Regional: Financial Sector Development in Central and West Asia
(Financed by the Asian Development Bank’s Technical Assistance Special Fund)

Making Mobile Financial Services Work for Central and West Asian Countries

Prepared by the Frankfurt School of Finance & Management

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Asian Development Bank
FINANCE SECTOR DEVELOPMENT IN CENTRAL AND WEST ASIA

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Asian Development Bank
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>AFI</td>
<td>Alliance for Financial Inclusion</td>
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<tr>
<td>AMD</td>
<td>Armenian dram</td>
</tr>
<tr>
<td>CGAP</td>
<td>Consultative Group to Assist the Poor</td>
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<tr>
<td>DOI</td>
<td>Digital Opportunities Index</td>
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<tr>
<td>GDP</td>
<td>gross domestic product</td>
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<tr>
<td>GNI</td>
<td>gross national income</td>
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<tr>
<td>GSMA</td>
<td>Groupe Speciaie Mobile Association</td>
</tr>
<tr>
<td>G-20</td>
<td>Group of Twenty</td>
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<tr>
<td>ICT</td>
<td>information and communication technology</td>
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<tr>
<td>IDI</td>
<td>ICT Development Index</td>
</tr>
<tr>
<td>IFC</td>
<td>International Finance Corporation</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>ISP</td>
<td>internet service provider</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunication Union</td>
</tr>
<tr>
<td>SIM</td>
<td>subscriber identification module</td>
</tr>
<tr>
<td>SMS</td>
<td>short messaging service</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
</tr>
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I. Introduction

The concept of financial inclusion refers to several dimensions of the financial system working toward services tailored to clients across a broad spectrum of income groups, not just the wealthy (Tilman 2012). The quality of financial services and ways to deliver them have become more important since the financial crisis. Just as electronic money and credit and debit cards did, the internet is creating new options for account management and banking services. At the same time, mobile phones and broad telecommunications network coverage have expanded the delivery mechanisms for communication between banks and the customer—for mobile account management, for mobile money, and even bypassing banks altogether with some customers doing their banking with mobile network operators.

Mobile financial services in developed countries are largely, merely an additional service to bank customers. In developing and transition countries, however, they are recognized as a successful instrument for reaching lower income groups, especially those in rural and remote areas. Branchless banking and new business models can efficiently and cost-effectively bring financial services to people who have no access to traditional bank branches. This includes the management of accounts by mobile phones and reducing bank visits, as well as money transfers between clients, receiving and sending remittances, paying bills, or buying goods and services. Furthermore, mobile financial services can be used regularly to save small amounts and to apply for loans, insurance, and other bank services. Generally, mobile financial services, by connecting those with previously insufficient services, help mobilize deposits from households and at the microenterprise level.

Many financial institutions perceive mobile financial services as an innovative technology capable of reducing high operating costs and increasing operating efficiency, but the necessary engagement with mobile network operators is often a new hurdle, as are regulatory requirements. For example, financial institutions licensed only to offer credit products are not able to immediately leverage mobile financial services as a means of offering savings, remittances, and insurance products in addition to their existing credit products without changing their licensing arrangements or, in some jurisdictions, obtaining a banking license. However, for some services, a banking license is not a necessary precondition for offering certain types of mobile financial services. These can be provided by financial institutions, mobile network operators, service providers, and by partnerships of these players. All models create distinct approaches. While banks offer mobile financial services that are connected to a formal bank account, mobile network operators provide services based on the purchase and transfer of mobile money, and thus remain independent of the banking sector (but also limited in their product spectrum and therefore in the quality of financial access).

Mobile network operators can often roll out their service very quickly as they have an advantage in the setup of an agent network that performs basic banking operations such as account opening and withdrawals—a feature of mobile financial services that has shown to be essential if regular banking infrastructure is weak. The appropriate model for a country depends on many different factors and therefore must be evaluated on a case-by-case basis. Each combination has its advantages and disadvantages, and choice and success heavily depend on the starting position as well as the long-term goals.

This report assesses the potential of mobile financial services to increase financial access and to deepen financial inclusion in Armenia, Azerbaijan, the Kyrgyz Republic, Pakistan, Tajikistan, and Uzbekistan. It defines mobile financial services and develops a concept of conditions thought essential when evaluating the opportunities for
providing these services and choosing an appropriate model. This concept is then applied using mobile financial service models from Kenya, the Philippines, and some developed countries. The report then describes the finance sector, regulatory framework, technological and infrastructural landscape, potential catalysts for encouraging adoption of mobile financial services, and initiatives already in place in the six case study countries. It also analyzes the potential for mobile financial services in the region using concepts and findings from the prototype models and recommendations on shortcomings, regulation, and best applicable models. Finally, the report outlines critical success factors and potential risks.¹

¹ The report is mainly based on desk research and aims to explore the opportunities of technology field-based instruments to foster the financial ecosystem. For the data from Armenia, Azerbaijan, Pakistan, Tajikistan, and Uzbekistan, Frankfurt School of Finance & Management experts were on-site for the technical assistance project.
II. Mobile Financial Services

A. Evolution

Financial sector innovations in retail banking have occurred not only in products such as new types of loans, deposits, or insurance, but also in customer service and infrastructure. In particular, the evolution of distribution channels has simplified and increased access to banking products and services as banking moves away from a branch-based approach toward a diversity of channels to manage accounts and finance.

Figure 1 shows the most common distribution channels, their importance, and their usage. The branch still remains central to providing individualized service, but clients now visit these locations less often because new technology allows simple and secure transactions or other standardized procedures through alternative systems. Diversification of distribution channels allows clients to select the most convenient channel and avoid time-consuming and sometimes costly branch visits.

**Figure 1: The Importance and Evolution of Banking Channels**

Alternative F2F = alternative face-to-face channels.  

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2 Alternative face-to-face can also deliver individualized service and further reduce the importance of branches. However, it is likely that customers will continue to prefer visiting branches for complex products, individual offerings, or signing contracts.
The diversification of distribution channels has reduced customer dependency on bank branches and their opening hours, giving customers more control over their accounts and more information and easy access to financial services, especially as electronic banking technology has improved. An initial reliance on telephone and mail communications has given way to ATMs while, later, the internet simplified the management of bank accounts, bill payment, online orders, and contact to banks through online banking and e-mail. More recently, banks began using services such as short messaging service (SMS) alerts to communicate with customers and mobile transaction numbers to increase security. Figure 2 looks at the most common electronic banking channels.

Banks have also benefited. While expensive branch networks were once mandatory, new distribution channels allow them to run fewer branches at lower cost. New technology substantially increases the outreach of single branches. While most modern banks use these systems as part of their customer service and cost-reduction strategies, but still complementing branches, some banks have developed a new business model. By combining different electronic banking channels, so-called direct banks are offering simple, standardized, and very low-cost products without extensive and expensive banking networks. Mobile financial services offer further potential to increase customer service and branch outreach.

Mobile financial services include a diverse range of financial services delivered using mobile devices. While many banks have these services, usage is often limited in giving the client information about money movements, delivery of transaction numbers, or payments through credit cards. However, mobile financial services are wider, although they can be broadly divided into banking services and payment services.

Mobile banking (m-banking) services include all services connecting clients to their bank accounts using mobile devices. Mobile banking therefore resembles internet banking. It mainly includes account management, but can be accessed independently of computers and wires on a 24-hour basis. These services are especially designed for mobile phones, such as the m-banking mobile application.

Mobile payment services cover a broader range of payment services that may or may not be offered by banks (Alliance for Financial Inclusion [AFI] 2010a). This includes, for example, the person-to-person transfer service or the electronic wallet, in which funds are stored on a subscriber identification module (SIM) card and transferred through near-field communication technology. Mobile financial services can therefore offer further...

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3 Direct banks offer banking services largely online, alongside a credit or debit card for free withdrawals and cashless payments. They operate no or very limited branch networks or cooperate with traditional banks. In this sense, they are still operating with a reliance on infrastructure; that is, on the network provider for internet access and on the ATM networks of other banks. The cost of this infrastructure is lower for direct banks.

4 Especially new market entrants, for example, foreign commercial banks, use electronic banking channels extensively to reach a large number of potential customers, with only a small branch network. Electronic banking channels have thereby reduced market-entry barriers and mobile financial services could do so further.

5 Near-field communication technology is for contact-free transfer of data between two devices or one device and an unpowered near-field communication chip (tag) over short ranges. In payments, near-field communication can be used to transfer balance or credit card information. Other examples are near-field communication ticketing systems in public transfer or pairing devices such as headphones (similar to Bluetooth).
Mobile financial services could fill a market gap, especially in developing countries where banking infrastructure may be quite limited.

As noted, people in remote and rural areas in many countries lack access to the network of bank branches, ATMs, and points of sale that banks offer. Mobile financial services could increase the outreach of branches to these people through the widespread coverage of mobile networks, as no infrastructure for financial access has to be set up. Mobile phone coverage in rural areas was an important obstacle late last century, but coverage has risen and will continue to do so. While the price of enhanced phones such as smartphones has remained roughly stable, the technology of each new generation of smartphones has made more functions possible. An early generation smartphone in 1999 could be purchased for $358, 10 years later the same phone could be purchased for just $47 (Pickens, Porteous, and Rotman 2009). At the same time, more people are using last-generation phones, and applications are now simpler and more user-friendly. For example, the need for numeric codes has largely disappeared. More importantly, reservations about new technologies have decreased, as have support costs, while early adoption has increased. Digital literacy is also increasing, especially among the young. A lack of financial and digital awareness can be a serious bottleneck for mobile financial services.

Mobile financial services can be introduced quite smoothly in developed countries as an additional service, but in developing countries they have to be adjusted to the current state of financial access. Where there is no or only weak banking infrastructure, mobile financial services have to be introduced using an all-at-once Greenfield approach, which is often unsuccessful with high technology because of a lack of acceptance.

A more promising approach for introducing mobile financial services in developing countries is combining them with agent networks. Here, agents function as an interface between consumers and the financial service provider to open accounts, accept deposits, or enable users to withdraw cash. They are therefore part of the banking infrastructure and deliver basic services without needing banks to establish and operate more expensive bank branches or ATM networks. Agents may also be known and trusted in local communities and can help with support and overcoming reservations on using mobile financial services. In the longer term, agent networks may be able to deepen services by providing ones beyond basic payments and peer-to-peer transactions, such as credit, savings, and insurance.

Mobile financial services can be viewed as the next evolutionary step in delivering financial services to the poor. The Raiffeisen Model of the late 19th century gave access to bank services through branches within the local community and was, by methodology, geographically limited to a relatively small group of village inhabitants. The banking model that Grameen and other microfinance institutions used would later relax this constraint by visiting more distant villages and using methods that relied less on proximity. Mobile financial services can deliver financial access through remote access to banks and payments systems, without the physical presence of banks, relying instead on mobile network technology and agent networks, increasing the range of available products, reducing prices, and finally including regions that could not have been banked profitably before.

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6. Point-of-sale devices are hardware devices that credit the buyer’s card balance for purchased goods.
7. The availability of internet is also limited because of lacking telephone cables, glass fibers, and computers.
8. For example, this can be seen in the increase of the digital opportunity index in several countries from 2004 to 2006. See International Telecommunication Union (2007).
9. A Greenfield approach is to start a project from the ground without the need to consider any prior work.
10. An overview on theories of user acceptance is provided, for example, by Dillon and Morris (1996).
11. In fact, this development is promoted by the Helix Institute of Digital Finance, managed by MicroSave and sponsored by the Bill & Melinda Gates Foundation.
12. In the late 19th century, savings banks and Raiffeisen models emerged in continental Europe and became key pillars of the banking system (Roodman 2012).
13. The group model, for example, transfers selecting and monitoring obligations from the bank to group members. Besides reducing risk, this also reduces the need to collect information on clients and to monitor their projects.
Before the implementation of mobile financial services in developed and developing countries is analyzed in more detail, the following sections briefly outline the different aspects of mobile financial services and their providers.

**B. Concepts**

“Mobile financial services” is an umbrella term commonly used to describe any financial service provided using a mobile device. Within mobile financial services are several different concepts and terminologies that are not always used consistently in the finance and technology sectors. In addition, mobile financial services can be provided by banks and mobile network operators that introduce other terminology, which can involve different technologies and concepts for the same outcome. As noted, this report distinguishes between mobile banking and mobile payments.\(^{14}\) This definition has the advantage that mobile financial services can be better assigned to different models and differentiated regarding their target group.

The provision of account-based banking services to mobile devices is summarized in the term “mobile banking.” This includes two main services: first, the mobile device is used to access bank accounts without physically visiting a branch or using a computer to remotely manage accounts and conduct transactions. This service is very similar to internet banking and can be offered by simply opening the online banking homepage of a bank with a smartphone. A more user-friendly approach is to access via mobile banking applications (apps). Often, mobile account management comes with a variety of informational functions, such as querying account balances or monitoring last transactions, as well as explicitly designed mobile services, such as SMS alerts, announcements, or authentication. Second, mobile banking can be used to withdraw or deposit funds at ATMs. In this case, the mobile phone is used for identification and authorization of the account holder.

Mobile payment, also known as m-payments and mobile money transfer, is the transfer of money between two people (known as P2P), between a person and a business (also known as m-commerce and P2B), or between the government and a person (known as G2P) via the subscriber’s platform, in which at least one party uses a mobile phone.\(^{15}\) Mobile payments can be used for micropayments, such as buying a newspaper or a bus ticket, as well as to transfer larger sums, such as international remittances. They can be used for transactions from a business to a person, for example, for the payment of salaries. Most mobile payment systems are based on a prepaid balance that is transferred by SMS, near-field communication, or using codes, but postpaid or real-time payments are also possible. As distinct from some other forms of electronic banking, the transferred money is available immediately and, depending on the system, a bank may not need to be directly involved.\(^{16}\)

Mobile money refers to a balance of electronic money stored on a mobile device (a so-called m-float), usually without earning interest, that can be used for mobile payments.\(^{17}\) Mobile money may or may not be tied directly to a personal bank account (International Finance Corporation 2011). It can therefore be postpaid, with a bank or network operator giving credit, or prepaid, whereby mobile money is either connected to airtime or stored on a phone in a separate account in a similar way to which prepaid airtime is stored.\(^{18}\) If mobile money is tied with a bank account, it can also be managed using mobile banking.

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\(^{14}\) This definition broadly follows the Alliance for Financial Inclusion (2010a).

\(^{15}\) In some definitions, mobile money transfer refers only to person-to-person transfers such as remittances and transactions involving a person’s account (such as cash in/cash out). It does not include payments to purchase goods and services, salary payments, or the payments of governments.

\(^{16}\) As explained later, a bank is usually involved for regulatory reasons but is not necessarily visible to the user of mobile payments.

