

Mobile Network Operators as Banks – Opportunities and Threats

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Abstract – Mobile phones have not only changed the way people communicate, but have also become an important tool for financial services. The question arises whether these financial services should be provided by a mobile network operator or not. Therefore the goal of this paper is to analyse the opportunities and threats for mobile network operators to provide financial services. The paper concludes that one of the major decision factors is the regulatory framework. If mobile network operators have to establish a bank in order to provide financial services then many advantages and synergies that could be derived from the core competences of the network operator will be lost. Synergies can be used if the mobile network operator can receive a licence as financial service provider, but not as a bank. However, if this is not possible it would be better for mobile network operators to partner with existing banks or similar institutions in order to use existing competitive advantages in the best way.

Keywords – Mobile banking, mobile payments, mobile network operators, banks, Telenor bank.

1. Introduction

At first sight, a mobile network operator and a bank do not have anything in common. They provide quite different services. Mobile network operators offer wireless voice and data communication, whereas banks offer financial services. However, the fast spread of mobile phones across the world and especially the advent of smartphones, which combine

a mobile personal computer with a mobile operating system, have increased the flexible use of mobile phones. According to the International Telecommunications Union, by the end of 2014, there were 7,006 million mobile phone subscriptions (96.8 per 100 inhabitants) compared to 1,090 fixed-telephone subscriptions. [15] On the other hand, according to the World Bank, 2 billion people do not have a bank account, i.e. globally 38 percent of adults do not have an account. [3] Comparing these two numbers, it has to be considered that the number of mobile telephone subscriptions does not represent the real number of users, because we have to differ between the number of users, SIM cards and mobile phones. Due to the fact that a person can use several mobile phones and SIM cards, the actual number of users is certainly smaller. According to GSMA estimates, unique mobile subscribers account for about half of mobile cellular subscriptions, which would translate into a penetration rate of around 48 percent globally - 63 percent in developed countries, 45 percent in developing countries and 30 per cent in least developed countries. [4] But even taking these numbers, we can see that mobile phones are quite commonly used and therefore could be an instrument to increase financial inclusion. Empirical evidence shows that many people in poorer countries use their mobile phones for financial transactions. For example, while only 2 percent of adults worldwide have a mobile money account, in Sub-Saharan Africa 12 percent have one. [3] Mobile network operators world-wide already try to benefit from this development. M-PESA in Kenya is possible the most popular example. There is no question that mobile phones can play an important role for financial inclusion. However, the question arises whether a mobile network operator should provide financial services or only offer the necessary connectivity for such services? This is an important strategic question for a mobile network operator, especially keeping in mind that, dependent on local banking regulations, mobile network operators may have to establish or take over fully-fledged banks in order to provide financial services. In such a case the whole process of organising mobile banking becomes much more complicated for the network operator. However, the spread of mobile banking does not only enable new

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possibilities for mobile network operators, but also opens a new marketing channel for existing banks, especially in developed economies.

In order to answer the asked question, we will at the beginning introduce the concept of using mobile phones for financial transactions. In the next step, we will examine existing literature and scientific papers in order to work out the opportunities and threats for mobile network operators offering banking services. Finally, we will study the empirical experience from Serbia where leading mobile network operator “Telenor” took over a fully-fledged bank in order to provide mobile financial services.

2. The concept of mobile banking

By using a mobile phone for financial transactions the term “mobile banking” developed. Mobile banking can be defined in the following way: “Mobile Banking refers to provision and availability of banking and financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customised information.” [14] This definition shows that with the help of installed specialised software on a smartphone, the phone can be used as 24/7 companion to access financial services. Due to the fact that a mobile phone is usually carried everywhere, mobile banking users can access their services anytime and anywhere, whereas electronic banking users have the lack of locational flexibility, because a laptop is usually not a constant companion.

Analysing the services offered by mobile banking, we can differ between online and offline services. Online services have already been offered by electronic banking and can now be accessed by a mobile phone. These services include checking account information (bank balance, transaction history), transfer of money and stock market transactions. Smart phones can also be used to replace debit and credit cards, by paying directly using NFC technology at a point of sale. Moreover, existing mobile phone applications can be used to locate ATMs or bank branches.

