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The potential of mobile banking in Peru as a mechanism for financial inclusion

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The potential of mobile banking in Peru as a mechanism for financial inclusion

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Abstract

The Peruvian economy in recent decades has grown in step with growth in the financial system. However, banking penetration as a proportion of GDP has remained static at around 30% which is below other countries in the region, even those with lower GDP per capita. Access to products in the formal financial system is especially difficult for rural or low-income households. In line with the interesting international experience in other emerging countries, the E-Money Act was passed in 2012 with the main aim of increasing levels of financial inclusion. The high level of penetration of mobile technology in the country makes it an attractive channel for expanding financial services, since it is accessible and used every day by most of the population: according to the ENAHO 2011 National Household Survey, 75% of households have a cell phone (24 million lines in a country of 30 million inhabitants). This paper aims to set out the current state of development of mobile banking and estimate the potential demand for mobile banking as well as e-money. To achieve this aim, we use survey information to discover the main socioeconomic characteristics of individuals as well as the determining factors for their preferences regarding the use and frequency of mobile banking and connected services. Looking at the information from different angles and with different filters, one can see that at income quintile level, the development potential for mobile banking averages around 40%, taking into account the current availability of mobile devices and the current level of banking access. The highest potential is in quintiles 2 and 3, where it runs above 50%. When this information is segmented into educational levels, the highest potential is among those with secondary school education, where it is around 70%. This is due to a combination of high cell phone penetration and low access to the banking system. These results point to a~~n~~ major opportunity for developing mobile banking, taking advantage of the wide prevalence of devices, much higher than current banking access. It could be used as a tool for accessing the financial system, especially for those groups who are currently excluded.

Keywords: Financial inclusion, mobile banking, bancarization, banking penetration.

JEL: G21, O16.

Executive Summary

1. **The regulatory framework for financial services via mobile devices in Peru is in its infancy.** Law No. 29985 was passed in January 2013, with the title **"Act governing the basic characteristics of e-money as a tool for financial inclusion".** This act governs the issuing of e-money, determines those companies authorized to issue it and establishes the regulatory and supervisory framework. In addition, it limits service provision to companies within the supervisory scope of the financial system. In order to generate competition, it creates the Electronic Money Issuer Companies (EEDE), which may contract third parties to channel transactions, for which it maintains responsibility.

   This new regulation aims to alter the current scenario where **despite strong growth in lending and deposits** in the banking system, the level of banking penetration is not high enough, leaving a **large part of the population outside the system.** In spite of the intensive growth strategies at banks involving the opening of offices, ATMs and correspondents, they are still mostly located in urban areas around the country, with a high concentration in Lima and almost no presence in rural and isolated areas.

2. In order to properly roll out mobile banking, firstly **we need to see further development of the basic channel for it, i.e. mobile devices.** Active cell phone numbers doubled between 2008 and 2012. On average, the density of lines in Peru (measured as the number of lines per 100 people) is 117.4. This level of penetration could be an important starting point for bancarization strategies via the use of e-money on cell phones. In turn, it **will require corresponding service points with a high level of capillarity** that extend to different areas of the country and could be provided via **non-banking correspondent agent** networks which have also been developed, or with **new service points under the framework of the EEDE.**

3. **Mobile banking in Peru** until now comprised mobile banking via text messages and some applications developed by banks for use with *smartphones*. In addition, there are some projects such as Wanda (a joint venture between Movistar and MasterCard) although they are still not officially in operation. The **use** of mobile banking in Peru has **mainly been as a service/information channel** for registered banking customers. Its main operations offer: balance enquiries, account and credit or debit card transactions, cell phone top-ups, alerts via text messages on wages being paid in or purchases. Some platforms such as Yellow Pepper, Wanda, Rapiplata (Monet) also offer payment for services, transfers and retail purchases.

4. According to survey data from **Global Findex, only around 20% of people have an account at a financial institution.** The majority of ~~Most of~~ this group (93%) reached ~~have~~ secondary or tertiary education and **41% belong to the highest income quintile.** The educational and income variables are directly linked to increased access to accounts at financial institutions and are key factors for achieving higher inclusion levels. The **main reasons** people state for **not having an account at a financial institution** include: the perception that **services are very expensive** and **they do not have enough money** to use them. For low-income sectors, the financial system is not attractive, or is at least not yet seen as an attractive option. Economic channels such as e-money via ordinary cell phones (not *smartphones*) as well as an information campaign highlighting the benefits of bank use would be essential to increase inclusion levels.

5. According to the 2011 National Household Survey (**ENAHO**), **75% of households have access to mobile telephony.** The high level of penetration of cell phones is therefore an opportunity for making it a channel that can increase banking penetration via platforms that are known and available to users. People with **higher educational and income levels** have cell phone access of above **90%** while **for those with lower incomes or without education, this percentage drops to around 50%.**

6. An **estimate of the potential demand for e-money** is obtained from the difference between levels of coverage for those with phones and those already in the system (e.g. as

measured by those who state they have a bank account on the Global Findex survey). **At income quintile level the potential averages are around 40%,** with **the widest gaps being in quintiles 2 and 3, where it reaches above 50%.** Taking into account educational levels, **the widest gap tends to be in groups with secondary education, where the difference is around 70%.**

7. In general, **these figures offer the conclusion that there is a major opportunity for developing mobile banking,** taking advantage of the wide use of such devices, much more common at present than banking access, especially among those groups who are currently excluded. Experience **in other countries** suggests **a way forward that could be adapted** to Peru's economy, taking advantage of the current level of mobile communication technology in the country, as soon as there is **a regulatory framework to promote this channel.**

1. Introduction

The low levels of financial inclusion in Peru, as well as their causes and possible solutions to them, are widely discussed issues. Increasing banking penetration ("bancarization") levels is not only important macroeconomically (given its impact on higher investment, consumption and economic growth levels) but also microeconomically, because it improves living standards and quality of life for individuals. In turn, increased banking penetration with regard to the use of accounts, cards, transfers and other products or financial services in many instances simplifies processes for users and offers greater security.

The solutions that have been explored to increase financial inclusion include increasing the range of products, services and channels available at different financial companies; simplifying regulatory measures so that the price of accessing products is assisted or reduced via low-cost bank accounts, micro credits or micro insurance products for some segments of the population; and attempting to change habits or traditions on the demand side, increasing the confidence level in the system's institutions and supporting a financial culture. Among these alternatives, developing mobile banking and e-money haves shown encouraging results in several emerging economies. Wide segments of the population have been included by offering more accessible channels and service points that adapt to their lifestyles and business. This paper specifically focuses on this topic, looking at the main regulatory aspects and the potential it could have in providing wider access to banking products.

The study contains five sections. After the introduction, the second section sets out a description of the regulatory and technological context for mobile banking in Peru, where concepts including e-money, e-money issuers and mobile banking are defined. It details current regulations linked to the operation and characteristics of these services, as well as reviewing the regulation of other financial services including ATMs, correspondent terminals, internet banking, and payment and settlement systems. This explains the opportunities and restrictions of this still new regulatory framework in Peru. The third section describes the Peruvian financial market as well as the local mobile telephony market, to give an idea of volumes, inclusion levels and coverage, the main features, participants, and the main obstacles and benefits for each.

Section four moves onto potential demand for extending financial access with mobile banking and e-money in Peru. Databases from different surveys are used for this purpose, including World Bank's Global Findex and the INEI National Household Survey. This information is used to set out the main characteristics of users and non-users of banking services, as well as cell phone customers who use or do not use internet for mobile banking. It also examines the range of banking products, services and channels on offer, and how these may be adapted or used as a platform for mobile banking. Finally, the fifth section sets out the main conclusions of the study.

2. The regulatory and technological context for mobile banking

In Peru, companies in the financial and insurance system are governed by the regulatory and supervisory framework established in Law No. 26702, the "General Law on the Financial and Insurance System and Organic Law on the Banking, Insurance and AFP Superintendency (SBS)". This law sets out requirements with respect to incorporation, capital, general regulations, limits, prohibitions, operations and services, investments, opening branch offices, and other areas of interest linked to the operation of companies in the financial system. With regard to the specific topic of developing banking operations and deploying financial services via mobile devices, the regulatory arena is in its infancy. Circular No. 046-2010 "Reports on payment channels and instruments other than cash" of the Central Reserve Bank uses the following definitions for the concepts of e-money, mobile banking and e-money cards: (i) e-money, understood as the value stored in electronic form on a device such as a chip card or hard drive on a computer; the value falls every time purchases are made for goods or services or cash is withdrawn; (ii) mobile banking, defined as the virtual channel over which customers may carry out transactions using cell phones; and (iii) e-money cards (prepaid cards) that store monetary value allowing users to make payments at entities other than the card issuer.

2.1 E-Money

Draft Bill No. 4168/2009PE was presented in 2010 and aimed to regulate the basic characteristics of e-money and its use. However, it was shelved by Congress without approval[1]. Two years later, in May 2012, a new Bill on e-money was presented in Congress which, except for some small modifications, was very similar to the one initially presented. Law No.29985 was finally approved in January 2012 under the title "Act governing the basic characteristics of e-money as a tool for financial inclusion" and the regulations implementing it were passed in May 2012. The regulations of this law consider e-money as the monetary value stored on electronic devices designed to deal with general use and not specific uses such as debit cards, telephone cards, member cards, public transport cards, food vouchers, service vouchers and other similar items.

The regulation of e-money aims to mainly benefit rural or isolated areas where commercial banking has no presence, by helping make payments and transfers securely and at low cost. The extensive spread of mobile technology across the country creates opportunities to expand financial services and this is the basis for seeking to provide wider access to the financial system. This law governs the issuing of e-money (including both issuing operations of this payment method and the reconversion into cash, transfers, payments and any transaction or operation linked to the monetary value held by the account holder), sets out the companies authorized to issue it and the regulatory and supervisory framework for Electronic Money Issuer Companies (EEDE).

