement. Kwena and Turner (2013, 88) noted that the minimum contributions of KSh 20 a day largely appeals to the lowest income earners. However, whether or not the whole service Mbao is affordable for all low-income workers cannot be said for sure. First, workers must pay KES 100 (CHF 1.07) to register with the Mbao Pension Plan. Moreover, the calculation of a one way saving trip revealed that the transaction costs add up to 14% of the value accumulated when paying the minimum contribution every day. As Kendall et al. (2012, 60) noted that "cost of transactions is the main barrier to integration with mobile money, especially M-Pesa".

A benefit for customers is the use of their pension savings as a backup for mortgage and the favorable tax treatment. However, the requirement that the worker cannot access the money when used as security for a mortgage means that some workers might not be able to access their savings when needed (Kwena & Turner 2013, 91). Additionally, most informal workers are not paying any taxes and as such cannot profit of tax releases. Thus, to further incentivize customers, a government subsidy through a matching contribution could be provided for workers whose income is too low to pay income taxes (Kwena & Turner 2013, 95).

Mobile money enables the providers to serve clients at a lower cost per transaction and with a reduced investment in physical infrastructure, staff and security (Kendall et al. 2012, 50). However, outsourcing cash in / cash out transactions to other companies reduces the interaction between the providers and clients. Reduced client contact makes customer outreach, trust building, education more challenging for providers

especially when not having any brand recognition (Kendall et al. 2012, 61). Thus, functions such as marketing and education for Mbao are not carried out at agent level and have to be provided externally through the provider. As highlighted, RBA introduced for these tasks so-called "champions".

Trust is a critical factor for any pension scheme and this could be destroyed with long lasting effects. Clients want to be sure that their contributions are save and available when needed. Thus, to instill trust in the Mbao Pension Plan, the solid KCB bank was chosen as custodian to hold the funds. However, as highlighted in the PEST analysis of Kenya, trust in the banking system is an issue, threatening also the providers of Mbao. Additionally Kenya suffers from corruption. As such the author assumes providers as well as customers are exposed to corrupt practices in government cycles and to internal fraud.

Mbao pools all contributions from the informal sector of workers together, creating economies of scale in the investment of funds. However, high volume of members may lead to diseconomies of scale in administration. Moreover, government bureaucracy may threaten the system's efficiency in investment of funds and payment of retirement benefits (Njuguna 2012, 86). A strength of Mbao is that by leveraging established mobile money transfer services, the provider can give the customer the convenience they need without building their own channel structure with a functioning liquidity process. However, the providers and the members of Mbao are dependent on the service quality the provider of the mobile money transfer platform introduces. This is a major weakness for the provider. If Safaricom or Aritel's agents have trouble with rebalancing their liquidity or the operator cannot keep up their mobile network the customers are unable to make any contribution to the pension scheme (Kendall et al. 2012, 62).

Even though the pension provider can reduce cost by outsourcing a part of the delivery channel, setting up an easy-to-use system to integrate with the mobile money platform should not be underestimated. To provide the Pay Bill functions KCB needed to have a custom integration to collect client data, link it to information received from M-Pesa, and input both sets of information directly into their back-end system (Kendall et al. 2012, 61). Kendall et al. (2012, 61) note that especially the poor application programming interface (API) functionality of M-Pesa causes many institutions to incur large integration costs, and they suffer from poor performance and system downtime whenever Safaricom's interfaces change. As such the author assumes RBAs mentioned problem regarding the accuracy of data Mbao receives

through the mobile transfer system are caused by the platform integration (Retirement Benefits Authority (ed.) 2011a, 3). Additionally, customers complain of delays in crediting the KCB account, delays in confirmation, and data-entry errors that result in money ending up in a not intended place (Sadana et al. 2011, 11-14).
The findings of the above SWOT analysis are summarized in table 10.