\(^{17}\) Electronic money, by traditional economic and banking definitions, represents a more general concept and refers to all non-cash within a country. Today, it is colloquially connected with the usage of high technology because it is stored on computer and data storage systems as unique collections of bytes. In the modern banking world, electronic money is considered an equal supplement for cash in circulation and can be stored in material or nonmaterial forms, such as on cards, tokens, and computers. Electronic money can be further divided by type of supply—that is, debit or credit. Mobile money is a form of nonmaterial electronic money that can be prepaid (debit) or postpaid (credit).

\(^{18}\) Most mobile network operators distinguish between airtime and mobile money and store both in different accounts. The reason is that, within most regulatory frameworks, the mobile network operator has to store the mobile money value at a 1:1 ratio with a commercial bank and would therefore also have to store the airtime balance. To avoid this, both are managed separately, meaning it is not possible to make calls using mobile money or to pay directly with airtime. However, there is usually the possibility to quickly buy airtime with mobile money. Therefore, mobile money is replacing airtime and airtime is only purchased if actually needed. For simplicity, airtime and mobile money are used as synonyms in this report.
An electronic wallet (e-wallet) is a specialized folder on an electronic device in which mobile money and the electronic representation of cards are kept. In connection with near-field communication, a mobile phone can then be used as a payment card, with the amount loaded on its SIM card while the bank account is charged at the same time. Such multiuse cards can be dedicated, such as electronic purses, or general, such as an application on mobile phones, personal digital assistants, or computers. One example is Google Wallet, which stores electronic cash in the form of an m-float as well as information on debit and credit cards, loyalty cards, various identification cards (such as for a parking lot or security), and others. The customer selects the preferred payment source, enters a personal identification number, and, via near-field communication, the data are transferred to the point of sale and the money transferred, either as an m-float or by sending electronic card information.

C. Technology Enablers

Mobile phone penetration has been growing rapidly in recent years, with worldwide penetration in 2013 at 96 out of 100 people, compared to 34 out of 100 in 2005. This growth has come especially from developing countries. In Africa, for example, usage quintupled during this period, from 12% to 64%. This is partly because mobile phones have started to become a direct alternative to landlines, especially in developing countries, where the mobile phone to landline subscription ratio is 9:1. The infrastructure for landlines is costly and mainly invested by governments, whereas mobile networks are dominated by private companies that seek to expand their reach to maximize profits. This relationship still holds in regions where population density is low, terrain is unfavorable, and electric power is lacking. While internet banking is the most popular way to manage bank accounts in developed countries, since the percentage is high of both internet subscribers and computer owners, in developing countries, only a limited number of people own computers and mobile phone penetration is extremely high. The mobile phone is therefore ideal for expanding financial services. To provide mobile financial services, technological infrastructure is needed, which can be divided into three layers: the network, hardware, and application.

The network layer refers to mobile networks. Mobile transmission technologies are divided into “generations.” The first generation (1G) was analog, 2G introduced digital transmission of voice with much less power than before and therefore enabled smaller, more autonomous, and truly mobile cell phones. 2G also brought the development of a global system for mobile communications (GSM) as the basic voice transfer protocol, SMS, multimedia messaging service (widely known as MMS), as well as data packet transfers protocols, such as general packet radio service and enhanced data GSM evolution.

The third generation (3G) allows faster data transfers of up to 50 megabits per second. High-speed packet access and 4G has been introduced in a number of countries and allows for up to 100 megabits per second. Data communication or transmission, essential for mobile banking due to the data exchange with the financial service provider, is supported by a number of distinct protocols encapsulated in 2G or higher. Currently, 90% of the world’s population is covered by 2G, allowing for SMS and simple internet banking (Table 1). In Europe, 66% of the population is covered by 3G, while in Africa 8% is, though with high projected growth rates (A.T. Kearney 2013).

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19 If multiple cards are combined into one specialized smartcard, it is called an electronic purse.


21 In Africa, it is 45:1.

22 The setup of a mobile network can be expensive in terms of fixed costs, whereas users produce only small variable costs. For a mobile network operator, it is therefore crucial to reach as many customers as possible to spread the fixed costs.
Table 1: Mobile Network Generations

<table>
<thead>
<tr>
<th>Network Year</th>
<th>1G</th>
<th>2G</th>
<th>3G</th>
<th>4G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Analog</td>
<td>Digital</td>
<td>Digital</td>
<td>Digital</td>
</tr>
<tr>
<td>M-banking</td>
<td>Telephone, interactive voice response (keypad banking)</td>
<td>SMS banking, unstructured supplementary service data banking</td>
<td>m-client mobile application</td>
<td>m-client mobile application</td>
</tr>
<tr>
<td>Telephone</td>
<td>Basic handheld</td>
<td>Basic handheld, smartphone</td>
<td>Smartphone</td>
<td>Smartphone</td>
</tr>
</tbody>
</table>

*m-banking* = mobile banking, *SMS* = short messaging service.

Note: Unstructured supplementary service data, known as USSD, are a protocol to communicate in real time with the service provider’s computers. A common feature is to check the balance of a prepaid account or to send a balance to another account.

Source: Frankfurt School of Finance & Management.

Table 2: M-Banking Applications

<table>
<thead>
<tr>
<th>Type</th>
<th>Generations</th>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone Banking</td>
<td>1–4G</td>
<td>Call center, interactive voice response, or keypad banking; easy to use, appropriate for less literate or less technologically skilled customers</td>
<td>Often very time-consuming</td>
</tr>
<tr>
<td>SMS Banking</td>
<td>2–4G</td>
<td>Supported on all mobile phones, widespread use, cheap, common platform; active mode: two-way, mostly used in balance preview</td>
<td>Remembering a number of codes, not interactive (simplex), passive mode (one-way alerts and notifications), not secure, different standards in the United States/world, 140–160 characters, storing messages offline</td>
</tr>
<tr>
<td>Unstructured Supplementary Service Data</td>
<td>2–4G</td>
<td>Active mode: two-way, service communication</td>
<td>Difficult for transaction</td>
</tr>
<tr>
<td>Internet Banking</td>
<td>2–4G</td>
<td>Only prerequisite is a web browser, secure with https</td>
<td>Slow, uncomfortable</td>
</tr>
<tr>
<td>M-banking Mobile Application</td>
<td>3–4G</td>
<td>User-friendly, fast, secure, best user experience</td>
<td>Application has to be downloaded and installed, must be developed for each mobile platform separately</td>
</tr>
</tbody>
</table>

*m-banking* = mobile banking, *SMS* = short message service.

Source: Frankfurt School of Finance & Management.

The hardware layer refers to physical mobile devices. These are categorized into basic handhelds and smartphones. Basic handhelds are mobile phones that mainly support 2G networks. They provide voice transmission via GSM, SMS texting, and GPRS data transfer. Mobile banking services with these devices are limited to interactive voice response, SMS, or unstructured supplementary service data (USSD). Smartphones have a ready-installed operating system that provides a high integration of mobile hardware and software. They support 2G network technologies or higher, have bigger screens with a higher resolution, a well-developed input interface, additional data storage with secure digital cards, a camera, a web browser, and various protocols and interfaces. Smartphones offer the same mobile banking services as basic handhelds, but they also support rich downloadable mobile applications. In 2011, there were about 6 billion operational mobile phones and 3.2 billion subscribers; of 660 million new subscriptions in 2011, 80% came from developing countries (International Telecommunication Union 2012).

The application layer provides mobile banking on mobile devices. The most prominent examples are telephone banking, SMS banking, USSD banking, internet banking, and mobile applications. The choice strongly depends on network support as well as the mobile phone itself. Currently, 12,000 mobile phone models are in use, which makes it difficult to develop a mobile banking application that works across all platforms. In developed countries, the fairly homogeneous mobile market includes Google Android (72% market share in 2012) and Apple iOS (14%), accounting for the most used operational systems, with Samsung and Apple mobile phones covering 60% of the market, and the top 20 models covering 80%.

23 Unstructured supplementary service data are a protocol to communicate in real time with the service provider’s computers. Common features are to check the balance of a prepaid account or to send a balance to another account.
In developing countries, the market is full of different models, with some on the market for more than 10 years. As a result, the most feasible mobile banking applications in developing countries are SMS or USSD-based systems. Nonbank agents represent another technology that enables mobile financial services. Agents form a retail network to provide basic bank services such as registration, account opening, cash-ins, and withdrawals. Agent network services can substitute for bank branches, points of sale, and ATMs in areas where banks have not established regular banking infrastructure or consider it too costly to establish, such as in remote and rural areas. Agents are often grocery stores, gas stations, post offices, or other shop owners who service mobile financial services customers, complementing their regular business income with the fees taken for access to mobile financial services. Their main role is to give customers access to their accounts, providing a cash-in and cash-out service, making them comparable to an ATM, but less costly for banks and more convenient for clients. This can be done cash- or book-based through the cash register of the agent, with regular clearing at a bank branch or electronically in real time using a point of sale terminal and a computer connected to a bank’s server. Agents can also provide services such as know your customer, account opening, loan recovery, or marketing and selling activities. However, while cash-in/cash-out services can be established relatively quickly and within most regulatory frameworks, offering more enhanced services requires more agent training and investments—into software for instance. Agents can also play an important role in attracting new customers, for example, by reducing reservations toward the service and providing guidance on financial literacy questions. In Brazil, the agent network forms most of the bank infrastructure in rural areas and connects people to the finance sector through various services (Box 1).

**D. Mobile Financial Services Models**

Agents can also enable mobile network operators to offer mobile financial services by themselves, excluding banks from direct customer contact. In its simplest form, a mobile network operator offers mobile payment services by allowing the transfer of airtime by SMS. To make this a suitable product, a tight agent network in which airtime can be easily purchased is necessary. This is often already in place or can be expanded easily as this simple transaction can be handled in many grocery stores, gas stations, and other such outlets. Agents can also sell prepaid SIM cards, the mobile network operator equivalent to an account opening. It is more complicated to offer the possibility to withdraw airtime, although this possibility is crucial to making mobile financial services attractive for savings. This would entail regular training for agents, for example, in liquidity management and bookkeeping. On a small scale, however, an agent could sell and buy airtime through his or her private account before a clearing system was established, as in the case of M-Pesa’s “super agents” in Kenya.

**Box 1: Agent Banking in Brazil**

Banks have used agents in Brazil since the 1970s. To further develop this, the Central Bank of Brazil revised regulations to allow bank agents to open accounts, accept withdrawals and deposits, and assist in bill payments. In January 2010, about 150,000 registered agents operated in the country, catering to the financial needs of 10 million account holders. According to data from the Consultative Group to Assist the Poor, at least one agent operated in each of Brazil’s 5,564 municipalities.

Two important factors have been key to the success of the branch network: the use of post offices linked to the Banco Postal and the facility to pay utility bills. The post office is a well-known and popular institution for many low-income citizens and thus provides a reassuring setting to perform financial transactions. Furthermore, the use of the network to deliver social safety net payments to low-income households has increased popularity and efficiency.

Source: Consultative Group to Assist the Poor (CGAP), 2010. Update on Regulation of Branchless Banking in Brazil. Washington, DC: CGAP.
In general, banks and mobile network operators can offer mobile financial services, whereby the mobile network operator is not dependent on the bank to offer payment services, but the bank is dependent on the mobile network operator to use its infrastructure. In addition, a third-party-like agent, other cooperating banks, or post office branches might be involved.

Figure 3 shows various possible models to provide mobile financial services. Each model of cooperation has unique characteristics, strengths, and weaknesses. The first is the bank-led model, whereby the mobile network operator provides only data transfer and the bank organizes the infrastructure down to cash-in/cash-out payments through ATMs, branches, or an agent network. This form is closest to mobile banking because payments are usually directly connected to a bank account. In the second and third models, the mobile network operator takes over responsibility from the bank. For example, using this model, money can be transferred by SMS, with the possibility to withdraw cash at service points and the option to use a credit line. In the bottom model of Figure 3, no bank is involved in mobile financial services as the balance of the mobile phone replaces bank accounts. In this model, mobile money and cash are perfect substitutes that can be exchanged between each other, for example, through agents, and airtime is an accepted currency.

While bank-led models adhere best to existing regulatory environments, mobile network operator–led services offer the most potential for scale and outreach due to their large subscriber base, marketing capabilities, agent networks, and experience with high-volume, low-value transactions (such as sale of airtime) (Ivatury and Mas 2008). However, many regulators are uncomfortable with the participation of mobile network operators in the banking sector, and their issuing of electronic money (e-money), due to the lack of prudential regulation governing these types of providers, especially because mobile network operator services can be used to save. In this case, the mobile network operator is often obliged to deposit all mobile money one to one in bank accounts to ensure they do not take on an intermediary role and on-lend e-money funds and thus generate banking money (that is, a form of M1 money supply). To combine the benefits of both of these models, recent market innovations are using a joint venture or partnership approach between banks, mobile network operators, or third-party payment service providers.
III. Mobile Financial Services to Provide Financial Inclusion

A. A Theoretical Concept for Mobile Financial Services

Indepedently of the model of choice, a country must meet certain conditions to introduce mobile financial services. These include supply conditions that need to be fulfilled to get a model running and demand conditions for a model to be accepted and used. In addition, enabling and limiting factors exist that can increase or decrease the probability of success or can even obviate the introduction of the model.

Adequate infrastructure is the first supply condition to introduce mobile financial services. This would include at least a mobile network with a minimum of stability and coverage and a minimum number of active users. The better the quality of the network in terms of transfer rate and stability, the better the probability of success for mobile financial services, as it can play out its benefits only if it is reachable at a high rate and technical problems might reduce the trust this application requires. For mobile payments, it is beneficial if the mobile network operator has many customers. Mobile payments are only valuable for its users if they are accepted by many people. The more customers there are that use mobile financial services, the higher is the profit for the mobile network operator, as this can spread the fixed costs of establishing the system and the transaction fees are therefore lower. This is also the reason that a mobile network must exist in the first place and that mobile financial services are offered as an additional feature instead of an infrastructure set up purely for mobile financial services before offering communication. It might be beneficial, too, if other technological infrastructure such as wire-based phones and internet are already in place. Mobile banking will certainly be better accepted if faster online banking is already common.

Another important supply condition the existence of minimal financial services infrastructure, ideally consisting of branches and ATMs, even if it is very limited. In some cases, an agent network might be suitable to provide this. Three conditions exist:

(i) In regions where people do not have access to financial services, it is unlikely that potential clients will have their first formal contact with financial services through mobile devices. They will likely prefer direct contact with a bank employee or, in the case of agents, people they know who can explain mobile financial services and be contacted when problems occur. This is especially true for services, such as storing mobile money, for which trust is an important component.