A major advantage of mobile banking is that its services can be used offline, which enables the use of mobile banking with relatively cheap devices without having an expensive smart phone or an internet connection. [1] In order to explain this, we have to keep in mind that mobile network operators offer their customers prepaid and post-paid contracts and both can be used as electronic wallet. Post-paid contracts have the characteristic that a customer has to pay after using services provided by the operator. The invoice is usually issued on a monthly basis. So,

in fact, we can say that the operator gives a loan to its customer for the period until the customer has to pay his invoice. Keeping this fact in mind, the post-paid contract can be used as a type of credit card. In order to provide additional services, the mobile network operator can cooperate with other companies and enable its customers to pay by short messages, e.g. buying car park tickets or other tickets for transportation. The customer will pay for the used services when paying his/her phone bill.

The major disadvantage of using post-paid contracts as a kind of credit card is the default risk. In order to avoid this risk, prepaid SIM cards can be used as electronic wallets. In this case, users buy air-time in advance, which in fact constitutes a claim towards the mobile network operator, i.e. users have got a deposit at the mobile network operator. This deposit can be used for services provided by the operator or sent to a third-party as “air-time” on their phones. The third-party can sell the received air-time to a local broker in return for cash, or pay for goods and services, thus causing a transfer of purchasing power from the initial sender to the recipient. The whole process is very easy, based on existing commands, and possible to use on every model of a mobile phone. This guarantees mass adaption, because a user has not to change a mobile telephone, install additional software or buy another SIM card. Another advantage of this system is that vendors do not have to own payment terminals, as this device can be replaced with a mobile phone. This system is used by Kenya’s largest mobile network operator Safaricom and the service is called M-PESA. Starting in Kenya in 2007, M-PESA has become a global brand, offering services across markets in Africa, Asia and Europe with more than 25 million active customers in 2016. [21] The success of M-PESA induced other mobile network providers to provide similar services, especially in Africa, such as Orange Money offered by Orange S.A. All these mobile money services help to improve financial inclusion in developing countries. Unsurprisingly, Sub-Saharan African economies, together with high-income OECD countries (Australia, Canada, Denmark, the Republic of Korea, Sweden, and the United States) have the largest number of mobile banking users with about 20 percent of account holders. [3]

Of course, it could be also possible to combine elements of pre- and post-paid contracts. Customers could deposit money at a post-paid contract with the possibility to spend more money than deposited. In such a case, we would have a replica to a credit card, because the customer can spend more money than temporarily available on the “account”.

Analysing the advantages for customers from mobile banking, we have to differ between two perspectives. For unbanked individuals the benefits

of mobile banking have to be greater than the benefits of cash. From this perspective, mobile banking has to be easy, convenient, secure and especially without high transaction costs. The possibility to use existing cheap mobile handsets reduces transaction costs immensely. Furthermore, these individuals can use their existing prepaid contract with the operator, avoiding additional bureaucracy.

Advantages for account holders are that their transactions costs are also reduced, because they avoid going directly to the bank. Mobile banking increases flexibility for the user enabling people to conduct financial transactions 24 hours a day and seven days in a week. So, they can ignore office hours of the bank. Furthermore, mobile banking offers people accurate information about their account and their transaction history.

3. Mobile network operators as banks

Table 1. SWOT-Analysis for Mobile Network Operators as Banks

		STRENGTHS	WEAKNESSES
OPPORTUNITIES	<ul style="list-style-type: none"> ➤ Increasing number of mobile phone users ➤ Many unbanked individuals ➤ Developing banking system ➤ Decreasing number of bank branches 	<ul style="list-style-type: none"> • Trust in mobile network operators • Low entry barriers for customers • Low switching costs • Experience in managing large sums of money • Possible cooperation with financial institutions 	<ul style="list-style-type: none"> • Lack of skilled human resources for financial sector • Distribution network • Necessary infrastructure • Willingness of service providers to cooperate
THREATS	<ul style="list-style-type: none"> ➤ Competition by financial institutions ➤ Informal competition ➤ Technological development ➤ Bank regulation ➤ Change in consumer behaviour ➤ Real market potential 	<ul style="list-style-type: none"> • Mobile banking is a cheap distribution channel • Easy use of mobile banking services • Low bureaucracy and mutual knowledge between provider and users 	<ul style="list-style-type: none"> • Data security • Customer care costs • Reputation risk