Table 10: SWOT Analysis of Mbao

Strengths	Weaknesses
For Provider: • Pooled contributions • Reaching target group • Outsourcing delivery channel • Trusted corporate trustee • No channel management • No liquidity management **For Customers:** • Training • Pension-backed mortgages • Preferential tax treatment • No penalty for not contributing • Small voluntary contributions • Convenience	**For Provider:** • Dependence on mobile money provider • Reduced client contact • Costly system integration **For Customers:** • Inavailabillity of funds • Registration fee • Transaction costs • No reliaability and low system speed
Opportunities	**Threads**
For Customers: • Government subsidy • Overcome poverty, stable living expences, mitigate shocks	**For Customers:** • Fraud **For Provider:** • Diseconomies of scale • Government bureaucracy • Distrust • Corruption

Source: Own research

5. Discussion and options for MFIs in the mobile savings industry

The author's main objective is to evaluate conditions influencing the success of a mobile savings service. For the purpose of this thesis, the author defined the adaption level of mobile savings projects by customers as the main success measure. The author wants to find out why people prefer M-Pesa and why M-Kesho has a higher user rate than Mbao. Therefore the author compares the main business model aspects, as analyzed previously, of the different services. Based on the findings the author makes suggestions how the features can be modified to possibly introduce a more successful deployment. Moreover, the role a MFI could play within the introduced business models are discussed.

5.1 Market aspects

The results of the derived analysis demonstrate the importance of trust on the success of any mobile saving scheme. Issues such as collapses or corruption within a part of the financial industry can have a long-lasting influence on the perception of the providers. As highlighted before, people have great faith in Safaricom, the provider of M-Pesa, whereas Kenyans believe that banks are engaged in ethnical disputes and face a greater probability of collapse. Thus Equity Bank deploying M-Kesho and the pension providers deploying Mbao did not have such a favorably initial situation as Safaricom. Additionally, the author observed that the regulatory situation is a critical factor regarding success or failure of a mobile savings scheme. On the one hand the regulatory body determines the existents of the different models and on the other hand influences the reasonableness of regulations for the providers (Jenkins 2008, 11). Safaricom is allowed to provide its service outside of the banking-law whereas Equity Bank and the pension providers can outsource some of their key functions to agents. However, Equity Bank for example is not allowed to outsource account registration and has to place bank representatives at agent outlets lowering the convenience for people and the cost savings possibilities for the providers.

5.2 Product aspects

In several studies conducted by MicroSave in India, the perception of qualities characterizing an ideal savings service were presented. These primarily include trust, frequency and convenience of small deposits, benefits such as interest rates, ease of

withdrawal, security of the deposits, cost incurred, understanding of the procedures for accessing a particular saving scheme, and other product offerings such as credit (Tiwari et al. 2011, 1). On the other hand, Zollma and Collins (2010, 3-4) held around 50 interviews with people from the Coast Province of Kenya who are using different saving mechanisms. They conclude a low uptake of financial products is a result of the lack of the core features such as convenience and cost. According to these two similar observations, the author concludes that the listed qualities by Tiwari et al. from India can be applied to Kenya and in turn can be used to compare the three services M-Pesa, M-Kesho and Mbao. In Table 11, the different service attributes are compared according to the results of the authors detailed above stated analysis in chapter 4.

Table 11: Comparison of M-Pesa, M-Kesho and Mbao

Attribute (in order of importance)	M-Pesa	M-Kesho	Mbao
Trust	👍	👎	👎
Risk of losing money	👍	👎	👎
Accessibility	👍	👍	👍
Size of deposits	👍	👍	👎
Frequency of deposits	👍	👍	👍
Ease of withdrawal	👍	👎	👎
Interest rate	👎	👎	👍
Other offerings	👎	👍	👎
Cost of accessing the channel	👍	👎	👎
Understanding of the process	👍	👎	👎
👍	8	4	3
👎	0	5	6
👎	2	1	1

Source: Own research in reference to Tivari et al. 2011, 1

As highlighted, people have great faith in Safaricom, the provider of M-Pesa, whereas Kenyans believe that banks are engaged in ethnical disputes and face a greater probability of collapse. This perception is closely related to the risk of losing money. For this rating the author used users' opinions as a benchmark. Despite the fact that M-Pesa's deposits are not protected or supervised by the Central Bank of Kenya, M-Pesa is perceived as a save saving mechanism. On the other hand, people complain about low system reliability and deposits ending up in different accounts with M-Kesho and Mbao. As mentioned, those issues are caused by the integration of platforms and not by the actual insecurity of the deposits with the providers.