(ii) Physical presence is still necessary for identification purposes to open an account.

(iii) For more complex products such as loans or insurance, banks need information that cannot be delivered through mobile phones, such as an applicant’s risk type. This is especially true where market infrastructure, such as credit bureaus, is lacking. However, agents might also able to deliver this information.24

24 It is easiest if a mobile network operator introduces the technological standard on its own, but, depending on the market situation and competitiveness, two or more mobile network operators could also cooperate.

25 It is possible that in the near future mobile financial services can deliver this information using “big data,” for example, by analyzing the cash-in/cash-out patterns of customers, their purchasing behavior, or to whom they regularly send money.
These conditions mean that mobile financial services are not suitable to substitute entirely for bank branches or agents, but they can reduce the need for physical presence and increase branch outreach.

That said, a lack of financial access is needed. If a banking network is close, the value of mobile financial services for financial access is low and reduced to an add-on service. Moreover, if people have had access to financial services for quite a long time, habits have been formed that are not easily changed. In these cases, customers may view mobile financial services with skepticism and usage may only be accepted and spread at low rates or, indeed, simply rejected.

For a successful introduction of mobile financial services, a gap is therefore needed between demand for financial services and the supply of banking infrastructure. For mobile banking, this can be the distance between clients and branches. For mobile payments, demand is largely dependent on the possibility to reduce transaction costs, which are determined by the frequency of payments and their costs (for example, traveling costs to withdraw cash from an ATM). In developing countries, where remittances and small, daily savings are a major part of the financial fabric, mobile payment services might face higher demand than in developed countries, where card-based systems have been widely introduced and are part of people's habits (Zollman and Collins 2010).

In addition to these conditions, there are several enabling and limiting factors. The most important is the regulatory framework. If it is restrictive, banks, and especially mobile network operators, might not be allowed to introduce mobile financial services at all, or profitability might be too low because of the many hurdles they would face. Conversely, lax regulation can reduce trust in a system. Because banks will already be subject to some form of financial sector regulation, adding guidelines might suffice. However, mobile network operators and nonbanks are typically not subject to regulation (or only partially so). Therefore, their ability to offer mobile financial services will be heavily influenced by the regulatory environment and guidelines that central banks or governments put in place. Of particular importance would be regulations that safeguard the liquidity of e-money to ensure that cash-outs are possible at any time for the users. Customer protection (i.e., transparency in usage fees) is also important to maintain and increase public acceptance.

Competition between different network operators or banks can encourage better services, innovation, and lower pricing. A strong market position for the first bank or mobile network operator introducing mobile financial services in a country is useful to build up a network and reach economies of scale, as well as laying the groundwork for establishing user awareness and acceptance. Customers only benefit at a later stage, however, when more players offer mobile financial services. If they are using different operating systems, interoperability needs to be assured, such as by establishing technological standards.

Catalysts can enable mobile financial services, such as for receiving government grants or paying utility bills. In Kenya and the Philippines, remittances have been a major catalyst for the introduction of mobile financial services, as will be discussed.

Financial and digital literacy are important: the former, as noted, because mobile financial services will be delivered individually without a bank employee to explain them, and the latter because they can increase the acceptance of mobile financial services. While literacy is relatively easy to measure and the level of financial literacy can be concluded from general literacy, financial access, and usage indicators, digital literacy lacks a common definition and measurement. For this reason, the International Telecommunication Union (ITU) established the Digital Opportunity Index as a tool for tracking progress in bridging the digital divide (ITU 2007). The index is based on 11 information and communication technology (ICT) indicators (Figure 4). Ideally, the whole population has easy access to ICT at an affordable price, all homes and firms are equipped with ICT devices, and everyone has access to broadband internet. The Digital Opportunity Index measures these factors, including price and affordability. The index covers most countries, but unfortunately has not been updated since 2006.

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26 Chapter 1.1 of World Economic Forum (2011) defines some of these factors.
Mobile Financial Services to Provide Financial Inclusion

Figure 4: Digital Opportunity Index

| 1 | Percentage of population covered by mobile cellular telephony |
| 2 | Internet access tariffs as a percentage of per capita income |
| 3 | Mobile cellular tariffs as a percentage of per capita income |
| 4 | Proportion of households with a fixed line telephone |
| 5 | Proportion of households with a computer |
| 6 | Proportion of households with internet access at home |
| 7 | Mobile cellular subscribers per 100 inhabitants |
| 8 | Mobile Internet subscribers per 100 inhabitants |
| 9 | Proportion of individuals that used the Internet |
| 10 | Ratio of fixed broadband subscribers to total Internet subscribers |
| 11 | Ratio of mobile broadband subscribers to total mobile subscribers |


B. Developed Countries

Finland was one of the pioneer countries in mobile financial services, where Merita Bank started the first mobile banking feature in 1997. Customers could check their bank balances using SMS (Boor and Braguinsky 2013), and the bank offered basic banking operations through mobile phones. In the same year, mobile commerce was first put into service in two Coca-Cola vending machines in Helsinki, allowing payment by SMS, under the slogan “dial a coke” (Pré Gauntt 1998). Worldwide, in the following years, the expectations for mobile financial services were high, especially among some banks and the suppliers of mobile phones, but they have so far not really taken off.

Currently, the most commonly used mobile financial services application in developed countries is mobile banking. About one-fifth of western European mobile phone users use at least one form of mobile banking, according to the European Technographics Financial Services Online Survey (Ensor et al. 2012). SMS alerts, the oldest mobile banking technology, are still the most popular form of mobile banking in the surveyed countries: France, Germany, Italy, the Netherlands, Spain, Sweden, and the United Kingdom (UK).

The trend signals, however, that online banking on mobile phones and mobile banking applications, both supported by internet banking technologies, is growing fast. In the United States (US), customers increasingly use mobile banking instead of online banking (Box 2). The enhancement of mobile devices could therefore transform the current retail-banking landscape, driven by increasing user acceptance and the switch from desktop computers to smartphones and tablets. Furthermore, because banks are closing branches in developed countries in response to the global and European financial crises, it might become a necessity for more people to switch from branch-based to mobile banking.

While mobile banking is established and is likely to play a growing role for banks and their clients, mobile payments in developed countries, such as near-field communication, are still in a pilot phase, used only within a closed-loop system, or remain a niche product.

27 For example, the share of the US population owning a desktop computer has fallen 17 percentage points since 2006, while more than 80% of people own a mobile phone and almost 20% a tablet (Dapp, Stobbe, and Wruuck 2012).

28 According to the Bank for International Settlements, the number of branches dropped by 19.8% in the UK and by 6.6% in Germany from 2006 to 2011. However, the number increased 6.4% in the US and 3.4% in Italy (see Dapp, Stobbe, and Wruuck 2012).

29 As noted, this report distinguishes between mobile payments—payments with some kind of m-money—and other e-money payments; for example, well-established alternative payment systems like PayPal would, if used on a mobile phone, be classified as mobile banking. Also, near-field communication technology integrated into credit cards (such as MasterCard's PayPass) is not considered a mobile payment, but belonging to the card-based payment system.
Finance Sector Development in Central and West Asia: Making Mobile Financial Services Work for Central and West Asian Countries

Technology-friendly Japan is considered the most advanced and enthusiastic user of mobile money among developed countries. Several mobile network and credit card providers have partnered up to offer mobile payments. In 2010, 9.8 million Japanese made purchases using mobile wallets (Radwanick 2011). Part of the success of near-field communication in Japan is the wide range of useful applications to pay with mobile phones, such as for buying public transportation tickets. McDonalds has also set up near-field communication for paying for orders (Langer and Roland 2010).

In the US or Europe, however, mobile payment systems that are not based on cards are rare and near-field communication technology is, so far, used mostly for the provision of information similar to QR codes, a type of barcode. While this could change over the next decade as companies such as Google, PayPal, and Vodafone distribute their systems, several factors will keep mobile payments small in most developed countries.

These certainly have the necessary high-speed mobile networks and enough users. The banking infrastructure is also sufficient for mobile banking as an additional service. However, the network of branches, ATMs, and points of sale already offers good financial access. Thus, in developed countries, there is no lack to justify mobile financial services taking root.

The banking sector in the Europe and North America has evolved over at least a century, and people have developed habits that are not likely to change quickly and might make it difficult to convince them of the convenience of mobile payments. Two points bear mentioning. First, while large commercial banks are important for companies and investments, the region-based savings banks, cooperatives, and others still hold a large market share in the retail-client business. This is because direct contact is for many clients much appreciated, even if the client does most of the account management online, meaning mobile banking is an additional service and not a replacement for branches.

Second, debit and credit cards are very well established and cover most needs of cashless payment, down to very small ones such as bus tickets, so the added value of mobile phone-based payments is small. In addition, several restraining factors exist, such as population aging in the West, privacy protection, and regulatory issues (Box 3).

Even so, new technologies can change habits over time, such as the banks directly targeting price-sensitive and technology-oriented customers, which is steadily gaining in market share for new banking relationships.31

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30 Vodafone and Visa cooperated in the UK to launch an e-wallet in 2013. In the US, the top three mobile network operators, AT&T, Verizon, and T-Mobile, founded the joint venture ISIS as a pilot in that year.

31 In the US, for example, direct banks could gain a net of 8% of all new banking relationships in 2012, compared with 3.5% in 2000 (TNS 2013).
should remember that the card systems needed about 20 years to gain traction. However, prospects for mobile payments are generally better in developing countries, where mobile financial services meet a lack of financial access.

C. Developing Countries

The heavy penetration of mobile phones and steady growth of users has created a successful platform and infrastructure for offering new financial business models to reach more people in developing countries. Most have a well-functioning mobile network, often consisting of the newest technology: many inhabitants own a mobile phone that can handle at least SMS banking and, as prices continue to fall, mobile users are increasingly buying smartphones.\(^\text{32}\)

Nonetheless, a large gap remains between demand for financial services and the provision of access by commercial banks, cooperatives, or other financial institutions. About half of the world’s adult population (about

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\(^{32}\) According to Gartner (2013), in the second quarter of 2013, more smartphones than other mobile phones were sold worldwide.
2.5 billion people) has no access to traditional financial services, and 90% of the world’s unbanked people live in developing countries (Demirguc-Kunt and Klapper 2012). Microfinance was to fill this gap and is continuously improving and expanding to reach more unbanked people. Still, because the majority of the unbanked live in remote areas, it is difficult to provide financial services in a financially sustainable manner. Mobile financial services are one of the most feasible technologies today to bridge this gap.

Mobile financial services are already growing rapidly in some developing countries. In 2012, 150 mobile financial services initiatives were under way, with 81.8 million registered mobile money accounts in emerging countries, 56.9 million of them in sub-Saharan Africa (Pénicaud 2013). A total of 30 million clients used their accounts regularly, processing 224 million transactions with a total value of $4.6 billion; 82% of mobile money transactions were person-to-person transfers. Further growth in transactions is projected, with an estimated 25% compound annual growth rate for mobile money accounts until 2017. The estimated growth rate for mobile money account usage is 36% (Berg Insight 2012).

Mobile network operators control about 70% of the mobile financial services market, and in total 520,000 agents served customers, the same number of Western Union’s worldwide sale points (Pénicaud 2013).

Remittances are an important factor encouraging mobile financial services, with about $850 million sent using mobile money accounts in 2011 (Berg Insight 2012). The high and growing transaction volume shows that payments, in particular, are pushing mobile financial services, suggesting that, mobile payments might be more important in developing countries than mobile banking for introducing mobile financial services.

Figure 5 indicates that the successful introduction of mobile financial services is more likely in countries with low financial access. Figure 5 sets a composite measure of financial access against the adoption of mobile financial services for a variety of developing and emerging countries and indicates that there is indeed a negative relationship—countries with a high adoption of mobile financial services (Kenya, Tanzania, and Ghana) provide financial access to less than 20% of their population.

On the other side, countries with better access to financial services (India, Indonesia, or Colombia) have a low level of mobile financial services adoption. Bangladesh (2006) and Brazil (2007) are examples of countries where mobile financial services have been introduced some years ago, but have not been adopted by a high share of the population. The Philippines, on the other hand, is an example of the potential of mobile financial services in increasing access to finance. Since mobile financial services were introduced in 2000, the share of the

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33 Financial access—and in particular the term financial inclusion—means more than using electronic payments, and covers having a formal bank account and access to other financial services such as loans. However, because mobile payments are, for many of the unbanked, the first contact to formal financial services and because mobile payments can act as a gateway to other financial services (as in the Philippines or with M-Pesa in Kenya), it is likely that mobile payments will boost access to financial services.
population using deposit accounts has increased substantially.\textsuperscript{34} It remains to be seen if this relationship holds in other countries also, and if mobile financial services will increase financial access in Kenya and Tanzania over the coming years (World Economic Forum 2011). If it does, of the countries shown in Figure 5, Haiti, Nigeria, and Pakistan have the highest potential to increase financial access through mobile financial services.

As noted earlier, several other enabling and limiting factors can support or hinder the introduction and adoption of mobile financial services. Table 3 looks at the readiness of a number of countries for mobile financial services based on seven key factors defined by the World Economic Forum (2011). The first five can, in the context of our framework, be regarded as enabling and limiting factors. The sixth—distribution and agent network—is the requirement for a minimum number of branches or agents to deliver mobile financial services.

In most of the factors supporting implementation of mobile financial services, Kenya, Tanzania, and the Philippines have “competitive advantages,” or are at least neutral, especially in market catalysts and distribution network, as well as low financial access. Brazil, too, is well positioned to introduce mobile financial services, but its adoption is relatively low, probably because the country does not feel the need to broadly introduce mobile financial services because financial access is already provided through its broad agent network. Indonesia and India are also advanced or at least neutral in these mobile financial services performance drivers. Nevertheless, although positioned well in financial access, they still lack an appropriate distribution or agent network, maybe because of the size and regional development of the countries. Pakistan and Nigeria confirm their potential, but lack end-user empowerment, while Bangladesh and Haiti show competitive disadvantages in most mobile financial services performance factors.

Figure 6 also indicates the potential for mobile financial services by considering the institutional and market environment and uses these to rank the countries surveyed according to their readiness for long-term mobile

\textsuperscript{34} In 2004, 36\% of the Philippines’ adult population had a deposit account with a commercial bank; in 2012, this figure was almost 50\% (IMF 2012). However, while it is likely that mobile financial services contributed to this development, other measures during this period are likely to also have had an effect, and the contribution of each measure cannot be distinguished.
Finance Sector Development in Central and West Asia: Making Mobile Financial Services Work for Central and West Asian Countries

Table 3: Relative Performance in Mobile Financial Services

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<tr>
<th>Country</th>
<th>Regulatory proportionality</th>
<th>Consumer protection</th>
<th>Market competitiveness</th>
<th>Market catalysts</th>
<th>End-User empowerment and access</th>
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Note: ☀ = competitive advantage, ☐ = neutral, ☐ = competitive disadvantage, ... = not available.

financial services development. The Philippines again shows the highest readiness because extensive regulation, supervision, and customer protection are in place for both bank-led and operator-led models.