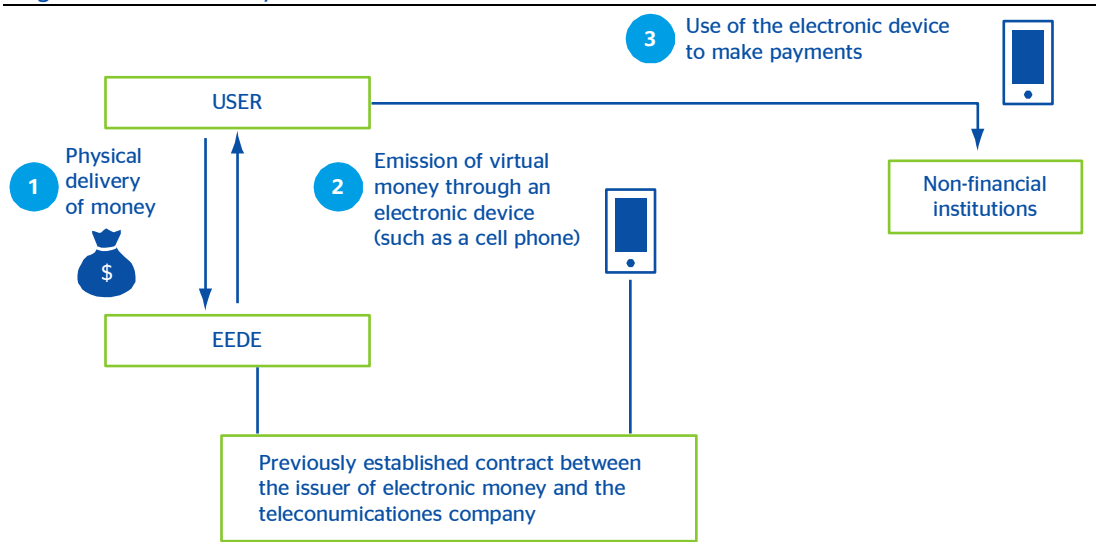
The regulations also establish that providing an e-money service is limited to companies under the supervisory framework of the financial system, regulated by the Banking and Insurance Superintendency (SBS), such as banks, financial companies and savings banks. Nevertheless, in order to boost competition among providers of this service, the law creates Electronic Money Issuer Companies (EEDE) which are specialized companies supervised by the SBS whose main purpose is to issue e-money. EEDEs are not permitted to grant loans and may only carry out transactions linked to their main purpose. In addition, the regulations implementing the law establish that EEDEs may contract third parties to channel transactions, while themselves remaining responsible for carrying them out. Whether operating via third parties or not, e-

1: According to the reasoning behind Draft Bill No. 4168/2009PE, this project used as background the consultancy document "Diagnóstico sobre el marco legal, regulatorio e institucional y otros aspectos del entorno, preparación de un plan de acción y su implementación" (Diagnostics of the legal, regulatory and institutional framework and other related aspects, preparing an action plan and implementing it) commissioned by the SBS from the company Analistas Financieros Internacionales in April 2009, within the framework of the technical cooperation agreement between the IDB and the SBS. This agreement aimed to support the government in developing a favorable atmosphere for providing financial services via electronic devices so as to help the poor access financial services.

money issuers are responsible for guaranteeing compliance with the provisions set out in the law.

According to the law, e-money functions mainly by users having to go to a branch office or non-banking channel (such as an EEDE), where they hand over cash that is then converted into virtual money with which customers are able to carry out transactions over their cell phones or another devices, charged to the converted cash balance. Underlying this is a contract between the bank or the issuer company and a telecommunications company.

Chart 1
Diagram of how e-money works



Source: BBVA Research, based on the Law governing e-money

The main features of e-money set out in Law No. 29985 are:

- It is stored in electronic format
- It is accepted as a payment method by entities or individuals other than the issuer and is officially valid for payment
- It is issued for a value equal to the funds received
- It is convertible for cash as per the monetary value the holder has available. The contract shall clearly and expressly stipulate the cash reconversion terms and conditions, which shall be notified to the e-money holder.
- It is not a deposit nor does it earn interest. It is therefore not supported by the Deposit Guarantee Fund.

In addition, the law states that:

- e-Money issuers should constitute trusts for the e-money value issued under the provisions stipulated by the SBS.
- A bank account is not required to use e-money.
- The issuing of e-money should be associated with an e-money account corresponding to the duly identified holder.
- E-Money issuers are subject to the e-money issuing limit of one Taxation Unit (UIT, currently PEN 3,700) per transaction.
- E-Money issuers may not establish a limit on the validity of the e-money funds other than that stipulated by the regulations. If 10 years pass without an account having any transaction and no claim in this period being made, the funds shall be remitted to the General Directorate of Public Debt and the Treasury at the Ministry of the Economy and Finance (MEF).

- The issuing of e-money by EEDEs is free from general sales tax (IGV) for a period of three years.
- EEDEs are liable to customers and the authorities for the actions of their employees and any of the correspondents that perform any activity or provide any service on their behalf exclusively related to the issuing of e-money.

Furthermore, in July 2013 the SBS pre-published[2] additional regulations for the Law governing e-money. The following provisions are of particular interest.

They define the electronic means for using e-money:

a. Cell phones

b. Prepaid cards

c. Any other equipment or electronic device that complies with the purposes established by the law.

All should have technology platforms that allow transactions to be carried out securely in real time. The SBS may authorize technology platforms that follow another transaction system if it deems that the controls to be applied allow the associated risks to be properly managed. In these instances, the e-money issuer shall provide detailed information on the proposed method and attach the reports prepared by the Operational Risk Unit or equivalent.

Simplified e-money accounts have been created.

These are accounts that the e-money issuers make available to individuals and comply with the following conditions:

a. They can be opened by individuals from Peru or overseas.

b. Each transaction is subject to the limit of one thousand new soles (PEN 1,000).

c. The consolidated balance of e-money accounts for a single holder, in any form, at a single e-money issuer may not be above two thousand new soles (PEN 2,000) at any time.

d. Cumulative conversions to e-money by a single holder, in any form, at a single e-money issuer within a month may not be above two thousand new soles (PEN 2,000).

e. Cumulative transactions (conversions, transfers, payments, reconversions to cash, etc.) by a single holder, in any form, at a single issuer in one month may not be above four thousand new soles (PEN 4,000).

f. Simplified e-money accounts may only be opened and operated in domestic currency in Peru. E-Money issuers should define procedures and measures aimed at monitoring compliance with the aforementioned limits and conditions.

Identification and verification requirements applicable to the holders of these simplified accounts shall contain as a minimum the full name of the holder, shown on their ID card, Overseas National Card or Passport with their current address as stated by the holder. In order to open e-money accounts using cell phones as the electronic devices, the phone number associated to the cell phone shall also be required.

The minimum identification and verification requirements applicable to holders for opening e-money accounts that do not comply with the characteristics to be considered simplified e-money accounts shall be governed by what is set out in Article 8 of the Supplementary Regulations for Preventing Money Laundering and Terrorist Financing.

This sets out the different ways contracts may be concluded:

EEDEs may conclude contracts via physical and non-physical channels (in the case of foreigners, only physical channels) as long as they comply with the following conditions:

2: A pre-published guideline is one that the SBS releases on its website so as to receive comments before being published as a regulation.

a. Contracting must be over the phone or online.

b. The e-money issuer must have appropriate mechanisms to guarantee security in the contracting process at all stages and have evidence of acceptance by the e-money account holder of the contractual terms and conditions which must be published beforehand on the issuer website. In these instances, no signature is required on the contract forms.

c. The e-money issuer shall deliver the contract to users within 15 days after it is agreed, as well as any other corresponding information in accordance with the current regulatory framework in the method agreed by the parties. They delivery may be made to the customer's address or online, providing the document can be read, printed, stored and reproduced without any changes being made to it.

The e-money issuer shall store the proof of what has been contracted on a long-term medium, as well as proof of the delivery of the contract and other documents in accordance with what set out in the Regulations on Transparency in Information and User Contracts in the Financial System.

With regard to telecommunications services used to provide financial services, the Law governing e-money stipulates that they should be offered in the same conditions to all companies providing them. The Supervising Body on Private Investment in Telecommunications (Osiptel), the telecommunications companies regulator, presented Regulations for the use of e-money in April 2013 which include the following among their main provisions:

- The obligation of telephone operators to provide e-money issuers with access to their networks (telephone) for offering their financial services.
- Use of these networks should be under equal conditions, meaning that in the event of operators also offering this financial service, they shall do so without any type of advantage.
- The telephone operators and e-money issuers shall freely enter into an "access agreement" with all the conditions, including the access price the issuers shall pay to the operators for the use, the data security conditions, and the responsibilities of both parties.
- These agreements shall be approved by Osiptel and be publicly accessible so as to guarantee equal terms and conditions.
- In the event that the operator fails to agree with the e-money issuer company, Osiptel is authorized to establish the conditions through a so-called access mandate.

The telecommunications services that may participate in this service are subject to the Single Consolidated Text of the Telecommunications Act (Supreme Decree 013-93-TCC) and the Single Consolidated Text of the General Regulations of the Telecommunications Act (Supreme Decree 020-2007-MTC). Financial system companies, as well as telecommunications companies that provide e-money services should, jointly, control the operational risks e-money users are exposed to. The financial regulator and the telecommunications regulator shall have an important role to play in minimizing these risks.

A factor to take into account in the regulations linked to e-money is minimizing the risk that it may be used for illicit activities such as money laundering or financing terrorism. For this reason, a proper record of transactions made as well as full identification of e-money users (ID document, address, employment, telephone number) at financial institutions and telecommunications companies will be key. Currently, companies in the financial system and also companies constituted as EEDEs fall within the scope of Law No. 28306 on money laundering. They are obliged to notify the Financial Intelligence Unit (UIF) about suspect transactions and to comply with the preventive measures set out in these regulations.

2.2 Assessment of the legal and regulatory setting for the main banking services and products

2.2.1 ATMs

SBS Circular B-2147-2005[3] states that ATMs are electronic devices that allow the company to provide certain transactions and services which are authorized under current regulations; they are interconnected with branch offices and company users may operate them via credit cards, debit cards or other mechanisms that require the use of PINs, electronic signatures or similar and that allow the respective holders or users to be identified via the procedure established by the company, duly notified to customers and accepted by them. In order to install ATMs, companies only require authorization to issue credit or debit cards. The installation of an ATM does not require special authorization by any regulator. In this sense, companies are free to install ATMs as they wish. Nonetheless, the number of operational ATMs at each institution should be duly notified to the SBS.

2.2.2 Correspondents

Their use is regulated by the same regulations as in the case above (SBS Circular B-2147-2005). The Circular defines them as establishments belonging to companies different from those in the financial system with which the company has contractual agreements to provide, via said establishments and under the company's responsibility, the authorized operations and services that the company may decide. These operations and services may include collecting outstanding debt via the use of lending facilities associated to credit cards, withdrawing money, transferring funds, cash deposits in the customers' own accounts or those of third parties, payment for services in general and other services for which the company is authorized.