It is quite obvious that there is a big market potential for mobile banking, especially due to the high mobile phone penetration rate. Mobile banking

services can be provided by mobile network operators as well as financial institutions. The motivation for providing these services is quite different for these providers. Banks see mobile banking as an additional channel to secure and broaden their customer base. But, mobile network operators see mobile banking as an instrument to increase customer loyalty and increase income by using an existent infrastructure, which has high fixed (sunked) costs. Both providers have in common that they want to increase their customer base with the consequence that both will become competitors on the mobile banking market. However, they will enter the market under quite different circumstances. Banks are specialised as financial intermediaries with detailed knowledge about the financial sector, but need technological assistance in order to introduce mobile banking. On the other hand, mobile network operators do have technological know-how for mobile banking, but do not have detailed knowledge about financial products. Therefore, the entry of mobile network operators into the financial markets represents a lateral diversification strategy for them, which is one of the most risky and costly ventures for any company. This step requires knowledge about financial products (regulation, infrastructure, customer behaviour etc.) and a strategy to gain customers. Nevertheless, there is one major synergy at this lateral diversification strategy for mobile network operators: they know their existing customers very well, and their customers know them, which is a major advantage in the financial sector, because the problem of asymmetric information will be avoided. Mobile network operators with a well-known brand will have a competitive advantage over other potential mobile banking providers, because customers will have a higher degree of trust towards them. This can be confirmed by empirical research. For example, M-PESA is organised by a subsidiary of Vodafone, so Vodafone as an international brand generates trust to its customers. Research in Poland also showed that well-known global brands such as MasterCard and Visa received best scores with regard to psychological criteria, such as trust. The same was valid for established brands of mobile network operators, but mobile payment services provided by less known companies have received much lower points. [2] Possessing information about the mobile network operator will reduce entry barriers for users, so they will be ready to test a new service. Other obstacles such as “switching costs” and fear of bureaucracy should also be negligible, because customers are already aware of the procedures for concluding prepaid or post-paid contracts.

An important factor for the success of mobile payment, especially for offline payments, is the

cooperation with other companies. For example, there is a great money flow from relatives in developed countries to their family member in developing countries as well as from larger domestic cities to rural areas and poorer regions. These people need a way to send money home. The standard alternatives are perceived as expensive (money transfer agents) or less reliable (using bus and taxi drivers to deliver cash). Mobile network operators can offer cheap alternatives for domestic or international money transfer by partnering with other foreign mobile payment providers, especially if they are owned by the same company. It is also possible to partner with money transfer agents. For example, Western Union offers the option to send money to a receiver's mobile phone. [22] Such a service has the advantage for the receiver that he/she has not to go to the town to collect the money. However, the major challenge for cooperation with other companies is their willingness to cooperate. For example, if a mobile phone user pays for parking service by mobile phone, the parking service company will not receive the money immediately. This could be a reason to avoid cooperation.

Experience shows that mobile banking services are successful in countries with an underdeveloped banking industry. In these countries, users do not have sufficient trust in existing banks and these banks are often not present sufficiently in the whole country. Such circumstances were one of the success factors of M-PESA in Kenya. [19] Another global development in the banking industry is the decreasing number of bank branches. The traditional branch-based banking model is not profitable anymore, especially in rural areas and low-income communities, and does not reflect a lifestyle change of banking customers. Today's banking customers are more confident and independent without much need for personal communication with bank employees, but are in continuous contact with their mobile phone. Mobile banking can make use of this development, because it offers payment services on the mobile phone, without the need to go to a bank. Especially, if other branchless marketing channels of banks are not available (telephone banking, e-banking, etc.), mobile banking would be the first choice. On the other hand, mobile network operators have to be aware that mobile banking can also be offered by traditional banks. Banks are ready to take on their competitors, especially in countries with a developed banking system and well-established banks. Therefore, we can find mobile banking offers by all major banks today. Furthermore, the emergence of contactless payment systems using near field communication (NFC) technology enables secure payments using a debit/credit card or only a mobile phone, often without entering a PIN. Services

such as Visa payWave or Mastercard PayPass are examples for these services offered by almost all major banks. Especially the possibility to use a mobile phone instead of a card presents a keen competitor in the field of mobile payment systems, because in this case a mobile app replaces the card for payment. There are also other contactless payment mobile apps such as Android Pay. However, the competitive advantage of offline mobile payment systems is that no additional investment in infrastructure is necessary. For the success of contactless payment systems payment terminals have to be upgraded and support by existing banks is necessary. This lack of support was experienced by Valyou, a now defunct joint-venture by Telenor and Norwegian DNB bank offering a mobile payment app, which was forced to shut down after only one year. [18] But these examples show that technological development is one of the major risk factors for mobile banking, because it can change the business model in a short period of time. The emergence of smartphone apps has revolutionised the use of a mobile phone. Therefore, it is possible to communicate with a smartphone using specialised apps and an internet access (e.g. via WLAN), without having a SIM card. Companies such as Firethorn Holdings LLC had to make this tragic experience. The company invested heavily in developing a platform for banks, where they could offer their mobile services on the then latest mobile phones. However after the advent of smartphones banks did not need such an intermediary anymore and were able to develop their own apps compatible with major mobile operating systems, which also meant the end of this service. [23]