Kenya lacks regulation, despite the success of its mobile financial services system. Similarly, Tanzania is seen at “low readiness,” although it actually has a working mobile financial services system, suggesting that high readiness in the market and institutional environments are not essential to introduce and operate mobile financial services. Brazil, India, and Pakistan appear to have high readiness, but without the underlying necessity of demand through lack of financial access or an established agent network. These countries also have either no mobile financial services system in operation or no comprehensive ones. Success in Kenya and the Philippines is further examined, before a closer look at the potential of mobile financial services in the Western and Central Asian countries.

Kenya is the most famous example of a developing country introducing mobile financial services or, more precisely, a mobile payments system. In 2007, mobile network operator Safaricom and its partner and shareholder Vodafone launched M-Pesa, Swahili for m-cash (Box 5). From a technical perspective, it is a simple
Mobile Financial Services to Provide Financial Inclusion

SMS-payment system allowing mobile money transfers from one mobile phone to another, and can thus be used for payments. An important element, however, is that mobile money can be purchased and paid out at Safaricom agents. This enables users to not only widely use M-Pesa for payments and money transfers but also to save, although no interest is earned on the m-float.

M-Pesa was successful because Safaricom met the right mixture of conditions in Kenya and used a practical approach in the areas where problems could arise. In its launch year, 12 million Kenyans had a mobile phone, with Safaricom controlling 80% of the market. This enabled easy adoption of M-Pesa by simply replacing the SIM card (Jack and Suri 2010). Access in Kenya was also far better to mobile services than financial services, with the number of commercial branches per 100,000 inhabitants in 2007 at just 3.54 and the number of ATMs at 4.7 (IMF 2012).

While these numbers might have been too low for banks to introduce mobile financial services, Safaricom relied on an extensive agent network to take over fund withdrawals. However, as the number of M-Pesa users quickly grew, this agent network became too small to offer appropriate and widespread services, so that increasingly more agents were recruited to keep the ratio between users and agents below 600. Safaricom came up with a practical solution: to better manage the agent network and agent cash-flow, agents grouped together and could contract either with Safaricom or with an aggregator. More recently, super-agents were introduced to perform a similar role as a bank branch and connect a customer’s account to their bank accounts, increasing the link and integration of M-Pesa with the banking sector.

The quick extension of the agent network, the simplicity of the product, and lack of alternatives lead to M-Pesa’s rapid expansion, especially to the poor and unbanked and in rural areas. Indeed, over 50% of Kenya’s rural population was using M-Pesa in 2009 (Jack and Suri 2010).

Four key factors seem to have influenced the adoption of M-Pesa. First, remittances in Kenya are very important and often sent by bus or other relatively expensive and time-consuming ways from the capital or other commercial centers into rural areas. Theft is also an issue, especially when sending cash by courier. M-Pesa offered a quick and secure way to send remittances within Kenya (Rotman 2010). Second, Kenyans are relatively well educated, especially M-Pesa users, with 96% literacy and almost 50% secondary school completion (Jack and Suri 2010). Third, financial literacy is high and saving is common, although Kenyans lack the appropriate

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Figure 6: Mobile Financial Services Readiness by Institutional and Market Environment

![Figure 6](image_url)

PRC = People’s Republic of China.
Box 5: M-Pesa, Kenya

Safaricom launched M-Pesa in partnership with Vodafone, both telecommunication companies, in March 2007. It is a private and independent mobile payment system with no government involvement.

Since its inception, M-Pesa has grown impressively and currently reaches more than 16 million clients (Table B5.1). M-Pesa is a money transfer system based on short messaging service that allows individuals to deposit, to send and to withdraw funds using their cell phone, and to buy airtime for their own phone as well as for someone else’s. Designed for money transfer only, no interest can be earned on an M-Pesa account. The maximum account balance is 100,000 Kenyan shillings ($1,132). Subject to the amount sent or withdrawn, M-Pesa charges a certain fee. Money transfer can be processed from one M-Pesa user to another, as well as to other network operator users. For the latter, Safaricom sends one-time vouchers that can be cashed in at an M-Pesa agent shop. Any transaction is secured through a three-level authentication set up: SIM Card, PIN, and presentation of ID card at the agent.

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customers (million)</td>
<td>0.05</td>
<td>2.4</td>
<td>6.5</td>
<td>10.0</td>
<td>14.0</td>
<td>14.7</td>
<td>16.0</td>
</tr>
<tr>
<td>Growth (%)</td>
<td>4,425.0</td>
<td>173.0</td>
<td>54.0</td>
<td>40.0</td>
<td>4.6</td>
<td>9.0</td>
<td></td>
</tr>
</tbody>
</table>


Clients can register for an account at any M-Pesa agent outlet with original identification (e.g., national ID, passport); a copy remains with the registration form if the customer intends to receive more than 100,000 Kenyan shillings per calendar year. Safaricom customers interested in opening an M-Pesa account simply have to visit an agent shop to replace the old Safaricom SIM card with a new one.

Starting out with only 355 agents, M-Pesa had contracted 27,988 agents by April 2011. Each agent passes a due diligence process and undergoes training before being recruited for M-Pesa. Safaricom assures the quality of their agents through regular training refresher courses and close monitoring, and builds on a transparent fee structure.

Safaricom has partnered with other institutions to offer a wider range of products to its customers. Equity, a Kenyan microfinance institution, is one such partner. It offers regular bank accounts that can be accessed through M-Pesa as well as loans that can be managed through M-Pesa.

For this purpose, in addition to agent outlets, Safaricom positioned Pesa Point ATMs throughout the country, accounting for about 20% of M-Pesa access points. M-Pesa also entered agreements with educational and financial institutions, government agencies, health management providers and hospitals, hospitality industry, insurance agencies, media houses, nongovernment organizations, and religious organizations and other service providers to ease person-to-business, person-to-government and government-to-person money transfers.

Sources:
- This includes, among other checks, a check of the business plan of the agent, of business permits, verification of income of the past six months and of value-added tax certificates.

Instruments to save, such as access to deposit accounts with commercial banks (FEPP 2013). And fourth, pricing of M-Pesa services has been set low to reach many people.\(^{35}\)

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\(^{35}\) Competition has been lacking because Safaricom was by far the most important provider of mobile network services, but since 2007, Orange and Vodafone have gained market share with their mobile payment services that are compatible with M-Pesa.
Some regulators have had concerns about the status and regulation of M-Pesa as Safaricom is a mobile network operator and not registered as a bank. At the time M-Pesa was launched, there was no regulation for nonbanks to provide financial services and it was not clear whether the issuance of e-money was considered retail deposit taking. The Central Bank of Kenya concluded that M-Pesa was not a banking business and would therefore not fall under the Banking Act. This was because M-Pesa offered prepaid accounts (without earning interest), which are in the control of the customer at all times, and the float would not be used for other business or to gain interest. The central bank allowed M-Pesa to start through a short letter of no objection in February 2007 under the following provisions:

(i) Appropriate safeguards put in place to protect customers and assure service quality  
(ii) Safeguards against money laundering  
(iii) Proper records maintained and the central bank provided with monthly reports  
(iv) Present laws should govern the relationship with agents and customers (AFI 2010b)

To meet these rules, Safaricom founded the M-Pesa Trust Company, which holds all floats of M-Pesa accounts in regular current accounts at several commercial banks, without the direct access of Safaricom.36 M-Pesa also operates its own bank-grade, anti-money-laundering system. All transactions have an electronic leg, and are captured by the system and then passed on to the central bank in monthly reports. Furthermore, wallet and transaction limits assure that the service is used primarily for payments and mitigate the risk of money laundering (AFI 2010b).

The Philippines, where many people live in remote areas and have limited financial access, offers another well-known success story. Its indicators of financial access placed it at the top end of countries in this survey (Table 7 in Section VA). Yet as recently as 2006, there were fewer ATMs than islands (CGAP 2010a), and in 2011, with 36 ATMs per 1,000 square kilometers, only slightly more (IMF 2012). Furthermore, in 2011, still less than 50% of the adult population had a bank account (IMF 2012).

Similar to Kenya, remittances are an important factor for many families and the nation’s economy, with international remittances accounting for about 10% of gross domestic product (GDP) in 2011 (World Bank 2011). Sending remittances, largely from abroad, can cost up to 10% of the amount sent, creating strong demand for simpler and less-expensive ways to transfer money, and spurring the country’s early pioneering of mobile financial services. The Philippines offers a good example of mobile phones as a transformational tool for financial inclusion. A CGAP study found that of active mobile banking users, half were previously unbanked, and one-quarter were considered poor (CGAP 2010a).

The global lead of Filipinos in the use of mobile phone texting is an important factor in its adoption of mobile financial services. Even though the SMS market has peaked, Filipinos sent a total of 2 billion SMS messages per day in early 2012—more than 20 per day, per person (ictDATA.org 2012). Currently, firms are gearing substantial investment toward the expansion of the broadband market to provide both wired and wireless platforms for coverage, with high demand for faster internet access.37

The Philippines has a more flexible approach to mobile financial services as it allows both bank-led and operator-led models in its regulatory framework (CGAP 2010a). Banks lead the Smart Money service (Box 6), which is therefore regulated through its bank partners, while G-Cash is a nonbank approach to mobile banking in which the operator, in this case Globe Telecom subsidiary G-Xchange, is itself the issuer of e-money in the form of prepaid accounts without interest payments. G-Xchange is registered with Bangko Sentral ng Pilipinas, the central bank, as a licensed remittance agent and e-money issuer (Bankable Frontier Associates 2010). G-Cash was launched in 2004 and allows users to load cash onto their e-wallet and make payments to other G-Cash users via SMS. Users can also pay bills, buy a prepaid load, and cash out at any agent location. Like Smart Money, G-Cash also offers a customizable ATM card, which is linked to their G-Cash account to allow users to withdraw money at ATMs and to purchase goods and services from a range of merchants (including

36 This means that M-Pesa mobile money is counted as M1 money and that Safaricom is not able to generate banking money (Alexandre 2010).

37 For example, Globe Telecom has invested $500 million since 2011 to improve its network, including upgrading it for 4G usage. See http://ph.news.yahoo.com/globe-telecom-invest-500-m-mobile-network-quality-113252290.html.
Box 6: Smart Money, Philippines

Smart Money, the first mobile money service in the world, was launched by SMART Communications and 1st eBank (now Banco de Oro) in December 2000. It is a bank-based approach to mobile banking in which the Smart Money accounts are held by Smart’s bank partners (currently Banco de Oro, Chinabank, and Landbank), who are also responsible for reporting to the central bank. The accounts held with the banks do not constitute deposits, but rather prepaid accounts that do not earn interest.¹

Smart Money is, in its origin, a short messaging service (SMS)-based reloadable cash-payment card linked to a mobile phone with a Smart SIM. Smart Money allows users to transfer money from their phones to other Smart Money accounts, pay bills, reload airtime, buy prepaid load, receive international remittances, donate to charity, and withdraw money. In September 2011, Smart Money launched its Android mobile application for further mobile banking services. The mobile banking platform, which allows users to manage their account through the Smart Mobile Banking Menu, permits users to transfer funds, inquire about balances and transactions, pay for bills, perform checkbook requests, reload airtime, and transfer money to their Smart Money account.² In addition to the three bank partners, another 15 banks utilize Smart’s mobile banking platform. In 2010, Smart Money partnered with MasterCard, and issued a “power card.” This is similar to a debit card in that it allows users to perform ATM transactions with ATMs of partner banks as well as cashless shopping at MasterCard point-of-sale devices.

Smart’s banking network consists of 5,000 agents (Money-In Money-Out centers), 9,000 ATMs, and Smart centers and branches of participating banks.³ Since 2008, the number of agents performing cash-in/cash-out services grew significantly outside of Manila as the central bank relaxed approval requirements to become an agent and Smart increased its efforts to recruit and train agents.⁴

The central bank sets transaction and account limits to ensure that Smart Money is used as a remittance agency and for micro payments and to mitigate the risk of its use for money laundering or terrorist financing. The Smart Money account limit is P100,000 ($2,447). A single transaction limit is P10,000 ($244) and the daily limit is P40,000 ($979). To open a Smart Money account, the user first has to activate the menu on the mobile phone and receive a PIN via SMS. The customer then applies at Smart Wireless Center, fills out an application form and submits a copy of his or her ID, and pays a P30 ($0.73) processing fee. Smart is the nation’s largest mobile network operator and currently has 50.9 million subscribers. As of March 2012, there were more than 10 million Smart Money accounts.²

Sources:

Megalink, BancNet, and ExpressNet point-of-sale merchants). Customer funds are held by G-Xchange and deposited into various commercial banks, matching the G-Cash accounts 1:1 (CGAP 2010a).
IV. Mobile Financial Services in Central and West Asian Countries

Mobile financial services in the countries in Central and West Asia selected for this study—Armenia, Azerbaijan, the Kyrgyz Republic, Pakistan, Tajikistan, and Uzbekistan—exist in different forms and at different development stages. In most of the countries, electronic banking (e-banking) exists in the form of card-based systems, online banking, and payment services provided through terminals and online payment systems. With about 162 million accumulated mobile subscribers and 90% network coverage, countries in the region in general offer great potential for further financial access through mobile financial services.

The selection follows the political importance of mobile financial services for the economic and financial development in the six case study countries, and, for Pakistan, on its size and the resulting difficulties providing mobile financial services on a large scale.

A. Armenia

With 3.1 million people, Armenia is the smallest country in Central and West Asia, with 64% of the population living in urban areas and about one-third in the capital. With gross national income (GNI) per head of $3,360 in 2011, the country belongs to the lower middle income countries. However, 36% of the population falls under the national poverty line, a share that has been increasing over the past years because of impact of the financial crisis on the economy. In 2009, GDP contracted 14.1% (IMF 2013b). The country is showing signs of recovery from the financial crisis, but has not yet regained the GDP level of 2008.

Politically, Armenia is oriented westward and shows strong aspiration to become a member of the European Union (European Union 2010). The country’s Human Development Index was 0.729 in 2012 and above world average; literacy is also high overall, with a rate of 99.6% and an average of 10.8 years of schooling. The economy collapsed in 2009 mainly because of the country’s high dependency on remittances, which accounted for 25.8% of GNI in 2008, of which about two-thirds came from the Russian Federation (ADB 2013a). With the slowing of that economy, remittance flows dropped 35% in 2009, but are slowly increasing again, however, rising 20.5% in 2011. In the long run lower remittances, should Armenian migrants seek to settle in the Russian Federation, will likely hurt both household income and GDP growth.