The law establishes that the companies authorized to issue credit and/or debit cards may conclude correspondent agreements with natural or legal persons who run commercial establishments serving the public so as to perform therein the operations and services mentioned, as long as they comply with the terms and conditions set out by the SBS. Furthermore, express authorization from the SBS is required in a circular for a financial company to be able to establish a correspondent. The regulations of the law on e-money state that correspondents may act as third parties contracted by EEDEs to carry out operations and the SBS shall regulate the requirements and other conditions applicable to correspondents that operate with these companies. In addition, EEDEs shall ensure that the correspondents they contract have sufficient liquidity to deal with the transactions they perform on their behalf. Since in recent years this channel has gained share and acceptance, especially in more isolated and rural areas, their use for e-money transactions would particularly benefit this type of user.

2.2.3 Internet banking

In the specific case of internet banking, banks are free to offer any services they deem fit on their websites. Nevertheless, SBS Circular No. G-140-2009 "Data security management" (which takes as a reference international standards such as ISO 17799 and ISO 27001) establishes certain security criteria in different fields including logistics security, personal security, physical and environmental security, asset inventory and information classification, managing operations and communications, developing and maintaining IT systems and data privacy. In terms of data privacy, the regulations state that in the case of security in fund transfer transactions over electronic channels, companies shall implement a customer authentication system based on two factors as a minimum. Where the internet is the electronic channel, one of the authentication factors shall be dynamic generation or assignment. Companies may use other means of authentication as long as they provide an equivalent or higher level of security than with the two stated means, particularly when dealing with major operations, according to the limits that the bank sets in line with the characteristics of the product or service offered.

3: SBS Circular B-2147-2005 "Provisions are established for the opening, conversion, transfer or closure of offices, the use of shared premises and ATMs and correspondents", June 2005

The company shall take into account the associated operational risks in designing procedures, defining limits and the security and infrastructure required for safe and correct fund transfers. At present, in order to use internet banking services, in addition to requiring users to register and authorize transactions being carried out over this method (usually via a telephone call made from a number registered by the customer), banks use a variety of security methods for these transactions, including token devices, coordinate cards, internet transaction codes, or user pre-determined images (or stamps).

2.2.4 Payment systems and settlement of securities

Law 29440 on payment and securities settlement systems sets out the legal framework for these systems which are used to perform fund or security transfer orders. This system comprises the Real-Time Gross Settlement System (RTGS) run by the Central Reserve Bank (BCR) and used for high-value interbank transfers, the Automated Clearing House (CCE) that provides consistency to low-value transactions with settleable instruments, the multibank securities settlement system at the BCR, and stock market transaction and sovereign bond settlement systems, among others. Not all financial system companies have access to and use these systems. For example, in the case of the CCE, a private company constituted in the year 2000, 13 of the 16 banks, 7 of the 13 municipal savings banks and a financial company take part in it with prior authorization from the BCRP[4].

2.3 Authentication, validation and identification of customers via non-physical banking channels

Although the SBS shall issue supplementary regulations that may be necessary on information transparency and contracting with users applicable to EEDE companies, the Electronic Money Act sets out the possibility of implementing transactions with an electronic National Identity Card. For this, the National Identification and Civil Registry (RENIEC), in coordination with relevant sectors, would enable the corresponding applications so that the electronic ID card stores information for financial, banking and non-banking uses, with the user's authorization and in accordance with Law No. 29733 on data protection.

The issuing of the electronic ID card falls under the framework of Law No. 27269 "Digital Signatures and Certificates" which sets out a citizen's right to communicate with the government via electronic means and, in turn, the government's obligation to provide online services. The Law defines the electronic ID card as an identity document issued by the RENIEC which accredits the personal identity of the holder physically and electronically, allowing the digital signature of electronic documents and exercising the right to vote in person. Other benefits include the document allowing users remote access to other private services (such as e-money) that use the electronic ID card. This new document would be similar to a credit card and include a chip that would store individuals' information such as personal details, electronic signature, among others, and could also include banking information if the person so desired.

4: Financial institutions taking part in the CCE are banks: Azteca, BBVA, B. del Comercio, B. de Crédito, Banco de la Nación, BCRP, B. Falabella, Citibank, B. Financiero, HSBC, Mibanco, Scotiabank, BIF, Interbank, Santander; savings banks: Arequipa, Sullana, Trujillo, Caja Metropolitana, Piura, Cusco; and financial companies: Crediscotia

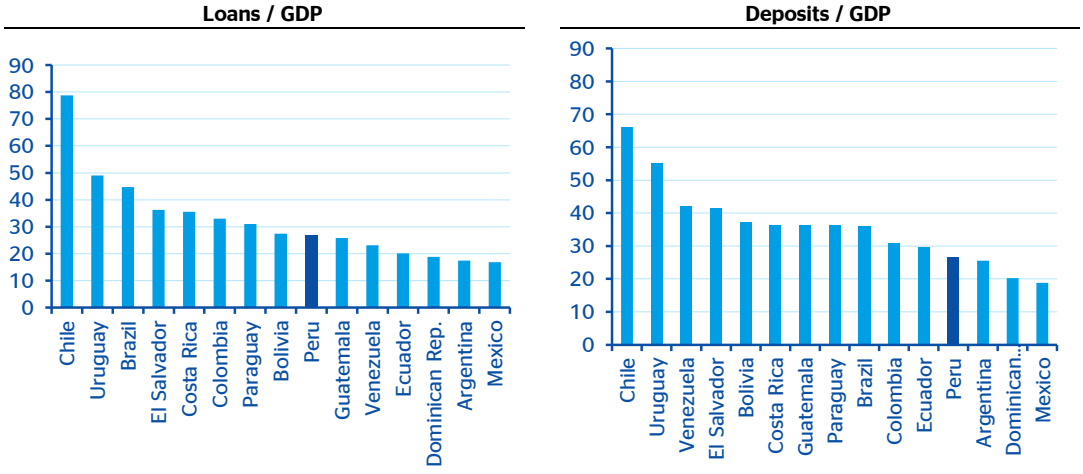
3. Local banking, banking penetration levels and the telephone market

3.1 Local banking and banking penetration

The Peruvian financial system is made up of different companies including banks, financial companies and non-banking microfinance institutions (including municipal savings banks, rural savings banks and SME development entities called "edpymes"). All these institutions are supervised by the Banking, Insurance and APF Superintendency under Law No. 26702 "General Financial and Insurance System Law and Organic Law on the Banking, Insurance and AFP Superintendency (SBS)". According to SBS statistics, at the end of 2012, there were a total of 60 such institutions, with assets valued at PEN 253 billion. Banks had the largest share of these assets, at 86%. Banks are the biggest institutions in the system and where most intermediation business is concentrated. They account for around 84.7% of loans issued by the system and 79.5% of total deposits. In general, the Peruvian banking market has a similar market structure to that in several emerging economies and here the four largest banks (Banco de Crédito, BBVA Continental, Scotiabank and Interbank) concentrate 83.3% of issuances and 82.9% of banking deposits[5].

Banking system lending and deposits have seen major growth in recent years, with the period between 2007 and 2012 recording cumulative changes of 121% and 100% respectively. Despite this, the level of banking penetration is not high enough, leaving a large part of the population outside the system and below the levels seen in other countries in the region.

Chart 2
Banking penetration ratios

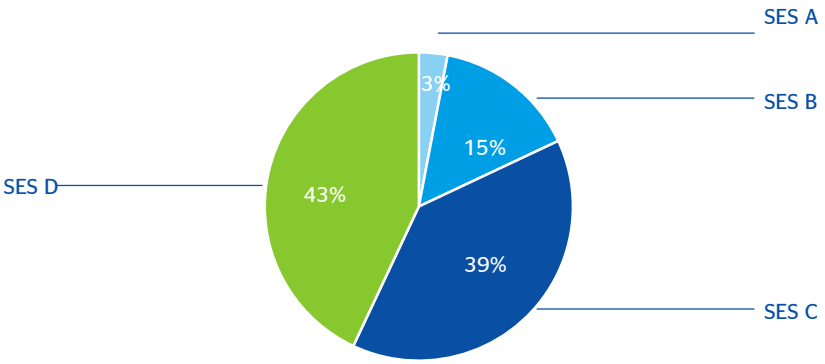


Appendix 1 lists the financial institutions and their assets, as well as the loans and deposits of every bank.
Source: IPSOS APOYO

According to the BBVA report "Guidelines for promoting Credit and Savings in Peru"[6], sectors with low purchasing power have limited access to financial products and, in addition, 82% of those without a bank account (in the case of Lima) fall into Socioeconomic Status (SES) C and D according to data from Ipsos Apoyo.

6 : For further details on bancarization in Peru, see the report "Guidelines for promoting Credit and Savings in Peru" http://www.bbvaresearch.com/KETD/fbin/mult/WP_1301_tcm346-364148.pdf?ts=1222013

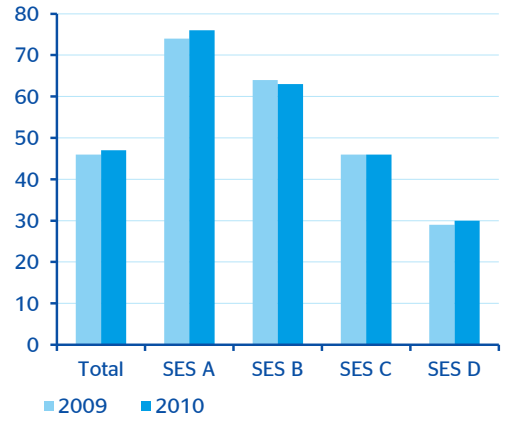
Chart 3
Profile of non-bank users, Lima



* Base: total non-bank users (270) out of a total of 562 surveyed.
Source: IPSOS APOYO

In the case of those with bank accounts, the same study showed that access to financial products for the lowest income groups, C and D, is significantly lower than that registered in groups A and B.

Chart 4
Bank use by socioeconomic level and penetration of main products



Source: Ipsos Apoyo

Table 1
Bank use by socioeconomic level and penetration of main banking products

	2010 Total	Socioeconomic level A	B	C	D
Credit cards	31	63	52	27	18
Current account	20	39	30	22	7
Savings account	13	36	22	9	7
Personal loan	6	18	7	5	4
Time deposit	1	9	0	0	0
Mortgage loan	0	5	0	0	0

Source: Ipsos Apoyo

The effort made by financial institutions to increase coverage and reach more customers is seen in the improvements made to infrastructure and technology. Banks are ahead of other non-banking financial institutions, as reflected in the higher number of branch offices, ATMs, correspondents, credit and debit cards, as well as a wider variety of products and services.