The mere fact that mobile operators are able to manage money deposited on prepaid bases and also efficiently handle mobile payments (for parking etc.), shows the ability of mobile network operators to manage large sums of money. This is especially the case when a mobile network operator has many prepaid subscriptions, which is often the dominant case in developing and transitional economies. According to the Measuring the Information Society Report of 2014 "Of all countries included in the IDI, some 57 per cent have more than 80 per cent prepaid subscriptions." [4] So, it is quite natural to see mobile network operators as potential short-term deposit banks managing at any time large amounts of money. However, the question arises whether mobile network operators are able to transform into a financial institution? Mobile payment services will certainly attract existing users of a mobile network operator. But one of the key success factors for such a service is whether it will be able to efficiently face formal and informal competition. This service will face competition from banks, post offices, money

transfer agents as well as informal channels, such as, bus companies, hand carrying by friends and family and underground money transfer mechanisms. So, if an operator wants to establish a mobile payment system, it has to analyse the local market in detail and analyse why people are using a certain payment instrument. It is necessary to keep in mind that everybody, no matter how much money is owned, uses money as the general medium of exchange and therefore analyses the benefits of certain currencies and payment systems. The major advantages of mobile payment systems are the safe storage and easy transfer of money. People can use a mobile device to receive payments directly, check their balance and transfer money. But users have to be convinced that a mobile payment system has more benefits than the use of cash. Payment by cash has a number of advantages including no transaction costs, privacy and immediacy. [9] However payment using mobile devices presents a number of issues. First, every transaction causes costs for the sender, which he would not have if he paid by cash. Secondly, paying by mobile phone causes a privacy concern since every transaction leaves a trace of someone's habits and lifestyle. Additionally, processing of payment may result in delays. For example, if a person receives electronic money, he or she has to go to an agent in order to receive cash, which causes delays.

A major challenge for mobile network operators offering mobile banking is the adaptation of their product range. Mobile banking does not only cover the process of making and receiving payments, but also offers users financial products, such as loans, savings accounts, etc. A major challenge for this transformation are human resources. For example, it is a quite different job to sell air-time via resellers, i.e. to accept money and to control this cash-flow. But, instead of this one-way approach, where money is received for a certain service, at a mobile payment system the reseller has also to pay out cash (known in the industry as cash-in/cash-out), which makes the process much more complex, because a detailed financial planning is needed with strong internal controls. Such detailed controls are not needed in classic air-time selling. But not only cash-flows become more complex, but the new financial product is also complicated, which requires a higher level of effort both to sell and use. In order to reduce the complexity of a financial product and reduce the necessary consulting associated with them, the best way is to standardise financial products. This is the way branchless direct banks have chosen and their experience can be beneficial for mobile network operators. Standardised financial products, generally known to the public, do not need much consulting by the bank due to a high transparency. Moreover, if a

mobile network operator decreases the number of branches to a minimum, these products can be offered at low costs. [5] Direct banking can be successful on the condition that its customers are independent and financially educated. This could be true for customers in developed economies, but at a lower degree for customers in developing ones. Therefore, a mobile network operator will certainly have to offer a certain number of branches. So, the question arises whom to choose as distribution partners. Here, it is necessary to analyse whether a potential partner has the capabilities for financial management and accessibility. From the aspect of accessibility, it would be natural to partner with gas stations or retailers. But, here it has to be taken into account that these providers organise their network according to their respective needs, e.g. gas stations are often located outside of densely populated areas. Thus, people possibly own a mobile phone, but not everyone has a car or the ability to reach a station, especially in rural areas. But, the major challenge is that the majority of potential partners usually only manage the acceptance of money, but do not cash out. Therefore, the operator will probably prefer partners such as microfinance institutions, post and exchange offices, which are familiar with cash-in/cash-out services and located in needed areas. Operators would provide the product design, service requirements, and back-office processing, while the partners would run the cash-in/cash-out facilities. [16] The basic idea is that the partner uses his existing distribution network and the provider does not need to open an additional counter at these partners. Furthermore, because the mobile network operators have their official stores, these stores could be upgraded in order to be able to provide financial services, besides their standard services. It is also necessary to have an official representation due to customer relationship management. Here, the strategy of post banks could be implemented. Post banks offer their standard services (cash-in/cash-out, opening of accounts) at post offices. In some post offices specialised marketing coordinators can be found with the task of providing consulting for customers and post office employees. [5] This employee could visit regularly certain distribution partners, especially in remote centres. It would be also possible to separate the banking sector from the communications sector in a shop and have a "shop in shop", where consulting and financial services would be offered to mobile banking customers. [5] Such shops would have the major advantage of providing a suitable space for discussing important financial questions in a discrete atmosphere.