38 Because millions of people in the region live outside their country of origin, remittances play a prominent role in Central Asia. Steady remittance flows attract mobile banking.
41 The Russian Compatriots program of the Russian Federal Migration Service gives incentives to Armenians to settle in the Russian Federation.
Due to high population density and advanced telecommunication systems that support up to the 4G level, the penetration rate of mobile phones is high at 104%. Fixed-line coverage is also good compared with other countries of the region, with a penetration rate of 19% in 2012. The penetration rate of low-income households is considerably lower, with values of 80% (mobile) and 6% (fixed line) (World Bank and ITU 2013). On average, however, every Armenian has a mobile phone and some have more than one SIM card. Three major telecommunication companies provide coverage: VivaCell, Beeline, and Orange. The combined mobile network coverage is reported at 99% (World Bank and ITU 2013). Besides mobile coverage, internet access is still quite low at 37% of households.

Financial market development in Armenia is relatively strong in comparison with other countries in the region. Armenia is ranked 79th out of 142 countries in the World Economic Forum’s Global Competitiveness Survey, better than all the other case study countries with the exception of Azerbaijan (World Economic Forum 2013).

However, this still ranks Armenia in the second half of the survey and a closer look into the figures shows that financial access is limited to certain fragments of the population. In the banking sector, 21 commercial banks dominate with 442 branches; there are also 32 credit organizations (with 78 branches) and 10 money transfer organizations (Financial System Mediator 2013). While this results in relatively good financial-access ratios (see Table 7 in Section VA), usage of the banking system is low, as is indicated by the share of deposits to GDP of just 20.4%, or by the high share of cash holdings (53% of GDP; ADB 2013a). Also, only about 1% of the adult population saves using a formal account (Demirguc-Kunt and Klapper 2012). Furthermore, only two commercial banks provide electronic banking services and only 26.5% of the population own credit and debit cards for payments and withdrawals.

That said, the microfinance market has developed quickly in the last decade, indicating great demand for loan and deposit services, including in rural areas (ADB 2013a). However, banking services have not yet met such demand. Although the sector is improving, shortcomings remain, particularly a lack of product development and consumer orientation that hinders banking services being used by a broader share of the population. Payment systems in particular could contribute to better financial access, as remittances are an important part of income for many households, and mobile banking might be able to further increase access to loans and deposits.

Over the past several years, the government has implemented legislation on electronic payments and e-money.42 In March 2012, the central bank approved an e-money license for Idram Payment System, Armenia’s leading money transfer organization. Idram is an online service allowing payments with prepaid e-money. To use it, customers must register and initially add money, known as Idram units, to their e-wallet by either using a debit or credit card, depositing via a branch of participating banks (Unibank, Armbusinessbank, or Ardshininvest Bank), by direct payment to an Idram office, or via the three larger payment terminal networks (TelCell, Mega Pantera, or Tandem Payments). Stored funds can be used to repay loans, pay utilities, buy mobile credit, purchase goods from online shops, pay taxes and fines, or pay internet service providers (Orange, VivaCell, and Beeline). Person-to person transactions are also possible with the transfer of Idram units between two wallet holders at a commission charge of 1%. Funds can then be “cashed out” via nominated banks, at Idram offices, or through a noncash bank transfer. The Idram system is also accessible via mobile phones, but with less functionality than the online version. Idram thus offers a wide range of services and could partner with several institutions to expand them. Nonetheless, the service is only useful for those who have internet access and access to the participating banks and therefore does not enable financial access to the unbanked.

While there is potential to introduce mobile financial services to increase financial access for the unbanked in Armenia, regulation limits its introduction. The Central Bank of Armenia has been responsible for banking regulation since 2006 and, in general, allows mobile financial services within the existing banking regulations. However, these may require review to ensure they more fully support mobile financial services. In particular, current regulations do not allow for the provision of financial services via agent networks. Thus, regulation currently favors bank-led models over operator-led models.

42 Regulations state that any money-transfer organization that operates under license and fulfills central bank criteria, such as minimum capital requirements, may issue e-money.
Within this framework, two banks, Unibank and Araratbank, have announced the launch of m-banking and m-payment services for their customers. However, both systems are not yet operating and, within the current regulation and banking infrastructure, it will remain limited to the urban population with bank accounts. The same is true for two major foreign e-money providers that offer a service similar to Idram: WebMoney and Yandex. Both are relatively well integrated with cash-in/cash-out partners (TelCell and Mega Pantera), but currently focus on urban areas and customers with internet access and are limited in the expansion on partner networks. To provide financial services in rural areas, the government is instead encouraging HayPost, the Armenian postal network, to offer banking services. For this, HayPost and Converse Bank have partnered to launch a post–bank model to provide financial services through 250 post offices. These offer banking services including account opening, currency exchange, cash transactions, money transfer, and servicing of credit and debit cards.

VivaCell recently launched MobiDram, which could, although still restricted in banking services, increase access to m-payments for the rural and low-income population (Box 7). This is because it can be used without a bank account and can be accessed through the mobile network operator’s shops that serve as an agent network, and has the potential to quickly cover large areas of the country. This way, MobiDram could be used as a gateway to increase access to regular banking services as, although it cannot substitute for banks, it can help to manage bank accounts at a less costly rate for clients.

Sources:

43 Because services are offered in the mobile network operators branches by staff, this model is not considered an agent network in the strict sense by the regulator and is therefore allowed to provide financial services.
B. Azerbaijan

Azerbaijan has 9.2 million people and quite a high population density. Slightly more than 53% live in urban areas, with 25% living in the capital Baku. Total population is growing 1.3% a year (ADB 2013b). Poverty incidence decreased from almost 50% in 2001 to 7.6% by the end of 2011 (World Bank 2013). Male and female literacy is high, with 12 years of mandatory regular education; more than 95% of the country's population completed primary and secondary school (UNDP 2011).

Azerbaijan’s economy grew rapidly between 2006 and 2008, due to large and growing oil exports; the growth, however, slowed to 0.2% in 2011 because of vulnerability in oil production. In comparison with the industry sector, which contributed 67% to GDP in 2011, the share of the agriculture is tiny, accounting for only 5.8% in that year (World Bank 2011). Even though this is down from 16% in 2001, around 38% of population was engaged in agriculture in 2011. Nearly 50% of the population works in the services sector, which accounts for 29.4% of GDP Small and medium-sized enterprises, meanwhile, account for 10% of GDP, considerably less than other countries of the region, and this sector has a high potential for growth (IMF 2013a). GNI per capita was $6,050 in 2012, the highest of the surveyed countries (World Bank 2011).

Azerbaijan's mobile network covers most of the country and is widely used; the penetration rate for mobile phones is about 109%, with subscriptions exceeding 10 million (BuddeComm Research 2012a). The market counts five mobile providers that offer 2G to 4G: Azercell and Bakcell (privatized in 2007), Nar Mobile, Aztrank, and Catel (Abbasov 2012). The ICT market is also well established and continues to grow fast: as of 2012, 22% of households owned a computer and 35% had internet connection (World Bank and ITU 2013).

However, fixed telephone network services are weak. Aztelekom and Baku Telephone Communications Production Association are the chief providers, but at 18%, coverage of households is low, while about 700 villages still do not have public telephone service (NationMaster 2013).

Azerbaijan has 43 commercial banks, 1 of them state-owned and 22 with foreign capital (Central Bank of Azerbaijan 2013). In total, the banks operate 530 branches spread throughout 27 cities (Millikart 2013). The International Bank of Azerbaijan, Kapital Bank, Bank Standard, Xalq Bank, and PASHA Bank, the five biggest banks, had 65% of market share by assets as of June 2013. The finance sector also includes 29 nonbank credit organizations and 103 credit unions (Central Bank of Azerbaijan 2013). The major banks offer their products via the latest technological channels, such as e-banking, m-banking (limited operations), or automated bank corners (Heydar Aliyev Foundation 2012).

Overall, the infrastructure of commercial banks is relatively good. The number of branches, especially ATMs per capita, is high compared with other countries, although concentrated in Baku and other urban areas (IMF 2012). This leaves the rural population and the agriculture sector disadvantaged in quality of access. Furthermore, the number of deposit accounts is a low at 400 per 1,000 adults, as is the share of adults saving using formal accounts (1.6%). This raises questions about the efficiency of the banking sector in delivering financial services.

In addition to banks, most of Azerbaijan’s telecommunication companies are engaged in some kind of payment services, such as micro payments, which have become fashionable among the young (Abbasov 2012). Among the providers are Aztelekom, which offers limited online electronic payments, such as for telephone bills, and GoldenPay, the first online payment service (certified by Visa and MasterCard), which also provides an agent network to banks known as AgentPay. GoldenPay also partners with Millikart, the fastest growing card processing center in Azerbaijan, which created a card for e-commerce together with some banks in 2009. Azercell and the International Bank of Azerbaijan set up the most-used mobile financial services application, MobilBank, which brings mobile banking services on the mobile phones of partner bank clients (Box 8).

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46 See http://www.goldenpay.az/.
However, for all these services, it is necessary to have a bank account or a card account at one of the partner banks of the different service.

As of 2013, no m-money payment service existed. This might change with the new law on payment services becoming effective. According to the draft law published in October 2013, the Central Bank of the Republic of Azerbaijan will issue special licenses to companies that plan to issue e-money, including the permission to store and transfer e-money. Currently, there is no regulation on the use and storage of e-money, and different rules on money transfers are hindering the introduction of m-money. The new law, if passed, will make it possible to store e-money on mobile phones and for mobile financial services to work without a bank or card account. AzeriCard and others are planning to introduce e-wallets and mobile payments services in 2014.

C. Kyrgyz Republic

The Kyrgyz Republic has 5.6 million inhabitants and a very low population density of 29 inhabitants per square kilometer. The country is among the poorest in world and has the second lowest GNI per capita ($990) after Tajikistan in the region (World Bank 2013). Poverty incidence is high at 38% and trending upward.47

Services are the most important sector, at 52.5% of GDP, followed by industry (27%). However, more than half of the industry sector is composed of one large gold mine, Kumtor Gold Mine. The economy grew at 8% a year in 2008 and 2009, spurred largely by rising gold prices on the international market. Growth stagnated in 2011 when Kumtor was temporarily closed because of a strike. Agriculture contributes 20% to GDP, but the Kyrgyz Republic remains a net importer of food. The urbanization rate of 35.4% is moderate compared with other

countries in the region (ADB 2012a). Despite poverty, literacy is high; the enrollment rate is 88% in secondary schools and 41% in tertiary schools.

Telecommunication infrastructure is good, in general, as the sector was fully liberalized in 1998 as a prerequisite for the country's membership in the World Trade Organization. Some 502,000 households have fixed lines and 6.2 million mobile phone subscriptions mean a penetration rate of nearly 116% (BuddeComm Research 2012c). Internet access is also good, with a user penetration rate of 21%, mostly through internet cafes, as only 4% of households own a computer (World Bank and ITU 2013). The two largest mobile network operators, Sky Mobile (Beeline) and MegaCom, account for 85% of total subscribers.

The finance sector comprised 23 banks as of July 2013, with assets of about 30% of GDP in 2008 according to the National Bank of the Kyrgyz Republic. The microfinance market is large, with 5 commercial banks, 222 microfinance institutions, and 161 credit unions. Although the commercial banks give the microfinance institutions heavy competition, the role of the latter and credit unions in providing credit to micro, small, and medium-sized enterprises and the rural population has increased significantly in recent years. However, consolidation is expected.

Under the law, all electronic payments take place on the basis of specific agreements between the payment parties. Although there is no clear regulation on the mobile banking sector, mobile banking has become available since the end of 2011, and it was the second most popular remote banking service after internet banking, according to the central bank. However, mobile banking is for the most part limited to SMS alerts on account activities and monitoring account balances. In 2013, Geopay, the first operator of mobile money in the Kyrgyz Republic, introduced the mobile wallet service. It is looking to partner with banks so it can offer the banking services on an outsourced basis (Kiber Demokrat 2013).

From the Government Program of 2012–2017, which aims to increase the share of noncash payments in the Kyrgyz Republic, it is clear that the government is taking measures to regulate, strengthen, and promote the development of electronic banking channels (National Bank of the Kyrgyz Republic 2012). Specifically, starting from 2012, it was planned to enable customs, tax, and insurance payments via mobile banking as well as to design a flexible system to provide banking services with the help of mobile phones to people in remote areas. The Kyrgyz Investment and Credit Bank signed a $10 million credit line agreement with the Asian Development Bank in May 2012 and may start to expand its outreach to nonbanking rural populations soon through the introduction of mobile financial services.

D. Pakistan

Pakistan is Central and West Asia's most populous country. Its population of 179 million people is projected to grow to 300 million by 2050 (Nizami 2010). Goldman Sachs has deemed Pakistan one of the “Next Eleven.”

Urbanization is at 36% and trending higher (ADB 2013c).

GDP grew between 2008 and 2012 by between 1.7% and 4%. Services contributed 53% of GDP and agriculture 23%, although it employed more than 45% of the working population. GNI per capita was $1,120 in 2011, similar to the other case study countries, as is the population living under the poverty line, at 22% (last figure from 2006). Remittances are an important economic factor, totaling $13.2 billion in 2011 (State Bank of Pakistan 2011).

Pakistan’s development lags in some areas. Its overall Human Development Index is 0.515. Literacy is lower than in the other countries in Central and West Asia, with Pakistan ranked in one survey 146th out of 187 countries on this indicator (UNDP 2013). Although 7 years of school attendance is compulsory, 46% of women and 31% of men are illiterate. Financial literacy is also very low (Nizami 2010).

48 Goldman Sachs identifies the 11 as Bangladesh, Egypt, Indonesia, Iran, Mexico, Nigeria, Pakistan, the Philippines, Turkey, the Republic of Korea, and Viet Nam.

There were 5.7 million fixed telephone lines (2 per 100 households) in 2011, but the growth in subscriptions is estimated to slow or to even to decline to 5.6 million. By early 2012, there were 113 million mobile phone subscribers, for a penetration rate close to 70%. The mobile market is expected to continue growing steadily at 5%–10% a year (BuddeComm Research 2012d). Network coverage is 92% of the population, and low-income groups are well covered at 86% (World Bank and ITU 2013). Five mobile network providers operate in the country, but Mobilink, initially owned by Motorola, and Norway’s Telenor have 50% market share.