Table 2
Infrastructure of companies in the financial system

	Branch offices	ATMs	Correspondents	Credit cards	Debit cards
Banks	1734	6464	16096	5842638	11541627
Financial companies	574	5		1423459	320985
Municipal savings banks	556	316	2800		1535500
Rural savings banks	243	32	60		151877
Edpymes	222				

Source: SBS

The number of branch offices of institutions in the financial system currently runs to 3,329, of which 52% are banks, 17% financial companies, 17% municipal savings banks, 7% rural savings banks and 7% edpymes. In terms of ATMs and correspondents, the advantage of banks over other institutions is even clearer, with a share of 95% and 85% respectively. The branch offices of financial institutions, as well as their ATMs and correspondents, are mostly located in urban areas, with a high concentration in Lima and almost no presence in rural and more isolated areas, which is exactly where those on lower incomes can be found who are generally excluded from the system.

Table 3
Financial system service channels per 100,000 people

	Branch offices		ATMs		Correspondents	
	2001	2009	2001	2009	2006	2009
Lima and Callao	8	14	10	27	12	34
Piura	4	10	2	9	5	14
Arequipa	6	13	5	20	9	47
Ica	6	12	4	17	9	24
Tacna	8	16	5	16	7	23
La Libertad	4	10	3	12	4	18
Junín	3	9	2	9	4	20
.....						
Huánuco	2	5	1	4	1	5
Ayacucho	4	8	1	7	1	6
Puno	3	6	1	4	1	5
Pasco	5	7	1	5	3	9
Apurímac	4	8	1	4	2	5
Amazonas	3	6	1	5	0	6
Huancavelica	2	4	0	10	1	5
Country total	5	10	5	16	7	21

Source: SBS

As can be seen in the table above, there is a huge difference between the density of banking channels in Lima in comparison to the provinces, and between cities with higher incomes and those in mostly rural or low income areas. This is exactly where a solution is being sought through the development strategy for mobile banking channels and the use of e-money.

3.2.1 The Role of Banco de la Nación (BN)

Banco de la Nación is a public company, part of the Economy and Finance Sector, which operates with economic, financial and administrative independence. The bank is governed by its Statute, the Law on State Business Activity and additionally by the General Law on Banking, Financial and Insurance Institutions. The purpose of the bank is to manage by delegation the

sub-accounts of the Public Treasury and provide the Central Government with banking services to administer public funds. [7]

In addition to these functions, the BN has attempted to provide financial services to less fortunate sectors of the population such as those linked to agricultural activities, public sector workers or those who live in rural or low income areas where BN is often the only available banking option. Thus 80% of BN branch offices are located outside Lima and Callao, although in contrast, around 60% of loans granted are in the latter two regions.

The efforts made by BN in taking banking services to isolated areas include:

- The "Mobile Rural Banking" program that comprises taking its main services, via mobile units with satellite technology, to Sunday fairs held in inland rural areas. The main services at these fairs include opening savings accounts, replacing debit cards, savings deposits/withdrawals, current-account deposits, cashing checks, paying taxes and service payments.
- Framework agreement with the Peruvian Federation of Municipal Savings and Loan Banks. Affiliated municipal savings banks could, through this agreement, use banking infrastructure, agencies and other BN service channels around the country to extend credit supply to micro-enterprises.

With regard to mobile banking, the BN plans to implement a mobile banking service in the rural sector aimed particularly at rural populations that are still not part of the financial system. This program lies within the framework of the Law on Electronic Money and is a joint project between the BN, the Ministry of the Economy and Finance (MEF), the Superintendency of Banking, Insurance and AFP (SBS), the Central Reserve Bank (BCR), as well as other institutions. Only access to an analog cell phone is required to access the service and the transfers are for amounts not above PEN 1000.

3.2 The Mobile Telephony Market

Osiptel has been in charge of the regulation and supervision of the Peruvian telecommunications market since 1993 (see Appendix 2). There are currently 34 million active lines in this market and three operators. The main mobile telephony companies are: Telefónica Móviles (Movistar), Nextel and América Móvil (Claro)[8]. Telefónica has 61% of lines currently in service, followed by América Móvil with 35% and, to a lesser extent, Nextel with 4.0%.

In terms of service contracts, 81.8% of lines are prepaid, where no account statement or equivalent document is issued, and usage depends on "top-up cards" purchased by subscribers. In May 2010, Supreme Decree No. 024-2010-MTC was approved on the rectification procedure for information included on the prepaid subscriber record. This regulation obliges mobile telephony operators to record the name and national identity document (DNI) of all prepaid subscribers so that they can be identified. Lines failing to comply with this were disconnected definitively in March 2011.

7: Definitions from: http://www.bn.com.pe/nuestro-banco/giro.asp
8: América móvil entered the Peruvian market in 2005 when it bought the operations of TIM Perú. Telefónica acquired the operations of Bellsouth in 2004

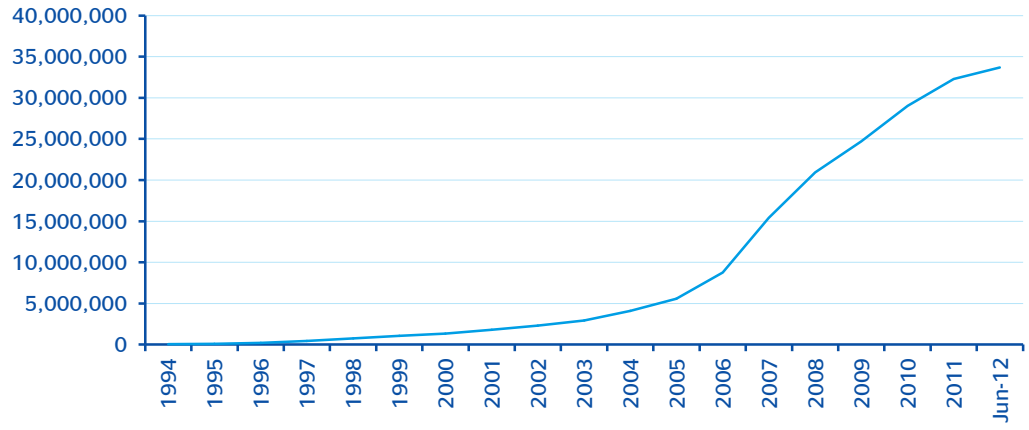
Table 4
Rectification procedure for information included on the prepaid subscriber record, number of lines

	Partial disconnection	Total disconnection	Final disconnection	Final delisting
	14/09/2010	03/12/2010	01/03/2011	01/03/2011
Telefónica	1102992	858622	827769	827769
Claro	246945	131939	83332	83332
Nextel	5336	493	185	185
		Total lines withdrawn		911286

Source: Osiptel

In addition, there is a post-payment plan with cell phone lines that include a fixed monthly payment and where additional calls can be made via prepaid cards. This type of line represents 14.1% of all lines. The remaining 4.1% belong to control plans which include a fixed monthly payment and additional calls made exclusively with prepaid cards.

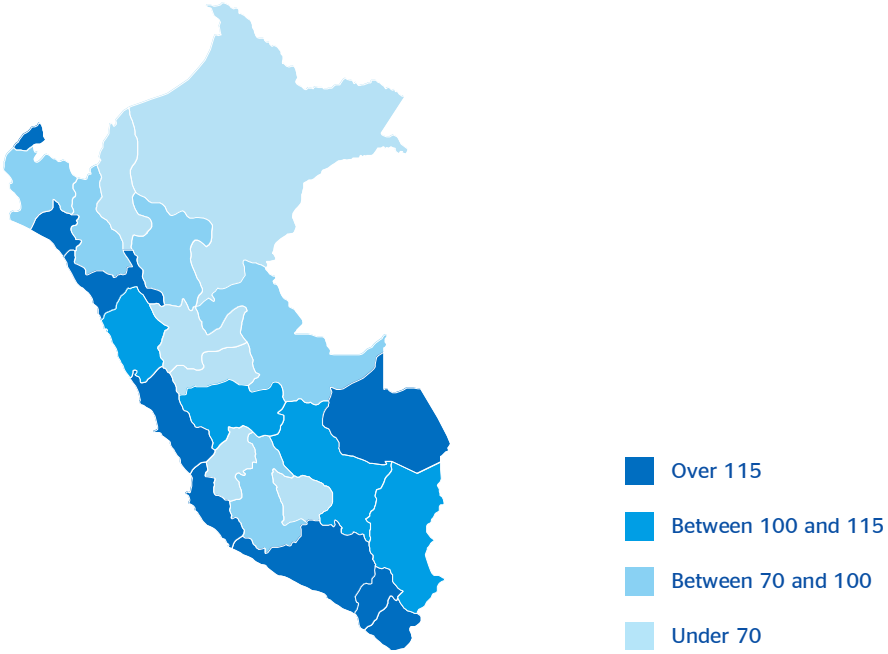
Chart 5
Mobile telephony: number of lines in service



Source: Osiptel

In recent years the number of active lines has grown significantly, doubling between 2008 and 2012. On average, the density of lines in Peru (measured as the number of lines per 100 people) is 117.4. This level of cell phone penetration may be an important starting point for bancarization strategies via the use of e-money on cell phones. Like other services in the country however, mobile telephony has higher concentration in urban areas, less so in rural or low income areas. In fact, 46% of all lines are in Lima and Callao, representing a density of 161.6. This indicator varies considerably depending on the region. In poorer regions such as Huancavelica and Loreto, the number drops to 27.3 and 42.3 respectively, testifying to the growth potential in these regions.

Chart 6
Density of telephone lines by region (number of lines per 100 inhabitants)



Source: Osiptel

Coverage has increased fourfold in the last five years, reaching 90% of districts (around 1,728 districts covered by one operator, according to Osiptel data to March 2012, representing a year-on-year growth rate of 6%). There are still some districts where coverage has not reached and are mainly located in hard-to-reach rural and low income areas, mainly in regions such as Loreto, Amazonas, Huancavelica[9].

Inclusion plans on the government's agenda also include the expansion of broadband to help internet access with national coverage. More details of the regulations and initiatives for this specific point are included in appendices 3 and 4.

4. The market for mobile banking and quantifying its potential

This section sets out the main products and channels in the banking system, based on survey information of potential demand for developing mobile banking in Peru.