Theoretically, adoption of mobile banking would not require investments in branches or ATM infrastructure. It is emphasised that mobile banking is

provided at an automated process, without branches and many bank employees. Therefore, mobile banking is one of the cheapest banking channel. But this is usually not the case. Users need customer support (not only via internet or telephone), advice, cash etc. The range of services is culture and country dependent. These customer care costs have to be considered before making a decision to go into the mobile banking market. Customers also want to pay with their mobile account, not only by transferring their deposits on mobile phone or contactless payments, but also using a debit or credit card where infrastructure is not available. So, mobile network operators have to offer ATMs, call centres, branches and mobile banking. This has consequences on the cost-structure of the financial services offered by the mobile network operator. According to a joint study by Syniverse, M-com and Fiserv [10] mobile banking has the lowest per-transaction costs by banking channel. Now, it could be assumed that financial institutions, which offer mobile banking have the lowest channel transaction costs. But, this is not a realistic picture. It is not only important that mobile banking causes the lowest cost, but the frequency of using a certain banking channel by customers has also to be considered. If customers also often use e.g. ATMs and call centres, costs will increase substantially. Another point is that mobile transactions will not entirely substitute traditional banking channels, but will add to the overall frequency of using a certain channel. Thus, it is not only important that mobile transactions are less expensive than other channels, but mobile transactions have to substitute other banking channels, so total costs can be minimised. [20] In order to make a right decision about mobile banking, customer behaviour has to be analysed in detail whether it is profitable to offer financial services to the target audience.



Figure 1. Per-transaction costs by banking channel
Source: [10]

A major challenge for launching a mobile banking service is security risk. Any problems regarding data privacy, accounting errors or cyber-attacks could cause serious reputational damage and lead to the payment of large liabilities and, of course, massive loss of customers. Especially possible fraudulent practices are certainly one of the major concerns of

possible customers. This fear could be intensified, if customers of mobile network operators have already experienced accounting errors or lost airtime. So, to be convinced to use a mobile payment system, customers want to avoid unwanted disclosure of private information or any abuse of their money or information by the company collecting it. [7]

Due to these challenges the use of the mobile network operator brand for the bank name has two sides. It can attract customers being a symbol of trust. But this trust can be lost, if any of the mentioned problems will occur, causing a lasting image loss. These challenges lead to another question: the question of bank regulation. One of the most crucial points regarding the offering of financial products by mobile network operators is the question whether the operator will have to transform into bank or be able to offer payment services as a network operator. If a network operator has to transform into a bank due to bank regulation, this is a major organisational shift, where a completely different business approach is necessary causing a major impact on profitability. Therefore, the question arises whether it is better in such a case to cooperate with a financial institution in order to use existing synergies at best or to establish an own bank, which will offer basic banking services.

4. Case study: Telenor bank Serbia

Telenor Serbia, part of Telenor Group based in Norway, has been active in Serbia since 2006, by taking over local provider “Mobi 063” for 1.513 billion euros, representing the largest take-over in Serbian history up to now. The company is temporary the market leader in Serbian mobile phone market with a market share of 41% (other two competitors are state-owned Telekom Serbia with a market share of 36% and Telekom Austria-owned VIP with a share of 23%). [8] On 19 December 2013, Telenor became active in the banking sector taking over the shares of KBC Bank Belgrade. [11] With this transaction Telenor obtained a banking licence, which enables it to offer banking services to the general public. According to Serbian law it is necessary to obtain a banking licence in order to perform payment transactions. [6] In 2014, KBC bank changed its name into Telenor bank and on 10 September 2014 Telenor bank was publicly promoted as the first mobile bank in the Western Balkans region based on a new business model as direct bank. The focus of the new bank strategy is to provide innovative financial services directly to individuals through internet and mobile applications as well as Telenor shops in Serbia. [11]

Before analysing the success of the bank up to now, we will first analyse the opportunities and threats of such a strategic decision. Analysing the Serbian mobile phone and banking market, we can observe the following trends:

- There is a high mobile phone penetration rate which was at 129.4% in Serbia in 2015. [8]
- The number of post-paid and prepaid users is almost at an equal level. The number of prepaid users has decreased substantially from 64% in 2011 to 50.4% in 2015. [8] This shows that mobile network operators are successful in substituting prepaid contracts with post-paid ones leading to a higher customer loyalty and trust towards mobile network operators.
- According to the Serbian central bank, the National Bank of Serbia, the share of currency in circulation in M3 was 7.2% in 2016. [24] This shows that cash is still widely used in Serbia. This official data does not include foreign exchange (especially euros) often used in unofficial transactions.
- The banking system in Serbia is still developing. Consequences of the global financial crisis in 2008 were also felt in Serbia, leading to dramatic changes in the banking sector. In the last five years four bank went bankrupt, some foreign-owned banks have left Serbia due to falling returns and some banks changed their owners. All these developments decreased general trust towards the banking system.
- At the end of 2008, there were a total of 2,677 bank branches, whereas in 2016 there were only 1,719 – a decrease of 35.8%. [24] Bank branches are now more concentrated in urban areas and economically more powerful areas of Serbia.
- Informal economy is still relatively large in Serbia.
- The biggest banks in Serbia offer electronic and mobile banking, including NFC payment (both Wave2Pay and Paypass) systems. Furthermore, banks in cooperation with mobile network operators offer modern and secure payment systems using SIM cards with a digital certificate, which allow payment by SMS.

At first sight, it seems that there is a market potential for a mobile network operator becoming a bank in Serbia. Telenor is the leading mobile network operator in Serbia with about three million customers. Other circumstances seem to be quite favourable for a new financial institution. Telenor

bank, according to its own business report, bases its strategy on the following directions: [11]

- The bank wants to provide innovative basic banking services in order to increase the number of current accounts, which will form a basis for commissions and fee income generation and provide a basic platform for selling other banking products which generate a higher income, such as loans and credit cards.
- Developing deposit-based financial products, which enable a high degree of flexibility and yield to clients. This should be a competitive advantage for the bank.
- Providing short- and medium-term loans and credit cards to natural persons. These financial products should benefit from the easiness of payment, generating interest and fee income.
- Financial products will be marketed directly via electronic channels, as long as this is possible according to Serbian laws. Telenor bank can use shops of the mobile network operator Telenor in order to finalise contractual agreements.

According to this strategy, Telenor bank offers the following financial products: [17]

- Current accounts
- Savings accounts
- Loans (cash loans, consumer credits for mobile phones and overdrafts)
- Payment cards (debit and credit)
- ATMs with currency exchange function

To have a competitive advantage over its competitors, Telenor bank offers new innovative, flexible services, such as: [17]

- Payment of invoices via smartphone
- “mCash” service – cash in and cash out at Telenor bank ATMs using an app without using a payment card
- Transferring money to phone number or e-mail. In this case, money will be transferred to a bank account.
- Sending money abroad
- Receiving money from abroad
- Currency exchange

In order to analyse the success of this strategy, a financial analysis of the financial reports of Telenor bank from 2014 to 2016 was conducted. It has to be mentioned that the official start of Telenor bank was in September 2014, so the financial report of 2014 will only be used for comparisons, whereas the financial years 2015 and 2016 are business years where Telenor bank was fully operational.

Table 2 shows a continuous rise in total assets of the bank. Since 2014 total assets have risen more than three fold. On the one hand, deposits have risen in this period almost ten times, whereas loans have increased almost four times. This disproportionate development of loans and deposits has led to a decrease in the loan/deposit ratio. The reason for this development was that in 2015 the bank was able to attract much savings via its savings account offer, but was not able to increase its credit portfolio in the same manner. Therefore, the bank invested heavily in government bonds. [11] As a result, in 2015 30.4% of total assets were cash and central bank balances, whereas securities made 31.7% and loans 26.4% of total assets. One year later, this structure changed to cash and central bank balances 14.7%, securities 36.2% and loans 40.3% of total assets. So, we can see that the bank decreased the holding in cash and increased investments in securities and loans. But it is quite clear that the bank did not transform itself into a classical commercial bank with a loan-based focus, but a bank which provides transactional services and short-term deposits. The majority of loans was granted for the acquisition for mobile phones in cooperation with its sister company mobile network provider Telenor. These loans were guaranteed by special purpose accounts of the network provider at the bank. [11]

Savings accounts, especially sight savings accounts, made the bulk of deposits at Telenor bank. Current accounts and special purpose accounts were other major deposits at the bank. All three types of accounts increased in the period between 2015 and 2016, but especially the value of current accounts more than doubled and made 29 percent of total deposits. Almost the same value were special purpose accounts, whereas savings accounts at about 42%. About 70% of deposits are from domestic natural persons and almost 30% are from legal entities, especially mobile network operator Telenor.