As of June 2013, the banking sector comprised 31 commercial banks, including five fully fledged Islamic banks, and 13 conventional banks. In 2011, a total of 9,978 branches operated nationwide, as well as 10 microfinance banks and 8 development finance institutions (State Bank of Pakistan 2012). Access to traditional banking services is rather weak. Although there were 282 deposit accounts per 1,000 adults in 2011 (IMF 2012), survey data show people often hold multiple accounts, with only 10% of adults (3% women) having deposit accounts and just 1% using them (Demirguc-Kunt and Klapper 2012). There are around nine branches and five ATMs per 100,000 adults (IMF 2012).

Box 9: Easypaisa, Pakistan

In late 2008, Telenor Pakistan and Tameer Microfinance Bank partnered to launch Pakistan’s first branchless banking service, Easypaisa, in October 2009.a

Telenor is Pakistan’s second largest mobile network operator, with a market share of 24.2% and over 30 million users in November 2012.e In a unique case, Telenor acquired a majority (51%) share, providing the company with a banking license and enabling it to move into mobile financial services.2 There is no government involvement, and the mobile network operator not only executes the product, but also has a majority stake in its partner, namely the financial institution.c

In 2012, more than 20,000 agents represented Easypaisa in over 450 cities in Pakistan. Registrations and cash-in/cash-out can be performed at Easypaisa shops, Telenor franchise and sales and service centers, and Tameer Microfinance Bank branches. Easypaisa accounts can be registered within minutes after the usual procedures. Two account options include the basic, with set limits on wallet and transaction, and advanced requiring full know-your-customer registration, proof of business, and an income or employment statement to get higher transaction limits of up to $60,555 per year. Despite these limits, all Easypaisa customers have access to all its products and services.

To use the Easypaisa’s money transfer service, it is not necessary to obtain an account or own a mobile phone; a valid identity document is sufficient. For the mobile banking and mobile payment tool, only a Telenor SIM is required: a bank account is not a requisite, cashing in and cashing out can be performed at any agent location. Other features include money transfers, remittances, airtime top-up, and donations. Paying bills (electricity, gas, telephone, etc.) can only be done at an agent location, not via mobile phone.

Another service, EasyPay, links businesses to their customers through a corporate Easypaisa mobile account number to facilitate customer payments. Transfers can be performed with a limit of PRs15,000 ($151), either from person to person, Easypaisa account to person, or person to Easypaisa account. With a PRs25,000 limit, EasyPay also enables payments from one Easypaisa account to another.

In late 2012, Easypaisa launched a savings product, Easypaisa Kushaal, that rewards customers with free life and accidental death insurance if a balance of PRs2,000 or above is maintained in the account. Easypaisa plans to launch a government-to-person payment service for payments to old age pensioners.e

Sources:
To increase financial access, especially in rural areas, the State Bank of Pakistan set out regulations for branchless banking in 2008, which envisaged a bank-led approach to mobile banking (Telenor Group 2012). This regulatory framework includes rules for licensed e-money, a mobile network operator role as banking agents, guidance for branchless banking, consumer protection mechanisms, and market catalysts. This has enabled some banks and mobile network operators to start branchless banking and mobile financial services (State Bank of Pakistan 2007).

In 2008, Telenor acquired a majority share of Tameer Microfinance Bank for its mobile banking project Easypaisa, launched it in October 2009 (Box 9). Despite some major early regulatory challenges over customers opening accounts, Easypaisa processed more than 5 million bill payments and domestic money transfers in its first year of operation (Dermish et al. 2012). It offers bill payment for nine electricity suppliers, two telephone providers, two gas providers, five water suppliers, and five internet service providers.

In addition to Easypaisa, there are many other agents and mobile financial services models that often include microfinance institutions. Mobile network operator Mobilink, for example, partnered with Waseela Microfinance Bank and offers money transfers and bill payments through its Mobicash platform. Any telecommunications franchise, customer care center, or Mobicash retailer can serve as agent to send and receive money (Mobicash 2013).

First Microfinance Bank and Dubai Islamic Bank are collaborating with Pakistan Post in another agent banking approach. MCB established the same platform as Easypaisa, but so far there is no interoperability (GSMA 2012).

United Bank’s Omni has become a marked success story within just 2 years of its launch; the combined daily transaction volume of its two services are already averaging over 175,000, with an average transaction size of nearly $40. The data show that Easypaisa and Omni have differentiated offerings, while the first dominates person-to-person transfers, the latter has built a significant bulk payments franchise (Davidson and Pénicaud 2011). Local telecommunications firm ZONG, a China Mobile subsidiary, and insurer Adamjee Life have launched ZONG Insurance as an SMS service in which cover can be applied for and premiums paid using mobile phones (ZONG 2013). Together with Askari Bank and Telepy, Zong launched full mobile financial services as a pilot in 2012.

While the overall penetration rate of mobile financial services was below 1% in 2011 (World Economic Forum 2011)—possibly due to a lack of interoperability of a broad agent network—there has been progress within the last year, and the general trend proves that mobile banking is developing quickly. The number of agents rose from 13 to 361 per 100,000 inhabitants from 2010 to March 2013. Transaction volumes increased from PRs3.5 million in 2011 to PRs41.1 million in the first quarter of 2013. The number of mobile wallets increased 14% to 2.4 million in the same period (State Bank of Pakistan 2013). The largest share of transactions has been carried out via Easypaisa and Omni. It is anticipated that mobile financial services will continue to develop and grow quickly due to increasing competition among current providers and new market entrants, such as Mobicash and ZONG’s Timepey.

**E. Tajikistan**

Tajikistan is the poorest of the former Soviet-bloc countries, with GNI per capita of $870 and 47% living under the poverty line in 2009. Some 73% of the population still lives in rural areas, and the country is heavily reliant on remittances. It is estimated that about 10% of the country’s 8 million people works abroad, 90% in the Russian Federation and the rest mainly in Kazakhstan (ADB 2012b). About 95% of these workers are male and half were unemployed before going overseas.

Inflows from remittances increased from $79.0 million in 2002 to $3.1 billion in 2012, about 41.1% of GDP after a share of close to 50% in 2008 before the financial crisis (IMF 2012). The average value of a remittance

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50 In Hindi, “paisa” means coin or subunit; 1 Pakistani rupee = 100 paisa.
Mobile Financial Services in Central and West Asian Countries

is $366. Since 2003, the economy grew about 7.6% a year, with a slight downturn in 2009. However, economic growth has largely been driven by the increase in remittances. Besides remittances, the agriculture sector contributed to 24% of GDP, trade 15%, and construction, the fastest growing industry, 8%.

Mobile phone usage has grown exponentially, at 25% a year over the past few years, reaching a penetration of 91% in 2011. This rate, however, was considerably lower at 42% among low-income groups and compared to the other case study countries in the region (World Bank and ITU 2013). Mobile phone coverage is far better than internet access, with just 0.5% of households having internet access in 2012 (BuddeComm 2013c), encouraged by the liberalization of the mobile network operator market and the entry of six operators (Babilon Mobile, TCell, Tacom/Beeline, TK Mobile, TT Mobile, and M-Teko). The state-owned fixed-line company Tajiktelekom cannot provide landline access in remote areas and overall landline infrastructure is weak because of low investment in the needed infrastructure before and after the collapse of the former Soviet Union.

The finance sector is small and financial access in Tajikistan underdeveloped. Under the supervision of the National Bank of Tajikistan, there are 14 commercial banks (of which one, AmonatBank, is state-owned), 2 credit societies, 35 microfinance deposit organizations, 43 microcredit lending organizations, and 45 microcredit loan funds. With 299 commercial bank branches in the country, there is at least 1 bank branch in every district, but many subdistricts are underserved. The network of ATMs is only marginally better, with only 466 in the country, almost half of them in the capital.

The situation is similar for merchant networks that accept card payments, with only 265 point-of-sale terminals available (National Bank of Tajikistan 2013). The banking sector is concentrated among the four largest banks—Agroinvestbank, Orienbank, Amonatbonk, and Tojik Sodirot Bank—holding more than 75% of banking system assets, more than 90% of household deposits, and 75% of loans (ADB 2012b). Furthermore, these deposits come from a small minority of the population, with only 2.5% having formal bank accounts, and just 0.3% of adults with savings in a financial institution (Demirguc-Kunt and Klapper 2012).

Nor does receiving remittances increase the usage of formal accounts: in 2010, only 12.5% of recipients transferred remittances into their bank account, and the remainder withdrew the funds immediately (Staschen 2012). The banking sector handles cross-border transfers and recipients are required to visit banks to withdraw

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**Box 10: Agroinvestbank, Tajikistan**

Agroinvestbank began offering a mobile banking feature in June 2012. It was not launched as a separate service, but as an additional free service to internet banking users. Mobile banking allows users to control their credit and debit card activity, transfer funds from account to account, create virtual cards for online shopping, and pay for services. To make use of the service, the user has to download a special Java-based application and works either via Wi-Fi or general packet radio service. The mobile banking service is identical to the internet banking service, but is fairly complex, as the 26-page user manual shows.

Since September 2011, users can also subscribe to short messaging service (SMS) notification, which provides an overview of account cash flow via text message. "SMS-alert," the newest feature, was introduced in late November 2012. Available at any branch or online, it allows users to make payments using their mobile phones through either SMS or unstructured supplementary service data commands. It also allows users to deduct funds from their card account to the network operator to buy airtime. The service is available only to MegaFon Tajikistan, TCell, and Babilon-Mobile subscribers.

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Sources:


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52 Microcredit loan funds are noncommercial and do not carry out credit operations, but at least seven are shareholders in microcredit lending organizations.
the funds, but this contact seems insufficient to increase the usage of financial services (Developing Markets Association 2012).

Low usage of banking services, in particular savings products, is partly due to a lack of funds—respondents of several surveys said that they need funds for immediate consumption—and financial illiteracy. Here, the benefits of deposit accounts are not widely known and banks seem to fail in advising remittance recipients.

Almost no mobile financial services operate in Tajikistan. The exception is some services to card account holders, such as text alerts, notifying them each time their card is used, request of a balance inquiry, or mobile banking applications, such as those offered by Agroinvestbank (Box 10). First Microfinance Bank uses text messaging to remind customers of overdue loan payments.

Mobile network operator providers such as MegaFon, a local subsidiary of the Russian mobile network operator MegaFon, are investigating how they can enhance SMS money services, which allow subscribers to transfer phone credits to another party. However, the regulatory environment does not allow nonbanks to issue e-money, preventing mobile network operators from launching more enhanced services like mobile payments. Third-party payment service providers, such as Express Pay, United System of Instant Payments, and Pardokht.tj, offer payment services such as utilities and mobile phone credit purchases, either via a network of cash payment terminals or by way of dealers who process cash payments using a mobile application. Express Pay holds a financial license as a microfinance deposit taking organization and is therefore permitted to store deposits. It is also permitted to introduce electronic wallets, and it plans to introduce these to enable clients to initiate payments through their mobile phones.

The Tajikistan Banking Sector Development Strategy and Action Plan 2010–2015 issued in 2010 included upgrading the regulatory framework of the country's payment system. A working group on mobile banking has been created with representatives from the supervisory division of the National Bank of Tajikistan, microfinance institutions, and payment systems providers, to examine mobile financial services. A delegation of the National Bank of Tajikistan paid an official visit to the State Bank of Pakistan in 2012 to understand the regulatory framework for branchless and microfinance banking sector. The new regulations have not yet been released, so it is not known whether they will enable banks and mobile network operators to introduce more enhanced mobile financial services systems, especially m-payment services.

F. Uzbekistan

Less than 10% of Uzbekistan is cultivated, with desert and mountains covering a large part of the country, yet by mid-2012, 48.8% of its 29.2 million people lived and worked in rural areas (Government of Uzbekistan 2012). Urbanization is very low.

Low-income earners accounted for 17.5% of the population in 2011 (Government of Uzbekistan 2013). Real GDP growth is among the highest in Central Asia, with annual growth above 7% since 2004, and never below 8% since 2007, despite the global financial crisis and its impact on remittances, which accounted for 16% of GDP in 2012. Economic growth is driven by industry (including construction) and services. Per capita GNI was $1,720 in 2012.

Mobile phone penetration is estimated at 92% and state-owned telecommunications company Uzbektelecom provides fixed lines to 7% of households (World Bank and ITU 2013). Internet usage is high at 37% of the population, but only 3% of households own a computer (BuddeComm Research 2012e). The fixed-line network was partially modernized and digitalized recently, but the number of fixed lines has not been increased.

The finance sector is bank-dominated, with total banking sector assets accounting for 37.0% of GDP in 2012. Eight banks with state ownership account for 76.1% of total sector assets. Their total loan portfolio accounted

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53 The study visit was facilitated by Development Finance Group of the State Bank of Pakistan and sponsored by GTZ.

Mobile Financial Services in Central and West Asian Countries

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for 21.1% of GDP and for 23.6% of deposits in that year. Direct government interventions through specialized institutions, subsidized financing programs, and tax incentives have perpetuated the role of the banking sector as a conduit for planned financing rather than financial intermediation. A few private banks have been able to establish their own niche, but private commercial banks, often with state-owned companies among their shareholders, are under state influence.

Financial sector infrastructure remains underdeveloped. Although bank branches per 100,000 adults is quite high at 48 (IMF 2012), they remain ineffective in offering financial services; only 1% of adults use formal deposit accounts, and only 1% have a formal loan (Demirguc-Kunt and Klapper 2012).

The Government of Uzbekistan, recognizing the potential of a payment platform used through mobile phones, in 2010 issued a presidential decree to support the development of mobile financial services over the following 5 years. For its part, the central bank views electronic payments as a pillar of the payment system and an alternative to cash-based transactions and favors them through regulation. Current electronic payments by individuals are mainly restricted to those using plastic debit cards, which are used for payments via a network of 180,000 point-of-sale terminals available throughout the country (UzDaily 2013).

Several banks in Uzbekistan offer mobile banking. Uzbek Industrial and Construction Bank and Ipak Yuli Bank focus on SMS as an information exchange channel with their clients. Their services include alerts on transactions

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**Box 11: Paynet, Uzbekistan**

Paynet has been among Uzbekistan’s most widely used payment services since 2005, when it started supporting payments to online services, allowing users to purchase online goods and services through a mobile phone. This was an outlet-based service allowing only dealers to operate it.

Paynet belonged to foreign and local private investors, but in September 2009, Xalq Bank (State Commercial People’s Bank of the Republic of Uzbekistan) acquired a 62.5% stake in the company. Foreign investors own the remaining 37.5%. The Central Bank of Uzbekistan has authorized Paynet to process cash and card payments on behalf of service providers such as public utilities and mobile phone companies.