4.1. Products, services and banking channels in the market

Banks have a catalog of products and services that aim to meet customer requirements, subject to the limitations allowing them to provide the services both in terms of real feasibility and regulations governing the market. The main products are classified according to objectives such as opening a deposit account, applying for a loan, or having a means of payment. In turn, these products are linked to different types of services related to access, the possibility of making transactions or enquiries, among others, as seen in the table below.

9 : The total coverage list by regions, provinces and districts according to operator can be found at the following link: http://www.osiptel.gob.pe/WebSiteAjax/WebFormGeneral/sector/wfrm_Consulta_Informacion_Estadisticas.aspx?CodInfo=13478&CodSubCat=864&TituloInformacion=2.%20Indicadores%20del%20Servicio%20M%c3%b3vil&DescripcionInformacion=

Table 5
Catalog of the main products and services offered by banks

	Products	Services
Deposits	• Savings accounts. • Current accounts. • Time deposits. • Salary accounts. • Compensation for service time (CTS). • Accounts in other currencies. • Bank certificates. • Variable interest deposits.	• Opening accounts. • Cash withdrawals and deposits. • Transfers between own accounts and to third parties. • Payment of services or credit cards. • Balance enquiry. • Automatic charging for payments • Buying/selling foreign currencies • Prepaid cell phones top-up • Issuing checks
Loans	• Personal loans (consumer). • Car loans. • Mortgage loans. • Study loans. • Loans for foreign trade. • Financial leasing. • Factoring.	• Loan application and payment. • Simulation of repayments. • Consultation of payment schedule. • Loan repayments.
Cards	• Credit cards. • Debit cards (linked to a deposit account). • Credit cards linked to retailers (gas stations, airlines, etc.). • Prepaid cards.	• Card application and delivery. • Simulation of repayments • Transfers of debt and to line repayments. • Cash withdrawal. • Card account statement enquiry. • Points collection and exchange. • Consultation of payment schedule.
Other	• Indirect credits: guarantees, finance letters, letters of credit, unused facilities… • Investments (asset management, mutual funds, stock market brokerage). • Insurance (life, life savings, cancer, unemployment, card protection, payment protection, hospitalization income, others).	• Money management. • Purchase/Sale of stocks. • Purchase / Sale of mutual fund shares. • Purchase / Sale of insurance.

Source: Various banks, SBS

These products and services are accessible over different channels which, in general, can be categorized as follows: (i) bank branches or agencies, (ii) correspondent agents, (iii) ATMs, (iv) telephone banking, (v) online banking and (vi) mobile banking. The most used out of these are the first three, although ATMs generally tend to be located near an agency or agent.

All transactions or services the customer may require can be carried out through the bank branch or agency channel. In some instances, using this channel involves additional payment for the service provided (e.g. some bank accounts only allow a certain withdrawals over the counter and after this, additional withdrawals are subject to a fee set by the institution). The number of branch offices in the banking system runs to 1,752, most of which (60.4%) are in Lima, followed by the regions of Arequipa, Piura, Ica and Lambayeque, i.e. mainly urban areas with a higher population and customer density, meaning the expense of opening a branch office can be justified.

In turn, correspondent agents are located in retailers such as grocery stores, supermarkets or pharmacies, and aim to take advantage of the infrastructure of these establishments, especially in rural or low customer density areas, where opening a bank branch would not be profitable. In spite of the fact that correspondent agents offer most of the services available at agencies, they are mainly linked to cash deposits and withdrawals for those who are already in the banking system. Nevertheless, this method has significant potential thanks to its flexibility in penetrating hard-to-reach areas for traditional branch offices and to its potential to act as a complement to the future development of a mobile banking system. In using e-money, the possibility of topping up the device at a correspondent agent would be beneficial for financial inclusion, particularly for those on low incomes or in more remote areas, where the supply of these services is not as accessible. Furthermore, some banks have "Basic Accounts" that can be opened at correspondents and operate only through this channel (not via ATMs, branch offices or a cell phone). In this respect, it should be pointed out that Peruvian regulations are not clear

regarding the opening of accounts via non-physical channels or physical channels that do not require any documentation to be handed over. This is a very important point in lowering the costs of services to those on a low income: customer identification processes need to be clear and flexible so that banking is able to introduce low-cost products allowing viral expansion of the model, all coupled with a risk model for products such as these.

Table 6
Banking channels and their main features

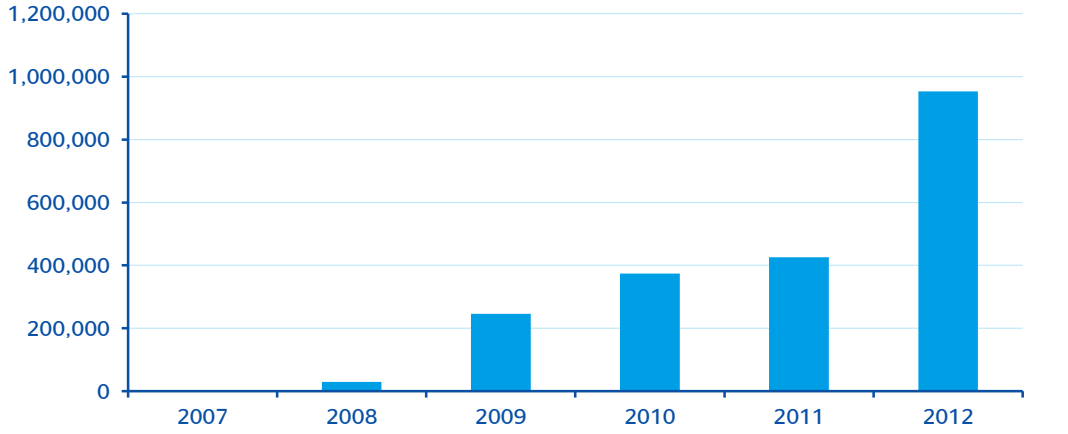
Banking agencies	ATMs	Correspondent agents	Online banking	Telephone banking	Mobile banking
Channel offering customers all products and services	Channel offering customers services linked to accounts, especially cash withdrawals	Channel improving the availability of services, especially for customers in areas where the range of banking services offered via agencies or ATMs fails to reach or is patchy	Channel improving the availability of services for all customers, without taking into account location or times		
Only channels allowing inflows and outflows of cash					
Only channel increasing banking penetration by opening accounts, loan payments or dispatching cards					

Source: BBVA Research

As the above diagram shows, the only channel allowing products and services to be offered to "non-customers" continue to be banking agencies/branch offices. In addition, incoming and outgoing of cash is limited to agencies, agents and ATMs. The idea of creating e-money, the mobile wallet and new applications to be developed over mobile banking is that, in addition to other channels (as mentioned previously in the case of correspondents), they allow better service for customers and a wider range for non-customers, i.e. increasing inclusion levels.

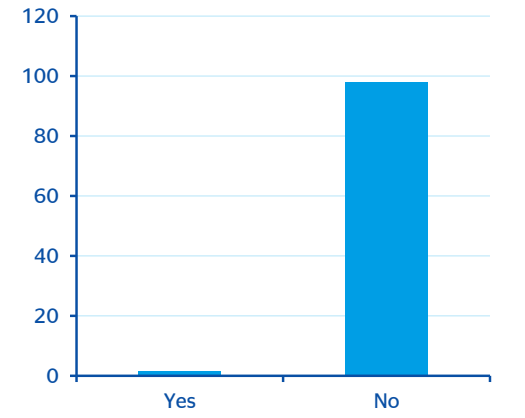
At the end of 2012, transactions made via mobile telephony only represented 0.1% of all banking transactions. At present, mobile banking in Peru has mainly been used as a service channel offering balance queries, account and credit or debit card transaction enquiries, topping up cell phones, or receiving text alerts on salary payments or purchases. There are also various applications developed for smartphones to locate ATMs or service points, consult transactions, pay electricity, cable, or water bills, etc. Banks are currently working on extending transactions that can be carried out through mobile banking, especially with the introduction of the e-wallet. Global Findex figures show similar results at the level of user per quintile.

Chart 7
Number of mobile banking transactions at banks



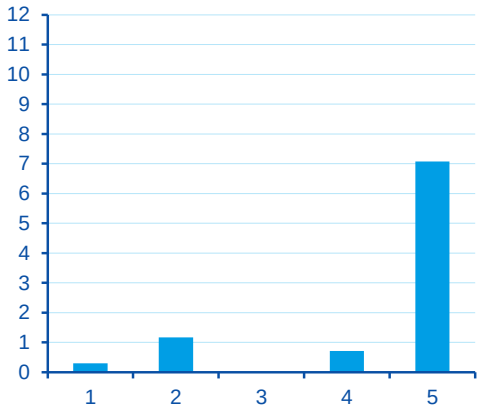
Source: Asbanc

Chart 8
Use of cell phone to pay accounts. In the last 12 months, did you use your cell to settle accounts?



Source: Global Findex

Chart 9
Use of cell phone to pay accounts. Use of cell phone to pay accounts according to income quintile



Source: Global Findex

4.1.1. Types of mobile banking

Mobile banking in Peru comprises mobile banking via SMS and some applications developed by banks for use with smartphones. For SMS banking, the service is usually free for customers and can be accessed from simple cell phones on different telephone networks. Below is a chart with some examples of the main features of this service provided by the four main banks.

Table 7
Forms of mobile banking via SMS in some banks

	Subscription	Transactions	Operation
BCP	• Online subscription possible • Requirement: having a current account, master account.	• Check account balance and transactions • Transfers between BCP accounts. • Top up movistar cell phones.	Bank customers subscribe to the service on the BCP website and create an alias for each account and cell number they wish to register. From this time, they can carry out the following operations by sending SMS with the following commands: **Operation** — **How to write the SMS** Balance enquiry — SAL + account alias Cell top up — REEC + charge account alias + amount + cell alias Transfers between accounts — TRAN + charge account alias + amount + currency (S soles Dollars) + recipient account alias
BBVA	• Telephone subscription possible • Requirement: being a BBVA customer	• Account balance enquiry • Card balance enquiry • Vida program points enquiry	• When customers subscribe to the service over the phone, they also need to assign an alias to each account and card. • In order to check balances, they only need to send an SMS: SALDO + Account or card alias.
Interbank	• Subscription is available online, at Globalnet ATMs or by sending an SMS	• Cell top up. • Check account balance and activity. • Credit card payment. • Transfers between accounts. • Loan payments. • Blocking cards.	Each account or card has an alias; based on this, by using the following commands in SMS you can: **Operation** — **How to write the SMS** Balance enquiry — SALDOS Check activity — MOVIM + "acc. alias" Help request — AYUDA + "service code" Block card — BLOQUE + "card code" Check exchange rate — TIPOCA + "currency code" Transfers between accounts — TRASF + "origin acc. alias" +"recipient acc alias" + "amount"+ "currency" Pay cards — PAGOTC + "origin acc. alias" +"recipient acc alias" + "amount"+ "currency" Loan payment — PPREST + "origin acc. alias" +"recipient acc alias" + "amount"+ "currency" Cell top up — RECARGA + "amount" + "origin acc. alias"

Source: Bank websites

In the case of iPhone, Android and Blackberry applications, bank customers with these devices can download the free app prepared by the bank. The main functions offered by these apps are: check balances and transactions, carry out transfers between accounts, top up cell phones, locate branches, ATMs and agents. The case of "B móvil" is explained in more detail in appendix 6.