The income statement shows that total revenues have decreased in the period from 2014 to 2015, but increased significantly in 2016. The interest income ratio (net interest income divided by gross interest income) decreased continuously in the observation period, but increased in absolute terms threefold. Interest has been playing an increasing role in total revenues, increasing its share from 31% in 2014 to 61% in 2016. Another major income for the bank comes from commissions and fees. Commissions and fee income ratio increased continuously from being a negligible income in 2014 with a share of 6% to a share of 28% of total revenues in 2016. Commissions and fee income is mainly generated by fees from using payment cards (more than half of income) and about 40% is earned by commissions for payment and administering accounts. Other revenues were of

minor value. Despite the fact that total revenues increased from 2014 to 2016, losses were generated in the whole observation period. One of the major reasons for the high losses are high operating expenses, which mainly consist of expenses for human resources, depreciation, marketing and rent. These expenses are far higher than total revenues. Operating expenses were almost three times the value of total revenues in 2015, and 1.5 times the value of total revenues in 2016. It is a worrying development that losses were almost at the same level as the whole equity with a ROE of about -80% in 2015 and 2016. Therefore the owners had to inject additional equity by investing about 1.26 billion Serbian dinars in 2015 (10.38 million €) and 1.34 billion dinars in 2016 (10.88 million €) in order to keep equity above the legal minimum of 10 million euros.

Table 2. Key financial information of Telenor Bank

Indicators	2014 ¹	2015 ²	2016 ³
Total Assets (in 000 RSD)	3,606,217	7,876,172	11,119,778
Market Share in Total Assets of all Serbian Banks	0.1%	0.3%	0.3%
Total Deposits (in 000 RSD)	931,174	5,376,057	8,573,175
Total Loans (in 000 RSD)	1,244,166	2,081,117	4,483,494
Loan/Deposit Ratio	133.6%	38.7%	52.3%
Capital Adequacy Ratio	73.38%	101.04%	76.74%
Total Revenues	572,432	445,404	888,685
Interest Income Ratio	78.0%	51.9%	43.2%
Interest Income Ratio (industrial average)	68.1%	75.6%	81.4%
Commissions and Fee Income Ratio	-1.3%	24.0%	28.9%
Commissions and Fee Income Ratio (industrial average)	73.4%	71.5%	69.0%
Total Operating Expenses	1,351,088	1,458,618	1,634,087
Net Income (Loss)	-860,745	-1,251,694	-1,317,786
Post-tax Return on Equity	-55.1%	-79.7%	-81.6%
Post-tax Return on Equity (industrial average)	0.37%	1.20%	2.90%
Post-tax Return on Assets	-23.9%	-15.9%	-11.9%
Post-tax Return on Assets (industrial average)	0.08%	0.24%	0.57%
Number of Employees	139	154	182

¹ On 30 December 2014 1 € was equal to 121.0481 Serbian Dinars.

² On 30 December 2015 1 € was equal to 121.3635 Serbian Dinars.

³ On 30 December 2016 1 € was equal to 123.4723 Serbian Dinars.

A closer look at the income structure shows that interest and commissions and fee income ratio were clearly below industrial average in 2015 and 2016. Of course, it has to be considered that Telenor bank, as a new bank on the market, tries to attract customers by lower fees and higher interest rates, but it is clear that the current strategy is far away from generating a profit. When interest incomes are compared with their investments, it can be seen that loans make a relatively competitive return of 8%. But the share of loans in total portfolio was low in 2015. The bank managed to complete its loan offers with short- and medium term loans 2016, so the volume of granted loans increased as a result. [12] But Telenor bank invests heavily in government securities, which make a low return. Changing the portfolio could increase the total return, keeping in mind that the bank also uses intensively money from current accounts to finance its investments. The only advantage of such a portfolio structure is that the bank does not have any problems meeting the capital adequacy ratio, which is set at 12% in Serbia. On the other hand, interest expenses on deposits are relatively low, because current accounts and special purpose accounts (provided by network operator Telenor for mobile phone purchases) make a considerable part of total deposits, especially in 2016.