The accessibility is high for all services as they are leveraging retail stores and mobile phones. With M-Pesa and M-Kesho people can deposit through their mobile phone as low as KSh 10 (CHF 0.11) to their m-wallet account respectivily Equity account. On the other hand, Mbao's minimum contribution is KSh 20 (CHF 0.21).

All savings schemes allow users to deposit the minimum amount at any time. M-Pesa outreaches the other services for ease of withdrawal. People can access their money quickly and easily at any M-Pesa retail outlet when needed[18]. With M-Kesho, users must first transfer money from their Equity Account into their M-Pesa wallet before they can cash out at a M-Pesa retail outlet. Due to system problems this sometimes takes several hours. For Mbao, receiving the individual contributions takes approximately two weeks after the head office was informed with a letter of request to exit from the program. Customers then have to travel to a chapter office to cash the check, which is not a convenient way.

M-Pesa offers no and M-Kesho very low interests rates on deposits. For Mbao it was stated that contributions earn a minimum of 7% interest per year and people can benefit from favorable tax treatment and mortgage backup. Users of M-Kesho can apply for a loan and insurance whereas Mbao clients have the chance to back up their mortgage with the contributions and benefit from favorable tax treatment. However, most out of Mbao's target group do not pay any taxes and as such the incentive is ineffective.

A closer look at the author's calculations of a one way saving transaction for each service reveals that the cheapest savings scheme is M-Pesa. M-Kesho and Mbao each have an extra layer of transactions costs, as they rely on the underlying M-Pesa

[18] The author believes that the possibility and easy process of withdrawal is more important for people. However, in some paper it is stated that people appreciate the more difficult access because they are then better able to accumulate savings (cf. Zollma and Collins 2010)

service. Mbao is slightly cheaper than M-Kesho because there are no withdrawal fees at a M-Pesa outlet since withdrawals from the pension plan is free after one year. However, Mbao is the only service that charges a registration fee. Additional costs such as photographs, KYC documentation, photocopies etc. are approximately the same for the three saving schemes.
It was stated by customers that M-Pesa is easy to use and as mentioned, for M-Kesho and Mbao, even the agents do not fully understand the function of the systems. Hence the different submenus and interfaces can also be confusing for customers.

According to the perception of users and taking all the different attributes into account, M-Pesa clearly introduced the best savings opportunity for customers. M-Kesho gives customers the second best saving service followed by Mbao. Therefore, the derived comparison supports the reported adaption level of the services. The author assumes that with no adjustments to the product features or any disruptive events, this order will not change in the near future. Trust and risk of losing money are the most important aspects for Kenyan customers. The author concludes that especially providers who are threatened by distrust of people should minimize entry barriers, such as costs regarding sign-up and maintenance. Users would then be able to test new or innovative product features and this would result in increased trust towards the provider and the quality of the service.
The author's findings are supported by Ravi and Tyler (2012, 4-5) who state: "Customers need not fully understand a savings product in order to use it, but barriers to entry need to be low enough for clients to be able to test new or innovative product features related to delivery methods and processes of enrollment, among others." For M-Kesho for example, the author would propose to redesign the service, making it possible to make a transaction in just one simple step. This alternation would diminish the extra layer of withdrawal fees and make it more convenient for people to use. This would follow Equity's partnership with the MNO Orange. They launched the service Orange Money branded as Iko Pesa. With Iko Pesa there is no e-wallet, since it offers a regular bank account that is fully integrated with a mobile channel. As such, all money transfers are account to account transfers (Rotman 2010).
For M-Bao, the author thinks that providers should decide if they prefer to offer a savings or a pension scheme. As for now, it is a mixture of both (e.g. concerning the contributions can be withdrawn for free after one year). The author believes this causes wrongly designed product features for customers looking for a pension scheme

or a savings mechanism. In general it would be best for the providers to lower the KSh 100 registration fee to facilitate sign-ups. Through more memberships, RBA and Jua Kali could benefit from economies of scale until a certain level and maybe absorb more of the transaction costs of M-Pesa and Aritel. Those actions would make it more attractive for prospective members to try and stabilize trust in the service.