4.2 Demand for mobile banking

This section looks at the available statistical information to uncover the main characteristics of people who use banking services, those who do not and those with a cell phone. These data are used to quantify potential users and new users of banking services (potential demand) via e-money and mobile banking. The information sources used for these purposes are the 2011 National Household Survey (ENAHO) and Global Findex.

First, we have the analysis of the 2011 National Household Survey which comes from continuous statistical activity carried out by the National Institute of Statistics and Information Technology (INEI), allowing updated information to be obtained on standards of living, household expenditure and income. The survey is carried out nationwide in urban and rural areas in the country's 24 regions and the Constitutional Province of Callao. Around 2,200 randomly selected households are visited per month. The main fields or attributes of individuals that are useful for the purposes of this paper are: gender, age, level of educational

qualifications, income level, the area where they live (urban or rural; coast, mountain or forest) and employment characteristics (salaried or self-employed worker, formal or informal).

The main questions identified in the ENAHO which we will use in analyzing potential demand discussed in the coming sections are:

- Does your household have a cell phone?
- Does your household have internet?
- What was your last monthly bill for cell phone use?
- How often do you use internet?
- Have you used internet to purchase products or services?
- Have you used internet for online banking transactions?

For the purpose of the work we are carrying out, the main limiting factor in the National Household Survey is the lack of information on banking penetration levels. Nonetheless, we can take advantage of the data it contains on internet access and use according to different types of individual.

Second, we use Global Findex, a database constructed from a World Bank project aimed at covering information needs on financial inclusion, and providing data including saving methods, access to credit, and transactions carried out in order to develop inclusion policies. The survey was carried out in 2011 in 148 countries, including Peru, on people aged over 15. The sample (1,000 individuals) is representative of each country and randomly selected.

The main attributes of the individuals included in the survey are: gender, age, education and income quintile. In comparison to the ENAHO, here the main variable missing would be the individuals' geographical location. The main questions on the survey that are useful to us to measure potential demand include:

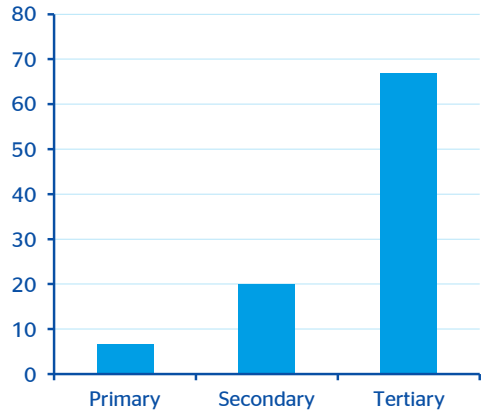
- Do you have an account at any bank or financial institution?
- Do you have a debit card?
- Do you have a credit card?
- Number of times you deposit/withdraw cash on your card per month
- Normally, where do you get cash when you need it (ATMs, bank branches, offices at retail establishments)?
- Did you make payments or purchase items from your account within the last twelve months via e-payment, including transfers or online payments?
- Reasons for not having a bank account
- Have you saved any money in recent months? Where?
- Did you receive cash loans in recent months?
- In recent months, did you use your cell to: settle accounts, send or receive money?

4.2.1 Characteristics of those with a bank account and system access levels

Access levels to the financial system are still very low. According to survey data from Global Findex, only around 20% of people have an account at a financial institution. Most of this group (93%) have secondary or tertiary education and 41% belong to the highest income quintile. The educational and income variables are directly linked to increased access to accounts at financial institutions and are key factors for achieving higher inclusion levels. Nearly 70% of those with higher qualification levels and around half of those belonging to the highest income quintile state they have accounts in the financial system (see charts below). Differences

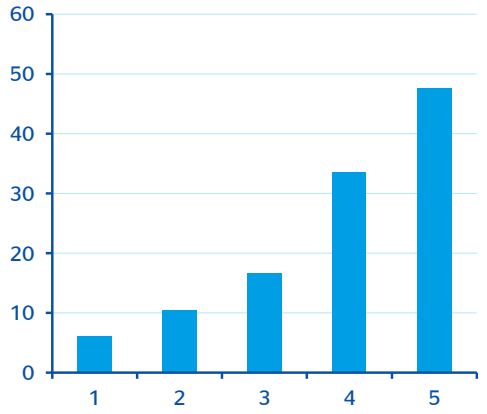
are also seen according to gender. While 23% of men have an account at a financial institution, this percentage drops to 18% for women.

Chart 10
Do you currently have a personal or joint account at any bank or any financial institution? By level of education



Source: Global Findex

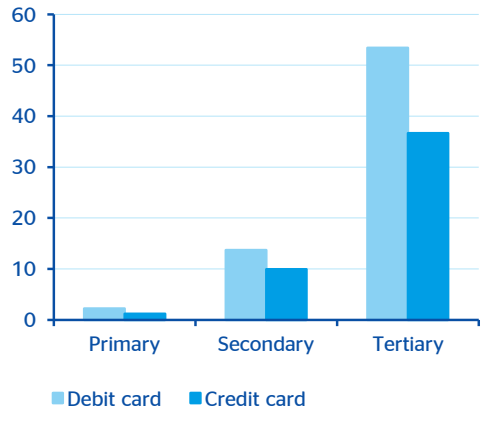
Chart 11
Do you currently have a personal or joint account at any bank or any financial institution? By income quintile



Source: Global Findex

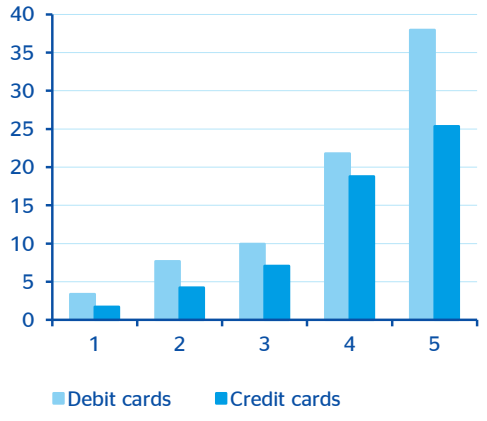
Penetration levels for debit and credit cards average 14% and 10% respectively. As with bank accounts, the higher the educational level or income, the higher the percentage using these instruments. In fact, only for those with tertiary education do we see 50% penetration for debit cards, while the level does not even reach 40% in the highest income quintile. The other groups, whether by education or income, show very small usage of this payment method. The low penetration for cards may also reflect the high informality levels in the labor market where very few people receive their wages through a bank or financial institution.

Chart 12
Credit and debit card ownership by educational level



Source: Global Findex

Chart 13
Credit and debit card ownership by income quintile



Source: Global Findex

The frequency of use for accounts or cards in the system is still at a relatively low level. Of those using banking services, 74% state that they deposit money in their accounts around 1-2 times a month, while 14% do so between 3 and 5 times. These percentages run to 57% for cash withdrawals and 22% for online payments and purchases. The most popular channels for withdrawing money are ATMs, followed by banking agencies or branch offices; for cash deposits, agencies continue to be the main channel (very few ATMs in Peru allow deposits).

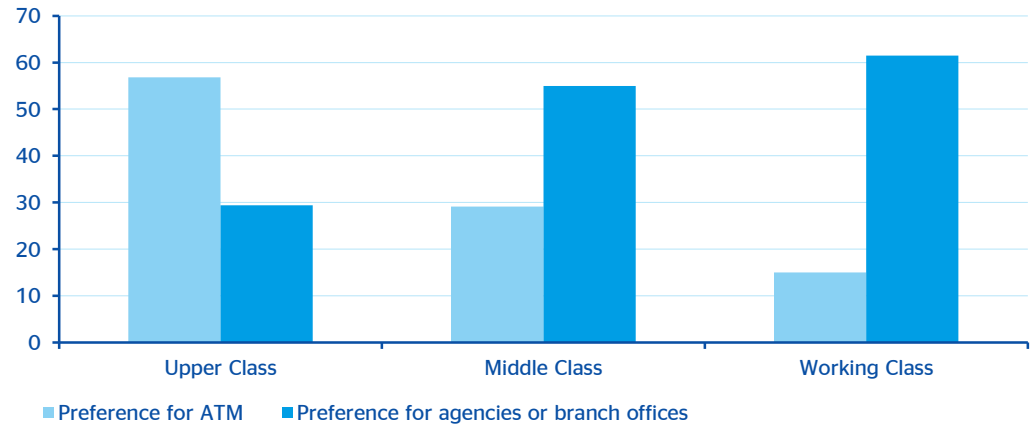
Preferences for using the different channels vary by individuals' income levels. For example, 57% of bank users belonging to the highest income quintile prefer to withdraw money at ATMs and 29% at branch offices; these percentages change considerably (15% and 62% respectively) when we look at bank users in the lowest income quintile. This difference can be explained in several ways; ranging from availability (areas where high income earners live could have more ATMs) to habits and understanding of technology (people on higher incomes and with higher educational levels understand how ATMs work more easily than those with lower education and, therefore, on lower incomes).