Table 3. Returns and Expenses of Telenor Bank's Deposits and Portfolio

Portfolio	2015	2016
Loans	2,081,117	4,483,494
Interest income	166,419	359,757
Return on Loans	8.0%	8.0%
Securities	2,500,213	4,030,444
Interest income	83,416	169,809
Return on Securities	3.3%	4.2%
Total value	4,581,330	8,513,938
Total income	249,835	529,566
Return of portfolio	5.5%	6.2%
Deposits	2015	2016
Current Accounts	1,045,834	2,501,588
Savings Accounts	2,896,962	3,557,910
Special Purpose A.	1,419,879	2,491,434
Total value	5,362,675	8,550,932
Interest expenses on deposits	121,664	307,856
Expenses on deposits	2.3%	3.6%
Net Expenses on deposits ⁴	1.8%	2.7%

⁴ Interest expenses on deposits minus net income from commissions and fees divided by total deposits.

The short financial analysis shows that Telenor bank has to change its strategy to become a profitable bank. A simple break-even analysis by dividing total operating expenses with the total net return on deposits (generated by interest and commissions fees) in 2016, shows that the bank would have needed total deposits at the value of 35.7 billion dinars to reach break-even, compared to the current value of 8.6 billion. This number is certainly difficult to achieve at a medium term. The question is whether the bank will be compete will well-established banks at offering commercial banking products. The mere fact that the bank is a direct one, is not a big competitive advantage in Serbia, due to the lower level of technology acceptance as a result of lower purchasing power and a lower number of people with higher education. In order to become profitable, Telenor bank has to dramatically reduce its operating expenses by at least 50%. A challenge to achieve this goal is the fact that the bank offers complex financial products (deposit and loans), which increases the need for more employees. From a strategic perspective it is indispensable to concentrate more on the payment service sector, which is easier to execute and need less employees. On short-term, the bank could reach the industry average of a commissions and fee income ratio of about 70%. Reducing the loan business at a minimum, only offering standardised "special purpose loans", e.g. for mobile phones and other consumer goods, credit risk would be reduced as well as administration expenses. Other income, such as from foreign exchange business, which is an important business in Serbia, could also contribute in an important way. Therefore, about 70% of revenues should be generated by commissions and fees, about 20% by interest income and 10% other business, such as foreign exchange. Such a structure would enable the bank to reach break-even and by providing more payment services, especially offline payment services in cooperation with the sister company, the bank could reach an adequate ROE. However, the legal requirement to hold minimum 10 million euros, makes it difficult to reach an adequate level of ROE, especially keeping in mind that mobile network operator Telenor was able to earn a post-tax ROE of 26.7% in 2015. [13]

5. Conclusion

Mobile phones have not only changed the way people communicate, but increasingly change the way financial services are executed. Mobile phones as a 24/7 companion increase flexibility for users. Therefore, it is quite natural to see the mobile phone as a tool for financial services. The question whether financial services should be provided by a mobile

network operator depends mainly from external factors such as the number of mobile phone users, and the number of unbanked in this group, and the status of the banking industry in a certain country, which determines the level of competition from well-established banks, and finally the regulatory framework. Especially this third factor is of vital importance for making a decision about entering the financial markets. If a mobile network operator has to establish a bank in order to provide financial services then many advantages and synergies that could be derived from the core competences of the network operator will be lost. This can be seen from the experience from Serbia, which showed that many synergies could not be exploited which hampered the position of the newly-founded bank on the market. It has to be kept in mind that it is very difficult to have a competitive advantage in the service sector, because innovative services can be imitated very fast. Especially in developing and transitional economies it will be difficult promote such a new direct bank. In these markets a mobile network operator offering financial services can be successful, if it can use the existent competitive advantages (especially trust and technology) in order to provide easy and efficient financial services, especially to unbanked individuals. This is possible if the mobile network operator can receive a licence as financial service provider, but not as a bank. Using online and offline services, mobile network operators will be able to fill a niche by offering financial services to groups, who traditionally do not use a bank account, but are familiar using mobile phones. But in a bureaucratic banking system, such as in Serbia, the transformation into a bank could backfire due to regulatory requirements. In such a case it would be better for mobile network operators to partner with existing banks or similar institutions such as post offices. Innovative easy-to-use financial products, such as using SIM cards with a digital certificate that enable payment by SMS, could be efficient financial products for a win-win-cooperation between mobile network operators and financial institutions. On the other hand, in developing economies, with established financial institutions, and with the availability of modern financial services offered by different providers, it would not be very rational for mobile network operators to make risky strategic decisions to enter new business fields when the core business is very profitable.

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