5.3 Working arrangements: Process, people and economic aspects

The author highlighted the customers' perception of the service and why certain product propositions are introducing greater value. This raises the question if some providers just wrongly designed the savings schemes out of misunderstanding of customers' needs, or if it has something to do with the other factors of the business model. Based on the previous analysis, the critical factors influencing the success of the savings service are described for each business model. Furthermore the possibilities and limitations for a MFI to use the model are discussed.

5.3.1 Limited Model

The Limited Model as described with M-Pesa was the most successful of the analyzed saving schemes because it gave customers the best value. However, it was never designed as such, which according to the author highlights the issues with this business model. A savings product based on the Limited Model is hardly profitable. The major weakness of this model is that the provider is not allowed to intermediate the funds. It is challenging to provide a cheap and convenient savings service for customers when no interests can be earned on the collected deposits. Moreover, the Limited Model requires the deployment of several processes. To construct and maintain all the processes, such as liquidity and channel management or marketing are costly and evoke threats. For example dysfunctions of key processes can lead to dissatisfaction by customers and influence the success of a service negatively. Safaricom makes the Limited Model economically viable by providing a range of financial services. Its core revenue driver is P2P transfer. Additionally and using the Limited Model, a financial institution has to hold the deposits. Thus, banks also need to have an incentive to engage in the value chain. Safaricom's negotiation process was quite simple as is introduces a great revenue source to the custodian banks and the banks did not have any special reserve requirements.

Role of an MFI in the Limited Model

The Limited Model provides a chance for MFIs that aren't permitted to intermediate deposits to be part of the mobile savings business. The author found and identified several MFIs working in line with the Limited Model. They mostly act as business correspondence for a bank originating and servicing savings. However, this role is only possible if allowed by regulation. As introduced previously, another example of the Limited Model is the Cashpor pilot deployed by the MFI Cashpor in India. The MFI allows customers to open bank accounts and make cash in / cash out transactions during the weekly center meetings using the mobile phone (Grameen Foundation, 2012). The author assumes that MFIs can be business correspondences for several banks and provide the mobile-enabled service using several mobile networks. Thus and to make the business model viable, MFIs should get rewarded by the bank for the service they are providing with a fixed rate and maybe commissions on transactions.

The Grameen Foundation (2012) noted that Cashpor can afford to act as a business correspondent because it is providing a full suite of financial services, including pension schemes, money transfers and credit. The MFI also utilizes its existing credit infrastructure so savings are evaluated using marginal costs. Hence, a small MFI may not be able to adopt the Limited Model. Additionally and because in this kind of business model no deposit-licensed institutions are originating the service, banks and maybe a technology party or MNO must be engaged to provide a form of mobile savings. This could cause difficulties in the negotiation process, as all need to see enough benefits. Moreover, providing a part of the distribution model requires several investments such as training for staff members or high working capital and might not be bearable by all MFIs.

If a MFI does not want to originate the savings service the author sees two additional chances for an institution to engage itself under the Limited Model. First it may take the role as a sub-agent or secondly act as a superagent. Those roles were introduced in the paragraph about process aspects as well as the section about people aspects for M-Pesa. The second approach would follow Equity's example acting as a superagent for Safaricom. Thus, the MFI could provide an extra service for new and existing customers and earn commissions. However, since more staff and capital is bound every institution has to figure out if the compensation is high enough.