Paynet is web and desktop linked, can be accessed by mobile phones through SMS, and has a wide agent network. In Tashkent alone, the company operates via a network of about 5,000 agents. About 25,000 agents operate nationwide. Agents charge an average commission of 4% for each payment.

The “cash collector” system functions in a real time mode, 24 hours per day, 7 days a week. Paynet has more than 2 million transactions a day, of which cash transactions are the most common, with over 70% done using cash rather than card. Despite the wide range of service providers Paynet represents, payments to mobile operators represent 90% of their transactions.

Paynet provides the platform for the partners and the users in the following manner:

(i) The customer pays the Paynet agent in cash, specifying the recipient of the payment and the amount to be paid.
(ii) The agent pays Paynet: Information on the accepted payment from the customer is transferred to the system of Paynet, which routes the data on corresponding providers. At the end of the transaction, the Paynet system prints out the transaction information for the customer. The agent transfers money into Paynet’s account on the basis of the accepted payment.
(iii) Paynet pays the recipient: Accepted payments are also fixed in the operator’s or the provider’s billing. On the basis of the accepted payments, Paynet transfers the money to accounts of the corresponding operator or the provider.
(iv) The provider continues/activates service to the customer: The client receives a short messaging service (SMS) alert from the recipient of the payment or by internet showing the updated balance.

on card accounts, user-driven requests for balances, and statements. Ipak Yuli Bank and Hamkor Bank, for example, offer internet and SMS banking and are planning to further develop mobile-based payment options to increase the outreach of their banking services. Other commercial banks also provide internet banking, but services are limited to information exchange. Hi-Tech Bank launched an internet banking application in March 2011 from software developer Sunet Technology, but there is as yet no list of implementations (UzReport 2011).

Among the more innovative products, a partnership between Xalq Bank and Paynet launched UZ Money as an electronic wallet that can be topped up either through Paynet agents or participating banks (Box 11). The service was put on hold, however, after experiencing some operational and technical concerns. Currently, the plan is to implement USSD banking before relaunching.

SMS Tolov launched by the Chamber of Commerce and Industry of Uzbekistan in 2011 offers mobile-based payments via a direct link between a bank account and a range of service providers. Although this promising service is still in its early days, SMS Tolov has managed to partner with nine banks and all of the major service providers, offering payments at costs lower than card-based systems. While their current offering is restricted to person-to-business payments, they also intend to introduce business-to-business services, embracing the potential of electronic signatures and documentation.
V. Making Mobile Financial Services Work in Central and West Asian Countries

A. Cross-Country Analysis

Mobile financial services can increase access to financial services quickly, conveniently, and inexpensively, as Kenya’s M-Pesa payment system shows. M-Pesa has also facilitated savings and increased the number of formal bank accounts. M-Pesa continues to expand now that it has started offering loans, insurance, leasing, and other financial services.

Technology also enables new instruments such as analysis of payment behavior to indicate creditworthiness. M-Pesa has improved financial access and strengthened the formal finance sector by linking rural areas to the banking sector, and many countries and institutions are studying it and other early movers for possible emulation.

That said, while similarities in approach to developing mobile financial services are likely to be found within different markets, replication is likely to be neither useful nor successful as countries differ in their economic systems, infrastructure, and people’s needs and habits. This is true also for more developed countries where mobile financial services have not achieved the same level of usage as in some developing countries. For the successful implementation of mobile financial services, it is necessary to conduct in-depth analysis of a country’s financial market to assess financial access and the potential demand for mobile financial services. This section reviews the development of mobile financial services on a cross-country basis, and identifies what has worked, emerging best practices, and what, if any, features or circumstances countries share that indicate why mobile financial services will be, or have already been, successfully launched.

The theoretical framework in Section III.1 identified conditions and enabling and limiting factors for mobile financial services. The following describes the situation in several countries using common economic and socioeconomic indicators.

Kenya and the Philippines, as noted, both have well established mobile financial services. While both countries had similar average annual economic growth from 2005 to 2010, with values indicating sound growth, they are quite different in many areas. Kenya is the poorest country in Table 4 and has the second highest share of population living under the poverty line. Income in the Philippines is 2.5 times higher. There is also wide discrepancy in overall development, as shown by the Human Development Index. The urban population in the Philippines is double that of Kenya, with an accordingly higher population density. For both countries, the high amount of international remittances constitutes a key success driver for the acceptance of mobile financial services, although they are much lower in Kenya as the table shows. There, mobile financial services are mainly driven by high national remittance transfers between urban and rural areas.
Finance Sector Development in Central and West Asia: Making Mobile Financial Services Work for Central and West Asian Countries

Table 5 shows mobile phone and internet usage and coverage in both countries, and measures competition in both markets using the Digital Opportunity Index and ICT Development Index. Discrepancies exist. Market penetration of mobile phones is lower in Kenya than in the Philippines. Furthermore, both indicators show that digital literacy is not particularly highly developed in Kenya. All this suggests that telecommunications usage, as well as digital literacy, is not essential for mobile financial services acceptance.
Table 6 summarizes financial access indicators in selected countries. In line with previous findings, banking infrastructure is better developed in the Philippines than in Kenya. This is especially noticeable in the relation of number of branches or ATMs per 1,000 square kilometers to number of branches or ATMs per 100,000 adults: Banking infrastructure in the Philippines covers most of the country and is available on most islands. In Kenya, banking infrastructure is concentrated in densely populated areas and is weak in rural areas. Weak banking infrastructure is a gap waiting to be filled by the supply of mobile financial services; 68% of Kenyan adults use mobile money to get access to financial services and the banking sector, including bank accounts, to overcome distances to branches or ATMs in rural areas. In the Philippines, 15% of the adult population uses mobile money, considerably lower than in Kenya. At any rate, it is likely in both countries that mobile financial services are increasing the quality of access to bank accounts as a high share of account owners frequently use their bank accounts to save.

Table 6: Access to Finance

<table>
<thead>
<tr>
<th>Country</th>
<th>Commercial bank branches per 1,000 km²</th>
<th>Commercial bank branches per 100,000 adults</th>
<th>ATMs per 1,000 km²</th>
<th>ATMs per 100,000 adults</th>
<th>Outstanding deposits with commercial banks (% of GDP)</th>
<th>Outstanding loans from commercial banks (% of GDP)</th>
<th>Adults with an account at a formal institution (%)</th>
<th>Adults using a formal account to save (%)</th>
<th>Adults using mobile money (%)</th>
<th>Level of Competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Armenia</td>
<td>16.26</td>
<td>18.76</td>
<td>35.43</td>
<td>40.88</td>
<td>22.00</td>
<td>35.69</td>
<td>17</td>
<td>1</td>
<td>4</td>
<td>0.43</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>8.59</td>
<td>9.91</td>
<td>25.80</td>
<td>29.77</td>
<td>16.66</td>
<td>23.33</td>
<td>15</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Kyrgyz Republic</td>
<td>1.44</td>
<td>7.27</td>
<td>2.40</td>
<td>12.07</td>
<td>18.23</td>
<td>14.71</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>...</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>2.06</td>
<td>6.67</td>
<td>2.38</td>
<td>7.68</td>
<td>17.33</td>
<td>14.93</td>
<td>3</td>
<td>0</td>
<td>29</td>
<td>...</td>
</tr>
<tr>
<td>Uzbekistan</td>
<td>22.37</td>
<td>47.72</td>
<td>2.13</td>
<td>4.54</td>
<td>29.18</td>
<td>25.31</td>
<td>23</td>
<td>1</td>
<td>6</td>
<td>...</td>
</tr>
<tr>
<td>Pakistan</td>
<td>12.71</td>
<td>8.74</td>
<td>7.03</td>
<td>4.83</td>
<td>34.47</td>
<td>21.00</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>0.54</td>
</tr>
<tr>
<td>Kenya</td>
<td>2.12</td>
<td>5.17</td>
<td>3.87</td>
<td>9.46</td>
<td>60.43</td>
<td>78.02</td>
<td>42</td>
<td>23</td>
<td>68</td>
<td>0.62</td>
</tr>
<tr>
<td>Philippines</td>
<td>16.29</td>
<td>8.07</td>
<td>35.75</td>
<td>17.70</td>
<td>41.93</td>
<td>21.39</td>
<td>27</td>
<td>15</td>
<td>15</td>
<td>0.28</td>
</tr>
<tr>
<td>United States</td>
<td>9.58</td>
<td>35.43</td>
<td>46.46</td>
<td>173.43</td>
<td>57.78</td>
<td>46.83</td>
<td>88</td>
<td>50</td>
<td>...</td>
<td>0.46</td>
</tr>
<tr>
<td>Germany</td>
<td>31.86</td>
<td>15.7</td>
<td>248.2</td>
<td>122.29</td>
<td>27.63</td>
<td>24.2</td>
<td>98</td>
<td>55</td>
<td>...</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note: Latest data available.

Findings from Kenya and the Philippines indicate that while mobile financial services can be introduced under very different circumstances, usage patterns appear to be different. M-Pesa in Kenya has been rolled out across the country, and clients included those with no prior access to financial services, foremost those in rural areas. This was achieved through the development of an extensive agent network. Services such as SMART and G-Cash in the Philippines provide an additional customer service and/or target only a certain group of mobile financial services users (e.g., those receiving remittances).

In developed countries such as the United States (US) and Germany, banking infrastructure in branches and ATMs is, considering population density, at least double that of the Philippines and, on average, almost every German or US citizen has a bank account. Together with the high penetration rate of home internet access, the preferences of US or German bank customers are well served in the easy access to cash (ATMs), account management (online banking), and individualized products (branches), as well as electronic payments by debit/credit cards.

Lessons can be learned from this experience. First, mobile phone coverage does not have to be 100% and the same is true for digital literacy. However, these factors should still be considered in product design; M-Pesa for example is a simple and easy-to-use product that works on ordinary mobile phones and without internet access.

Second, income level is no constraint, though growth in income might be helpful as well as having a high number of remittance transactions and competition in the mobile network operator or banking market.
Third, mobile financial services can increase financial access in rural areas if bank infrastructure is weak, as long as an agent network is established. If a dense bank infrastructure is in place, as in developed countries and, as we have seen, partly also in the Philippines, demand for mobile financial services, in particular mobile money, is considerably lower. This finding has an influence on the model of choice when introducing mobile financial services. In settings where there is limited or very basic bank infrastructure, such as in rural and remote areas, a mobile network operator–led model might be appropriate to link people to the finance sector as they may have greater capacity to build an agent network. However, the bank-led model might be more appropriate in a setting in which an existing bank branch and ATM infrastructure is in place. In this case, banks can add mobile financial services for customer service and deepen financial sector involvement.

For countries in Central and West Asia, these findings suggest that mobile financial services are generally feasible and promising, as they are neither as developed as in the US or Germany, nor are they less developed than Kenya (for that case, no conclusion can be drawn from this analysis). The following section reviews current mobile financial services initiatives.

B. Summary of Mobile Financial Services Initiatives

Although the leading initiatives—M-Pesa (Kenya), G-Cash (the Philippines), and Easypaisa (Pakistan)—have mobile network operator–led business models, mobile network operator services are not well established in countries in Central and West Asia. The majority of the analyzed initiatives are either led by banks or by third parties, such as money transfer operators. For bank-led models, mobile financial services are mostly limited to SMS alerts or SMS information services. Some banks offer mobile banking services, but these are mostly an adaption of online banking platforms to mobile phones instead of discrete applications, and they do not include m-payments.

Third-party models, meanwhile, are usually initiatives from money transfer companies that increase their service spectrum from international remittances to some kind of online payments for e-commerce.

Both models have exceptions, however. MobilBank in Azerbaijan, for example, allows for money transfer between cardholders, and SMS Tolov in Uzbekistan can be used to pay bills with the mobile phone.

The only mobile network operator–led initiative, besides in Pakistan, is found in Armenia, where MobiDram offers m-payments and comes closest to M-Pesa in its offerings and network. Similar to M-Pesa and in accordance with existing regulatory frameworks, MobiDram has no banking license and needs to deposit its funds into a trust account, as do money transfer companies that send money through the banking system and deposit the funds with a bank until it is withdrawn by the customer.

C. Gap Analysis and Recommendations

In this section, the six case study countries in Central and West Asia are analyzed for their potential for mobile financial services in economic development and providing access to financial services for the unbanked. This is done by comparing the current situation with the peer group countries—Kenya and the Philippines—that represent two different models for two different kinds of problems: increasing financial access for the rural population in Kenya using the mobile network operator model, and deepening financial services in the Philippines through the bank-led model Smart Money. Although many other factors have to be taken into account when choosing how to introduce mobile financial services, these are the two broader possibilities.

Armenia is the smallest country in the region, with high urbanization and relatively high income in comparison with the other case study countries. High dependency on remittances makes the economy vulnerable. Mobile phone coverage and usage are very high overall. Banking infrastructure—in terms of number of branches and ATMs—is good in its spread and density, although these figures can mislead as the size of the country and its rugged geography can decrease actual access in remote areas. For example, travel time might be substantially higher despite the short distance to a bank branch.
Financial inclusion in Armenia is considered low, especially for savings, and the finance sector is seen as inefficient in providing quality access to financial services. This impression is further reinforced by the underdeveloped mobile financial services of banks, despite current regulation favoring bank-led models. Instead, the most promising mobile financial service has been launched by a mobile network operator, MobiDram, and has quickly expanded in availability. MobiDram could link more people to the banking system and may also increase financial access in rural areas and for the poor. It is restricted, however, by a regulatory framework that

Table 7: Summary of Mobile Financial Services Initiatives

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Company</th>
<th>Launch</th>
<th>Country</th>
<th>Bank</th>
<th>Mobile network operator</th>
<th>Third party</th>
<th>Type</th>
<th>Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>MobiDram</td>
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<td>Armenia</td>
<td>x</td>
<td>x</td>
<td>M-payments, m-money, or connected to bank account</td>
<td>Agents, banks if account holder, Terminals, participating banks</td>
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<td>Idram LLC</td>
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<td>Armenia</td>
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<td>x</td>
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<td></td>
<td>Int. Bank of Azerbaijan and AzerCell</td>
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<td>Azerbaijan</td>
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<td>Mobile banking with transfer and withdrawal possibility</td>
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<td>First Microfinance Bank</td>
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<td>United System of Instant Payments (OSMP)</td>
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<td>Hi-Tech Bank</td>
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<td>Halq Bank + Paynet</td>
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<td>E-wallet (on hold)</td>
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<td>SMS Tolov</td>
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<td>2011</td>
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<td>M-payments</td>
<td>9 partner banks, service providers</td>
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<td>Easypaisa</td>
<td>Telenor</td>
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<td>Terminals</td>
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<td>x</td>
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<td>Terminals</td>
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Source: Webpages of companies.
limits its operations to transfers and bill payment, and its own focuses on customers that already have a bank account because its full service is only available to premium users.