Table 8
Main channels for cash withdrawals and deposits

	Cash withdrawal	Cash deposit
ATM	43.6	2.6
Bank agency or branch office	40.1	65.7
Retail stores	2.0	3.5
Through another person associated with the bank or financial institution	0.5	1.6
No cash withdrawal/deposit	8.5	21.4
n.a	5.2	5.1

Source. Global Findex

Chart 14
Main channels for cash withdrawals by income quintile

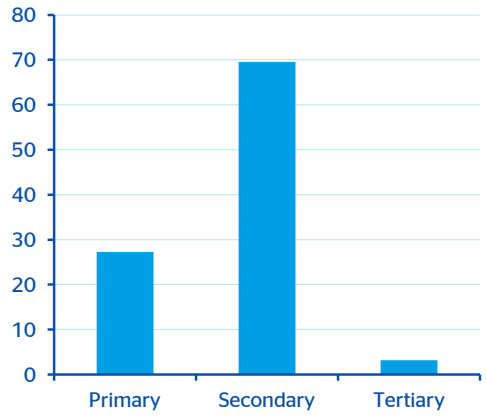


Source: Global Findex

4.2.2 Characteristics of the unbanked

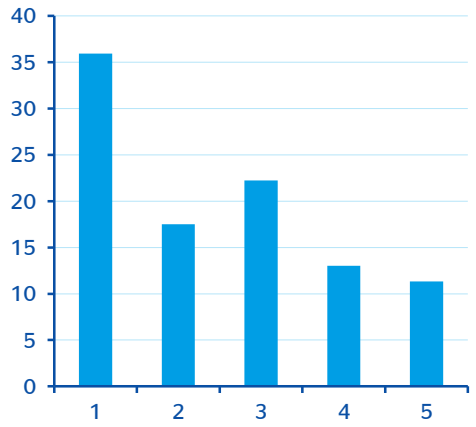
Three quarters (76%) of the unbanked (i.e. those who state they have no bank account or debit or credit card) belong to the three lowest income quintiles, and 97% do not have higher education (only having primary or secondary education).

Chart 15
Distribution of the unbanked by educational level



Source: Global Findex

Chart 16
Distribution of the unbanked by income quintile



Source: Global Findex

The main reasons people state for not having an account at a financial institution include: the perception that services are very expensive and they do not have enough money to use them. For low-income sectors, the financial system is not attractive, or is at least not yet seen as an attractive option. Economic channels such as e-money via ordinary cell phones (not smartphones) as well as an information campaign highlighting the benefits of bank use would be essential to increase inclusion levels. Trust in financial institutions is a third reason why people do not have an account in the system; while factors such as location (they are very far away) or the documentation needed, more closely linked to informality, are also factors that influence the decision to not have a bank account.

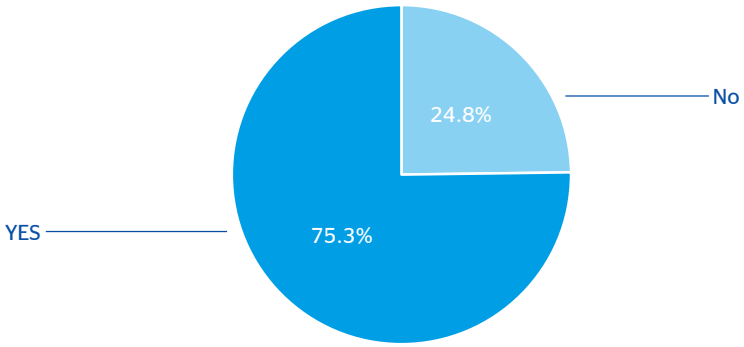
Chart 17
Reasons for not having an account in the financial system

Source: Global Findex

4.2.3 Access levels for mobile telephony

According to the 2011 National Household Survey (ENAHO), 75% of households have access to mobile telephony. The high penetration level of cell phones is an opportunity for making it a channel to increase banking penetration via known and available platforms for users.

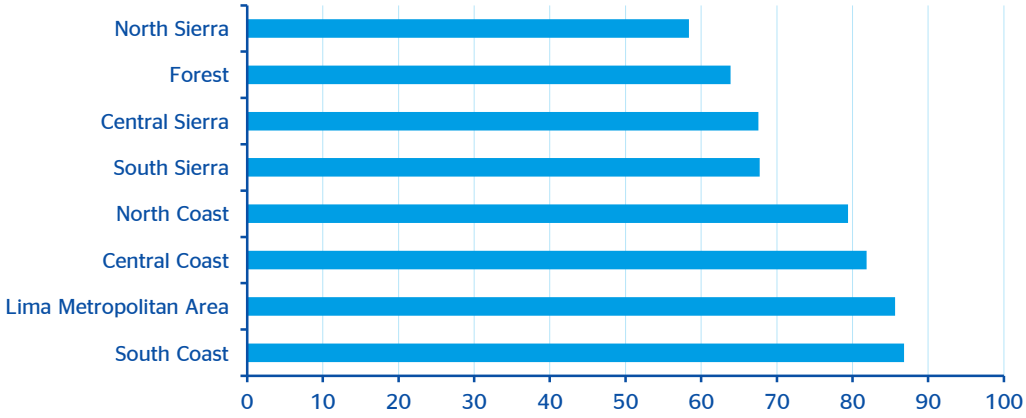
Chart 18
Does your household have a cell phone?



Source: ENAHO

Areas with a higher urban population such as the Metropolitan Area of Lima and coastal regions show higher mobile telephony penetration (on average, 15 pp higher) than more rural areas such as the mountains and forests (see chart below). Nevertheless, since in all instances mobile telephony penetration levels exceed those for financial services, we could say that the opportunities for banking penetration via this service (mobile banking with cell phone use) are broad across all geographical areas. Although the survey does not ask what type of cell phone people have, most are highly likely to be simple cell phones offering SMS functions but without internet access.

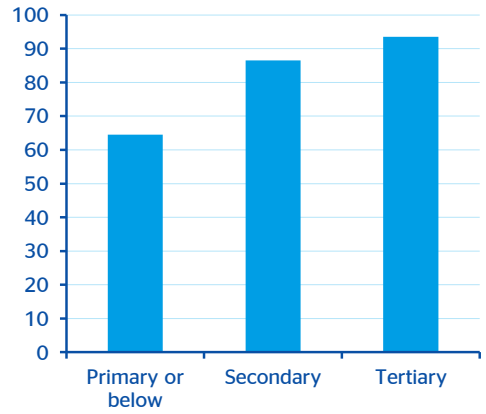
Chart 19
Does your household have a cell phone? According to geographical area



Source: ENAHO

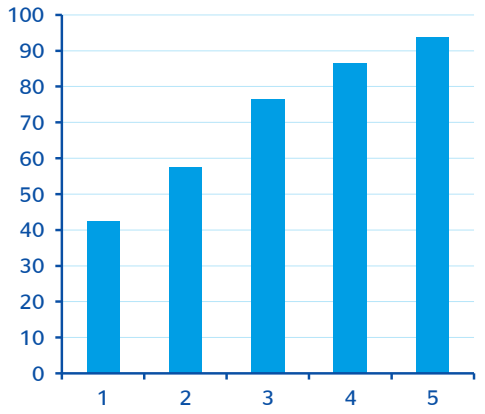
The qualification and income variables are again key factors in terms of access to basic services; here access to mobile telephony. As shown in the following charts, people with higher educational and income levels show higher cell phone ownership levels.

Chart 20
Cell phone ownership by educational level



Source: ENAHO

Chart 21
Cell phone ownership by income quintile

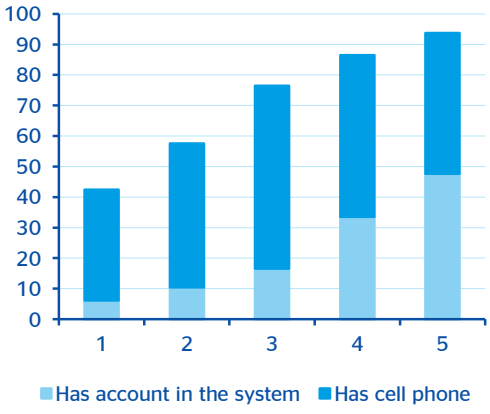


Source: ENAHO

4.2.4 Potential mobile banking market

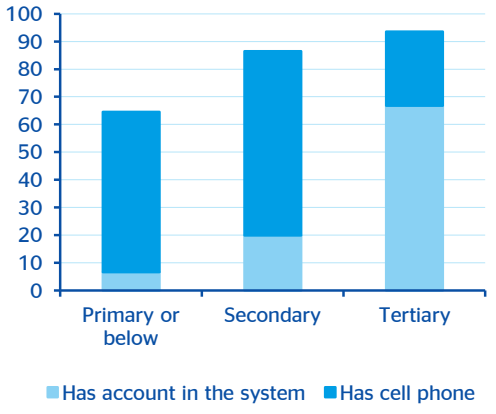
An estimate of potential demand for e-money among those without a bank account can be obtained by calculating the difference between coverage levels of those with cell phones (and therefore who would have immediate access to e-money) and those already in the banking system (measurements such as those who state they have a bank account on the Global Findex survey), in both instances broken down by income and qualification level. It is worth mentioning that although this would be an estimate of potential demand for these services, there are those who despite having a tool to access the financial system (which here would be mobile telephony) would not use the service due to issues of trust, culture or limited cell reception, as stated above.

Chart 22
Potential market by income quintile



Source: ENAHO, Global Findex, BBVA Research

Chart 23
Potential market by educational level



Source: ENAHO, Global Findex, BBVA Research

Analyzing the information by income quintile level, we can see that the potential for developing mobile banking averages around 40% with the widest gaps being in quintiles 2 and 3, where it comes to over 50%. These are precisely the groups with high mobile telephony penetration but where banking penetration has been very low. The lowest income quintile shows a potential of over 30%.

When this information is segmented into educational levels, the widest gap tends to be in those with high school studies where the difference is around 70%. This is due to a combination of high cell phone penetration and low access to the banking system. Those with primary education, in turn, show a coverage gap of around 60%, while those with a tertiary education show a gap of around 30%.

In general, these figures offer a conclusion that there is an significant opportunity for developing mobile banking, taking advantage of the wide prevalence of devices, much higher than current banking access, especially for those groups who are currently excluded. The experience of other areas that have followed this path could be extrapolated for Peru's economy, taking advantage of the current level of mobile communication technology in the country, introducing a regulatory framework geared towards this end.

As we stated, the use of the internet for online banking is also part of the broader search for inclusion mechanisms. Appendix 7 provides more details on the possible scope of this channel and what it means for the population.

5. Conclusions and prospects for the new e-money legislation within the framework of financial inclusion

This paper summarizes the progress in mobile banking in Peru and its link to the aim of financial inclusion. The latest e-money legislation provides interesting possibilities for developing the sector. Based on this, an estimate has been made of potential demand for the mobile banking channel in order to raise levels of financial inclusion, especially in those segments who have difficulties in accessing the financial system (those without any educational qualifications, on low incomes or living in rural areas).

To achieve this, we have used public surveys to discover the main socioeconomic characteristic of individuals as well as the determining factors for preferences regarding the use of mobile banking and connected services. Mobile banking and e-money are not currently in wide use in Peru. Indeed, the law governing the issuing of e-money, setting out the companies authorized to issue it and the regulatory and supervisory framework for Electronic Money Issuer Companies (EEDE) was passed recently in January 2013.