5.3.2 Partner Model

A partnership, such as M-Kesho, can minimize the surplus for the customers because all the partners have to benefit financially from the arrangement. Sharing several tasks could result in an infinite negotiation process especially if a conflict of interest arises. Thus, problems with managing the partnerships can even lead to confusion of responsibilities. Changing the collaboration between the two partners is an area with great opportunities for M-Kesho as stated in the SWOT analysis above. However, it is dubious because Equity views Safaricom as a competitive threat. Viewing each other as competitors makes it difficult to work together favorably and influences the success of a mobile savings service negatively.

Nevertheless, the author wants to highlight that the Partner Model can also be adapted successfully. One major opportunity of this kind of model is that each partner can leverage his own core strengths and as such the management of the process can be split favorably. The introduced saving and loan product M-Shwari for example was launched on November 27th 2012 within a partnership of CBA and Safaricom. In the first six months M-Shwari gained 3.5 million new customers (Di Castri 2013). The author assumes no conflict of interest made it possible for the partners to set up a working partnership. This in turn allowed Safaricom and CBK to create a product fulfilling customer's needs.

Role of an MFI in the Partner Model

Leveraging the strengths of MNOs could also be attractive for a deposit licensed MFI. MFIs have knowledge of low-income clients' habits and needs and an established service presence among low-income segments (Jenkins 2008, 8). Thus, the author assumes MFIs could design the savings product, hold the deposits and introduce additional agent points, whereas the MNO could promote the service, provide the distribution channel and host the server. However, the pilot of M-Pesa with the MFI Faulu showed that it is not easy to link the back-office system to a mobile money platform. Processes must be streamlined and this requires re-education or elimination of back-office tasks with corresponding investments. Additionally, negotiation with MNOs to provide a suited service for the microfinance sector may create issues of interests (Hughes & Lonie 2007, 73-77; Jenkins 2008, 18).

In the long run this business model could benefit from safer and lower-cost methods of the collection of deposits and improvements in business efficiencies in general (Jenkins 2008, 8). However, the author assumes that MNOs are only willing to work in a close partnership with a trusted MFI with a big customer base. It has to be noted that the Partner Model described above is only possible if regulation approves it. Banks need to be able to outsource cash in / cash out transactions. Moreover, regulation must be favorable to enable a viable economic case for the MFI. No major constraints such as reserve requirements or interest rate caps would be allowed.

5.3.3 Rider Model

The Rider Model main strengths are that it reduces transactions cost for the providers and allows greater outreach to customers. Thus, RBA and Jua Kali could introduce a product like Mbao with low contribution rates. However, as client-contact is minimized, marketing and training must be provided externally. The author thinks that Mbao did underestimate the importance of these tasks. The education of role-models who received training may not be enough and influenced the adoption rate of the service negatively. Moreover, building software to integrate with the mobile money platform is costly and complicated. Delays and reconciliation problems caused by system problems on the one hand is a source of ongoing costs for the providers and on the other hand causes dissatisfaction and mistrust by users. Whether or not Mbao's cost savings on transactions cost can compensate for the ongoing system integration cost and the required increased marketing and training costs has to be seen. A major weakness of the Rider model is that the originators of the savings service are dependent on the service quality of the mobile money platform providers. Thus, they cannot influence the customer's experience or assist them during the cash in / cash out process. Moreover, when the provider of the mobile money platform has issues with key processes customers may not be able to access the product linked to the platform.

Role of an MFI in the Rider Model

Deposit-licensed MFIs can create interfaces for each provider of a mobile money platform to offer its saving product. In general and when regulations allows it, the Rider Model makes it possible for smaller institutions to be part of the mobile savings industry. Through mobile money platforms MFIs can expand their outreach, save on cash handling and collection cost and save employees' time. It should be mentioned that such linkages might to a part substitute weekly group meetings held by MFIs, as customer see less purpose in them. Whether or not a MFI is willing to give up this client contact has to be questioned. To create such links investments in software building have to be made that may not be affordable for smaller institutions. Yousif et al (2010, 20) propose that several MFIs could collaborate to share expenses of such interfaces.