For Armenia, expanding the banking infrastructure is probably less efficient in increasing financial access and strengthening the economy than deepening the usage of the existing infrastructure and increasing the outreach of branches. Mobile financial services could be a useful tool to do that by increasing the customer service of banks and usage of formal services, such as by giving easy access to savings accounts through mobile banking.

By introducing bank-based mobile payments, banks might be able to get remittances booked in their deposit accounts instead of paying them out directly, and might also attract savings in a second step. However, banks have not made much of an effort to introduce mobile financial services. A possible factor for this is low customer orientation, which might be due to low competition in the banking sector.

Against this backdrop, government and donor activities should concentrate on increasing competition in the banking sector. A simple way to do that would be to set up a regulatory framework allowing mobile network operators and/or remittance agencies to compete with banks with more products and agents. Another possibility could be to develop microfinance institutions potentially interested in offering mobile financial services themselves or through cooperation with each other, or MobiDram, as part of gaining a banking license.

After a period of high economic growth, Azerbaijan enjoys the highest income of the case study countries in Central and West Asia and the lowest poverty. Mobile phone coverage and internet usage is high, as are digital literacy indices. In financial access, city dwellers have relatively good access to branches, and ATMs and commercial banks offer e-banking and, in some cases, m-banking. However, usage could be improved, since the proportion of bank accounts used for savings is low. By contrast, the rural population, composing almost half of total population, has considerably lower access to bank infrastructure. This is problematic as the agriculture sector employs almost 40% of the population.

The main task for Azerbaijan’s finance sector is to increase access in rural areas; mobile financial services might be an ideal option for that. A bank-led model could be the model of choice, as there is already an interoperable mobile banking platform (MobilBank).

Furthermore, the agriculture sector needs more complex bank products, such as loans and insurance that might not be adequately provided by a mobile network operator model. Even so, this bank-led model should include a broad nonbank agent network to avoid the expensive expansion of banking infrastructure. As agents, nonbank credit organizations might be an option as they have financial experience and are located in rural areas. Cooperation with mobile network operators or online payment services such as AgentPay could be expanded for better rural coverage, although this may require additional training and certification.

To stimulate competition between banks and increase consumer surplus by lowering prices and developing better services, a second platform next to MobilBank under the leadership of another large bank should be considered. In addition, an m-payment system should be introduced to simplify money transfers in rural areas, where penetration of bank branches or payment terminals is lower, and to increase the share of money that is directed through the banking system and eventually stored in formal bank accounts instead of being paid out immediately.

Access to formal financial services in the Kyrgyz Republic is low because banking infrastructure is practically nonexistent in rural areas, where about two-thirds of the population lives. Although a high share of the population receives remittances, accounting for 29% of GDP, these are usually not transferred into formal savings accounts, with only 4% of the adult population having one. While this is usually a good setting to introduce mobile financial services, no such project has yet been undertaken. This may be because no specific regulation has been introduced to allow mobile network operators for the provision e-money.

For the Kyrgyz Republic, a model similar to M-Pesa seems promising since it can rely on a broad mobile phone usage and does not need formal infrastructure to offer basic services such as payments, transfers, and savings. One of the two largest mobile network operators could introduce a basic m-payment system and agent network
and deposit the funds at commercial banks. Another possibility could be a bank-led model in cooperation with microfinance institutions and credit unions to cover rural areas and target the low-income population. However, this would necessarily entail a more complicated mobile banking system and require substantial cooperation between various players.

Tajikistan is the poorest and most rural country in Central and West Asia. It is highly dependent on remittances (41% of GDP), largely from the Russian Federation. Almost half the population lives under the national poverty line. The banking sector is concentrated in the capital, but formal financial access is low there as well. Outside the capital, in cities as well as the countryside, there is a limited network of ATMs and bank branches, and microfinance institutions have not been able close this gap. Current regulation allows only for banks to issue e-money, preventing mobile network operators from entering the mobile financial services market. Most bank approaches to mobile financial services are limited to SMS alerts or tied to debit and credit cards that are only offered to a minority of the population.

As remittances are very important, payment service providers are, for many people, the only contact to any kind of financial service. The network of these providers, consisting of cash payment terminals and dealers, is the broadest in Tajikistan to receive cash (i.e., compared to banking or microfinance networks). This could be the basis for introducing a mobile payment system, which could be led by a payment service provider. One provider, Express Pay, already has permission to store deposits so that one necessary step to introduce e-wallets is already in place. Still, partnerships with one or several mobile network operators would be necessary to get simple access to e-wallets and money transfers from mobile phones. Introducing a mobile payment system would further increase the agent network for account opening and cash-in/cash-outs, and, later, microfinance institutions could be included to offer more complex banking products.

The government and central bank of Tajikistan are reviewing the regulatory framework to launch mobile financial services, and a visit to Pakistan to study its model took place in 2012. Mobile network operators may get the authorization to offer mobile financial services by themselves following the Pakistan framework. In any case, the bank-led model seems less suitable to introduce a broad mobile financial services model because of the banks' lack of interest to target the unbanked. It is unlikely that bank-led mobile financial services would be attractive for a large part of the population with no previous contact with banks and which would have to open an account at a bank branch far away.

Uzbekistan is midway on the regional development spectrum in the range of countries included in this analysis. Income is significantly higher than in the Kyrgyz Republic, Tajikistan, or Kenya, but does not reach that of Armenia, Azerbaijan, or the Philippines. The same can be said of the urbanization rate, the poverty rate, and overall development measured by the Human Development Index. On telecommunication coverage, 92% of the population has a mobile phone and 30% use the internet, high enough to not preclude mobile financial services. The finance sector is dominated by state or state-owned banks and has an extensive branch infrastructure, but low ATM coverage and very low bank account usage indicate low efficiency in including the population in the formal finance sector.

Some banks offer mobile banking applications with online banking features for mobile phones, and the government is supporting the implementation of m-payments as an alternative to the widely distributed, but seldom used, debit and credit cards. The current regulation permits mobile network operators to launch m-payments, yet the government clearly prefers the bank-led model. Since 2011, there have been some m-payment initiatives; one of them, SMS Tolov, plans an interoperable system for mobile phones.

Implementing mobile banking poses challenges, however, as the preferred model requires a bank account. Although mobile financial services might be an appropriate tool to include more people in the formal banking sector, operations in bank branches have to be modernized to increase customer service and to target the unbanked. Partnerships with microfinance institutions should be developed as they have more experience in targeting the unbanked, especially in rural areas, and could provide financial literacy training.

In Pakistan, per capita income ($1,120) is in the range of the other case study countries, as is the urbanization rate (36%) and the share of the population living under the national poverty line. In overall development,
measured by the Human Development Index, however, Pakistan falls behind. In education, 7 years on average of schooling is considerably lower than other countries in Central and West Asia. Even though the number of mobile phone subscribers is improving (62%), internet usage, illiteracy, and digital literacy might be especially problematic when targeting the poorer part of the population with mobile financial services.

In addition, inclusion in the formal banking system is weak: 10% of the adult population has a bank account and only 1% use one. This might indicate financial illiteracy as well, especially for women as their financial inclusion is lower than that of men.

On the other hand, competition between the 31 commercial banks is relatively high and the quality of banking infrastructure is comparable to that of other countries in the region and better than that of Kenya.

To increase financial inclusion and financial access, especially in rural areas, the State Bank of Pakistan introduced a branchless-banking regulatory framework in 2008. Regulations cover all relevant aspects, including the role of mobile network operators in agent banking. Under the framework, a mobile financial services approach has to be led by a bank. Since 2008, several banks and microfinance institutions have launched branchless banking and mobile financial services models that work together with different agents.

Two approaches are especially promising: MobiCash and Easypaisa. In both cases, the mobile financial services have been launched by the country’s two largest mobile network operators, Mobilink and Telenor, respectively, and these have partnered with or bought a microfinance institution to obtain necessary licenses. Both models offer m-payments through e-wallets independent of bank accounts, and allow payments without having to be a customer of the service and by simply visiting one of the mobile network operator agents.

Since 2008, mobile financial services in Pakistan have grown fast, but have not yet achieved usage numbers that would classify them as a substantial part of the finance sector, with only 3% of the adult population using mobile money. Substantial and continuing growth of the agent network is likely to increase the number of mobile financial services users. However, mobile phone usage and literacy might be limiting factors.

Even so, the potential for mobile financial services in Pakistan is enormous and m-payments could play a role similar to M-Pesa in Kenya. Competition of different approaches, a well-designed regulatory framework, and more catalysts, such as pension payments or micro insurance, could help increase customer surplus and clients. However, the mobile financial services providers will have to increase the number of agents and improve the link between m-payments and bank accounts, including loan repayments. In this sense, the role of microfinance institutions in partnerships should be strengthened. Down the line, more microfinance institutions need to partner with mobile financial services providers to extend the outreach of mobile financial services. Microfinance institutions could overcome digital and financial literacy constraints through their proximity to the poor by providing information and training. Furthermore, agents could be trained to better target the poor and deal with financial literacy constraints.
VI. Summary and Conclusion

Mobile financial services have been shown to be capable of bringing banking services to remote and rural areas and to the unbanked and under-banked. Through m-banking, customers can have remote access to their bank accounts and, in this way, reduce bank visits. M-payments can reduce cash in circulation by allowing for quick and simple transfers of money to buy goods and services or to send money between users, including salaries, grants, or remittances. Furthermore, m-wallets can manage payments and be used for savings, including small amounts. However, the services offered and their impact on financial access depend on certain circumstances, foremost of these are existing banking infrastructure and the demand for financial services, as well as the chosen model of mobile financial services.

In general, mobile financial services can be delivered by a bank-led model or by a mobile network operator-led one. Although both models can offer mobile financial services, in practice it has been observed that wide differences emerge in the type of mobile financial services offered under each and in different countries. In developed countries, banks generally offer mobile financial services and are limited to m-banking services, while m-payments have not yet been successfully implemented.

Kenya, the often-used example for a successful implementation of m-payments, has allowed a mobile network operator to introduce mobile financial services in parallel to the regulated banking system. M-Pesa could gain large parts of the population as clients, including the rural population, by establishing a large agent network that deals with account opening and cash-in/cash-out. However, this system does not allow M-Pesa to offer bank services such as deposit accounts or loans. Still, due to the fact that the infrastructure of bank branches and ATMs is very weak in Kenya, a simple system to store and send money has increased financial access and could further do so; for example, through partnerships with microfinance institutions or insurance companies.

The Philippines allows for both models and two different systems are operational, one bank- and one mobile network operator-led. Both have been able to include previously unbanked people and gained high numbers of account holders as a result, though actual usage numbers seem to be lower. While some groups benefit from the service and use it, large parts of the population are well serviced by the traditional banking sector and do not frequently use mobile financial services, although available now for more than 13 years.

Hence, when establishing regulation for mobile financial services and when mobile network operators or banks develop their business model for a mobile financial services product, the target group should be identified according to the current banking landscape. An appropriate approach should be designed to target the population without access to traditional banking infrastructure.

Mobile financial services are very promising for increasing financial access in the countries included in this study. Basic requirements such as mobile phone penetration rates and mobile phone network coverage are in place. Literacy standards are generally good and financial and digital literacy are sufficient when compared to Kenya. Current low financial access indicates both the need and potential demand for mobile financial services.

However, in this category, different approaches are appropriate. For example, Armenia, Azerbaijan, and Uzbekistan are considerably more developed in terms of income and banking infrastructure than the other Central and West Asia countries included in this study. In these three countries, deepening usage and efficiency might be more reasonable than expansion. Therefore, m-banking applications orientated toward customer needs
might be a more appropriate way to include more people in the formal banking sector. While this implies a bank-led approach, partnership with microfinance institutions would assist in better targeting the poor and unbanked due to the expertise of these institutions in dealing with this customer segment. Mobile network operator-led models, such as MobiDram in Armenia, increase competition and should continue to be enabled through regulation, but banks themselves should be encouraged to launch their own systems.

For the other three case study countries—Kyrgyz Republic, Tajikistan, and Pakistan—the mobile network operator model seems more appropriate, as the banking infrastructure is poorly developed, especially in rural areas. M-payments could be a driving force to increase financial access. These mobile network operator models could be regulated in a similar way to M-Pesa, whereby all funds have to be deposited at commercial bank accounts on a 1:1 basis. It would be important to set up a broad and efficient agent network, with agents receiving continuous training and a certification program. Microfinance institutions could be contracted as agents and could offer their own products, such as mobile loan repayments. At a later stage, other bank products or insurance could be integrated as M-Pesa is doing now after some years of operation. It would also be advantageous to allow more than one mobile network operator to launch services to create competition.

Either way, governments and central banks have to set regulations according to these new business models. Where banks offer mobile money transfer, all payments are ultimately linked to an existing bank account and bank-led models will typically be covered under existing prudential guidelines. That said, some changes may be required to cater for cash-in/cash-out services at banking agent locations.

By contrast, if nonbank players are allowed to provide mobile money transfers and associated e-money products, new prudential regulations will be needed to guide and supervise these providers. Such regulations will typically need to address areas as protection of stored value, know-your-customer protocols (for accounts opened via agents), anti-money-laundering requirements for mobile payments, payment of interest on e-money accounts, and the general licensing eligibility for these providers. From this list, the first item—e-money—provides the biggest challenge for regulators since it requires the development of a set of risk-mitigating measures to protect funds stored electronically. More advanced mobile financial services markets can provide valuable examples based on experience in developing necessary regulatory frameworks, which include fund safeguarding, restrictions on use, fund isolation, a minimum initial capital requirement for providers, dedicated providers, e-money limits, and deposit insurance.

In general, whichever model is chosen, introducing mobile financial services by a bank or mobile network operator requires marketing, education, behavioral changes, and trust in both the technology and the provider. As it is a margin business, the target group has to be large enough to gain enough volume. Market research to test customer preferences is necessary at the beginning of mobile financial services initiatives, and planning is important to avoid poor end-user adoption.

A gradual approach, from SMS to USSD to internet-based options such as m-apps and from m-payments to bill payments to deposit management and loan application, is a worthwhile strategy for broadening financial inclusion, but needs to be tailored to the unique environment of the country in question. Marketing and quick enrollment are important as the attractiveness of a service is increased the more people use it and the more shops accept it. Sophisticated agent training is a must, not only to ensure quality in service, but also because the agents can be an important factor in marketing; for example, by educating clients on usage. Furthermore, the chosen implementation approach should promote competition and efficiency.

All in all, introducing mobile financial services needs a comprehensive approach that considers the specific country environment and innovation in the concept and product, as has been seen with M-Pesa, to expand access and usage of financial services.
References