5.4 Further research and limitations

The author suggests that in theory a fourth business model for providing mobile savings is possible, in which the bank is providing the product, is in charge of the distribution network and stores the cash. A MNO would take only a small role as provider of the transaction channel over the phone. Such a scheme could be called "Lonely Player" model as all the main roles of a mobile savings service are taken over by a single deposit-licensed financial institution

According to the observation the author assumes that in Kenya such a model may not be provided for several reasons. First, regulation didn't allow banks to act through agents until 2010. Additionally, regulation is also stricter for banks than for MNOs in Kenya. In the case of M-Kesho an extra bank representative has to be placed at outlets because account openings cannot be delegated to agents. Secondly, M-Pesa has an immense first mover advantage. And finally the critical attitude by customers regarding banks also did not facilitate the kind of "Lonely Player" business model. Further research would be needed to determine how this mobile savings model could be established successfully.

The observations within this thesis are mainly limited by the availability of data in quantitative and qualitative terms. It would be interesting for further research to gain information about the expenses providers are facing. Maybe this could allow an improved proposition which business models are better suited for delivering mobile savings.

6. Conclusion: Condition influencing the success of mobile savings services

On the basis of M-Pesa as an example for the Limited Model, M-Kesho as an example for the Partner Model and Mbao as an example for the Rider Model, the author found several critical conditions which are influencing the success or the failure of a mobile saving business model, measured by the adoption rate:

- **Market:** The results of the derived analysis demonstrate the importance of trust on the success of any mobile saving scheme. In previous research, trust was defined as the most important attribute of a savings product. Issues such as collapses or corruption within a part of the financial industry can have a long-lasting influence on the perception of the providers and the success of a mobile saving service. Additionally, the author observed that the regulatory situation is a critical factor regarding success or failure of a mobile savings scheme. On the one hand the regulatory body determines the existents of the different models and on the other hand influences the reasonableness of regulations for the providers.
- **Product:** The author's analysis on the customer's perspective shows people mainly demand a trusted and save saving product which makes it possible to transact infrequently, in small amounts and at low costs, near where they work and live. As a result the adoption level was found to be positively correlated with the perceived usefulness and user-friendliness of the product. The design of the service components is an important condition for the success or the failure of any mobile saving scheme.
- **Processes:** The derived analysis reveals that deploying a successful savings service requires mastering several key processes. The key processes are more or less the same under each mobile savings business model, the maintainer however differs. Especially challenging is the Limited Model in which the provider constructs and manages all the procedures by itself. Dysfunctions of key processes can lead to dissatisfaction by customers and influence the success of a service negatively. If a mobile savings provider leverages an existing service as an integral part of its delivery channel it gives away part of its influence on the customer's experience. This can cause issues such as dissatisfaction by customers and even lead to distrust in the service.

- **People:** The analysis of the different business models highlights the importance of the different working arrangements on the influence of the success of a mobile savings service. The Partner Model as an example of a moderate successful service shows the difficulties a partnership can cause. Sharing several tasks especially when a conflict of interest occurs can set the providers into an ongoing negotiation process. Additionally, seeing each other as competitors minimizes the chances of a favorably working arrangement. Thus, leveraging each other's core strengths may only lead to a successful deployment when no rivalry and no conflict of interest between the partners exist. The Rider model as example of a rather unsuccessful mobile savings business model demonstrates the difficulties a basic working arrangement with a mobile service platform provider can cause. When the provider of the mobile money system does not allow easy linkages to its platform, the processes of the mobile savings providers can be troubled. The Limited Model as a successful example illustrates that reducing the working arrangements with a financial institution to a minimal service function may be successful. However, the negotiation process with the institution may not be simple.
- **Economics:** The financial conditions influence the success or the failure of a savings service in the long run. Each business model has different costs and revenue drivers. The analysis of the different models reveals that the Limited Model might only be economically viable when the provider is offering a range of financial services. As providers cannot benefit from deposits, a savings product is hardly profitable for them. The derived analysis shows that the Partner Model may influence the success of a mobile savings service in a negative way. All the partners have to benefit from the arrangement reducing customer's surplus regarding product features. Thus, in turn reduces the adoption rate of the service. The Rider Model can reduce transaction cost for the providers. However, whether or not those cost savings can compensate for the ongoing system integration cost and the required increased marketing and training costs has to be seen. As all the services observed are only launched since a few years and do not provide any information regarding deployment costs the author cannot make any suggestions which model might be most profitable for the providers.

This thesis revealed that each business model could in theory, if favorable regulation is in place, be used by MFIs. However, the Limited Model and the Partner Model might only be practicable for large MFIs. The Limited Model implies that the MFI is not deposits-licensed whereas the Partner Model and Rider Model requires that the institution can intermediate deposits. The Rider Model is also usable for a small MFI, the direct and indirect costs of linking to an existing mobile savings service however should not be underestimated. The limitations based on the availability of data such as deployment costs and the recent upcoming of this research field make it difficult to make any clear indications on which model might set the best conditions for a mobile savings service for all stakeholders involved.

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Appendix

Table 12: Business Model Categorization

Product Name	Product offerer	Distribution Network	Distribution Network	Holder of Deposits	Model	Country	Adoption Rate	Launch	Main Reference
Cashpor	MFI	independent	MFI	Bank	Limited	India	60'000	Nov 11	http://www.gsma.com/mobilefordevelopment/mobile-enabled-savings-via-the-business-correspondent-model-in-india; http://grameenfoundation.org/women-mobile-phones-savings-case-study
EKO No Frills accoutns	Third party	independent	Third Party	Bank	Limited	India	180'000	2007	http://en.wikipedia.org/wiki/Eko_India_Financial_Services
IKO Pesa	MNO & Bank	dependent	MNO & Bank	Bank	Partner	Kenya	n/a	2010	http://www.cgap.org/blog/alternative-m-pesa-orange-and-equity-bank-launch-iko-pesa.
Jipange Kusave	Third parties	independent	MNO	In search	Rider	Kenya	1000	2010	http://www.cgap.org/publications/jipange-kusave-experiment-kenya
Khushaal Munafa	MNO & Bank	dependent	MNO & Bank	Bank	Partner	Pakistan	n/a	Dec 2009	http://www.easypaisa.com.pk/index.php/en/component/content/article/29-easypaisa-khushaal-munafa/148-product-features
Mbao	Third parties	independent	MNO	Bank	Rider	Kenya	38'000	June 2011	http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2247270
MiCash	MFI	n/a	n/a	MFI	n/a	Papua New Guinea	n/a	March 2012	http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2013/02/MMU_State_of_industry.pdf
M-Kesho	MNO & Bank	dependent	MNO & Bank	Bank	Partner	Kenya	800'000	May 2010	http://www.businessdailyafrica.com/M-Kesho-growth-stalls-over-hitch-on-profit-sharing--/-/539552/1373474/-/8e1xij/-/index.html
M-Pesa	MNO	dependent	MNO	Bank	Limited	Kenya	5'670'000	March 2007	http://www.nber.org/papers/w16721
M-Shwari	MNO & Bank	dependent	MNO & Bank	Bank	Partner	Kenya	3'500'000	Dec 2012	http://www.gsma.com/mobilefordevelopment/tiered-risk-based-kyc-m-shwari-successful-customer-due-diligence.
Mamakiba	Third parties	independent	MNO	Bank	Rider	Kenya	n/a	2008	http://healthmarketinnovations.org/program/mamakiba
Pesa Pap	Bank	independent	MNO	Bank	Rider	Kenya	n/a	n/a	http://www.familybank.co.ke/Info/Pesa%20Pap%20Agency%20Banking
Zimele Pension Plan	Third parties	independent	MNO	Bank	Rider	Kenya	n/a	n/a	http://www.zimele.co.ke/index.php?option=com_content&view=article&id=18

Source: Own Research in reference to the sources listed in the table