Factors such as educational and income levels will be key to understand the preferences in the use of mobile banking and financial channels in general. According to the Global Findex survey, around 93% of people who state they have an account at a financial institution have a secondary or tertiary educational level and 41% belong to the highest income quintile. For low-income sectors, the financial system is not attractive, or is at least not yet seen as an attractive option. Financial channels such as e-money over normal cell phones (which, according to the 2011 ENAHO, have a penetration of around 50% in lower income households), in addition to service points at non-banking correspondents and others added by the EEDEs, would be key to lifting inclusion levels.

Potential demand, measured as the difference between levels of coverage for those with cell phones and those already in the system, is around 40%. In the case of income quintiles 2 and 3, this percentage is above 50%, while for those with secondary education the gap widens to 70%. We could therefore say there is a major opportunity for developing mobile banking, taking advantage of the wide prevalence of mobile devices, which amply surpasses current financial system access levels. The experience of other countries that have introduced these channels could be an example for the Peruvian market, taking advantage of the current level of mobile communication technology in the country.

References

Afifundación (2011): "Servicios financieros móviles para instituciones microfinancieras en Perú.

Aparicio, C. and M. Jaramillo (2012): "Determinantes de la inclusión al sistema financiero: ¿Cómo hacer para que el Perú alcance los mayores estándares a nivel internacional?", Superintendecia de Banca Seguros y AFP.

Bendezú, L., L. Pacheco, D. argandoña and R. Espinoza (2012): "Banca móvil: aspectos tecnológicos y retos regulatorios", Osiptel

Circular SBS No. B-2147-2005: "Establecen disposiciones para la apertura, conversión, traslado o cierre de oficinas, uso de locales compartidos y uso de cajeros automáticos y corresponsales".

Circular SBS No. G-140-2009: "Gestión de la seguridad de la información".

Legislative Decree No. 702, the law on telecommunications.

Supreme Decree No. 013-93-TCC, the consolidated text of the law on telecommunications.

Supreme Decree No. 024-2010-MTC: "Rectification procedure for information included on the prepaid subscriber record."

Government of Peru (2011): "National Plan for Expanding Broadband in Peru."

Inga, P (2012): "Inclusión financiera a través de servicios financieros móviles."

Law No. 26702 "General Law on the Financial and Insurance System and Organic Law on the Banking, Insurance and AFP Superintendency."

Law No. 29985 (2012) "Law governing the basic characteristics of e-money as a tool for financial inclusion."

Law No. 28306: law on money laundering.

Law No. 29440 on payment systems and settlement of securities.

Law No. 29733 on personal data protection.

Law No. 27269 on digital signatures and certificates.

Ontiveros, E., A. Martín, S. Fernández, I. Rodríguez and V. López (2009): "Telefonía móvil y desarrollo financiero en América Latina", Telefónica Foundation and Inter-American Development Bank.

Pacheco, L., D. Argandoña, R. Espinoza and J. More (2012): "Evolución de las redes de telefonía móviles hacia la cuarta generación", Osiptel.

Perea, H., D. Tuesta, A.Ugarte (2012) "Lineamientos para impulsar el crédito y el ahorro en el Perú", BBVA Research Working Papers.

Prior, F. and J. Santomá (2008): "La Banca móvil como catalizadora de la bancarización de los pobres: modelos de negocio y desafíos regulatorios", IESE Business School.

Draft Bill No. 4168/2009 PE (2009) governing the basic characteristics of e-money as a tool for financial inclusion.

Sotomayor, N (2012): "Setting the regulatory landscape for the provision of electronic money in Peru", Superintendencia de Banca, Seguros y AFP.

Tecnocom (2011): "Tendencias en medios de pago".

Appendix 1: Institutions in the Financial System

Table 9
Institutions in the financial system, assets in millions of soles

Banks (16 institutions, 88.5% of assets)	**224158**
Banco Continental	49714
Banco de Comercio	1604
Banco de Crédito del Perú	82393
Banco Financiero	5318
Banco Interamericano de Finanzas	5917
Scotiabank Perú	31564
Citibank	5533
Interbank	23672
Mibanco	5562
HSBC Bank Perú	3842
Banco Falabella	2846
Banco Santander	2850
Banco Ripley	1302
Banco Azteca	809
Deutsche Bank Perú	1102
Banco Cencosud	76

Finance Companies (11 institutions, 4.1% of assets)	**10339**
Crediscotia Financiera	3927
Financiera TFC S.A	389
Financiera Edyficar	2715
Financiera Crear	708
Financiera Confianza	635
Financiera Efectiva	244
Financiera Universal	400
Financiera UNO	162
Amérika Financiera	502
Mitsui AutoFinance	405
Financiera Proempresa	253

TOTAL	253202

Municipal savings banks (13 institutions, 5.7% of assets)	**14548**
CMAC Arequipa	2977
CMAC Cusco	1280
CMAC del Santa	221
CMAC Huancayo	1242
CMAC Ica	858
CMAC Maynas	389
CMAC Paita	294
CMAC Pisco	67
CMAC Piura	2191
CMAC Sullana	1565
CMAC Tacna	748
CMAC Trujillo	1757
CMAC Lima	959

Rural savings banks (10 institutions, 1.2% of assets)	**2936**
CRAC Cajamarca	91
CRAC Chavín	117
CRAC Sipán	50
CRAC Libertadores de Ayacucho	44
CRAC Los Andes	130
CRAC Nuestra Gente	1019
CRAC Prymera	192
CRAC Credinka	370
CRAC Señor de Luren	899
CRAC Incasur	23

Edpymes (10 institutions, 0.5% of assets)	**1221**
EDPYME Alternativa	72
EDPYME Acceso crediticio	63
EDPYME Credivisión	29
EDPYME Micasita	89
EDPYME Nueva Visión	201
EDPYME Raíz	525
EDPYME Solidaridad	105
EDPYME Marcimex	38
EDPYME Credijet	7
EDPYME Inversiones La Cruz	92

Source: SBS

Table 10
Banking market share as of December 2012

Loans				Deposits			
Bank	Amount	Share	Cumulative share	Bank	Amount	Share	Cumulative share
Banco de Crédito	48,721	34.1	34.1	Banco de Crédito	51,987	37.3	37.3
BBVA Continental	33,539	23.5	57.6	BBVA Continental	32,178	23.1	60.4
Scotiabank Perú	20,855	14.6	72.2	Scotiabank Perú	17,001	12.2	72.6
Interbank	15,773	11.0	83.3	Interbank	14,332	10.3	82.9
Mibanco	4,732	3.3	86.6	BIF	4,156	3.0	85.9
BIF	4,133	2.9	89.5	Mibanco	3,733	2.7	88.6
B. Financiero	3,704	2.6	92.1	B. Financiero	3,460	2.5	91.0
Citibank	2,413	1.7	93.7	HSBC Bank Perú	3,192	2.3	93.3
HSBC Bank Perú	2,371	1.7	95.4	Citibank	2,788	2.0	95.3
B. Falabella Perú	2,285	1.6	97.0	B. Santander Perú	1,848	1.3	96.7
B. Santander Perú	1,545	1.1	98.1	B. Falabella Perú	1,440	1.0	97.7
B. de Comercio	1,142	0.8	98.9	B. de Comercio	1,296	0.9	98.6
B. Ripley	1,043	0.7	99.6	B. Ripley	744	0.5	99.2
B. Azteca Perú	525	0.4	100.0	B. Azteca Perú	645	0.5	99.6
B. Cencosud	19	0.0	100.0	Deutsche Bank Perú	503	0.4	100.0
Deutsche Bank	-	-		B. Cencosud	20	0.0	100.0

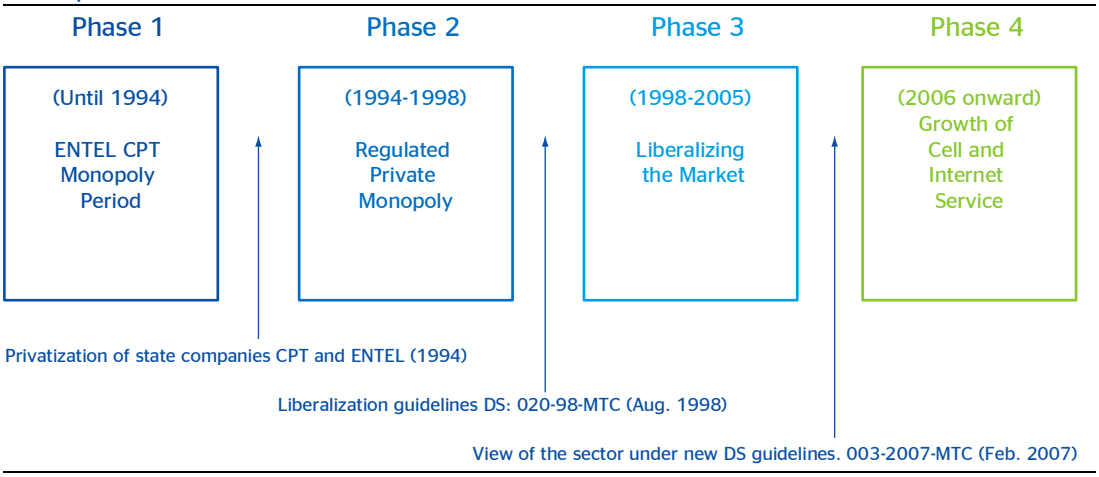
Source: SBS

Appendix 2: The history of the telecommunications regulator in Peru

Restructuring of the telecommunications sector in Peru began in the 1990s. In November 1991, the government enacted the Telecommunications Law (Legislative Decree No. 702) that allowed private investment and free competition in the sector. It also created the Supervisory Body on Private Investment in Telecommunications (OSIPTEL) which was to replace the Regulatory Commission on Telecommunications Rates. OSIPTEL began its supervisory and regulatory role for the sector in 1993, when the single consolidated text of the Law on Telecommunications was also published. This law sought to progressively dismantle the monopoly in local fixed line telephony and long distance national and international carriers by setting a period of limited competition. The privatization of the main telephone companies began in 1994, and CPT-Entel was merged with Telefónica del Perú in 1995.

Under current law in Peru, awarding a concession to provide public telecommunications services falls under the exclusive ambit of the Ministry of Transport and Communications (MTC), pursuant to the General Telecommunications Regulations (passed via Supreme Decree 06-94-TCC)[10].

Chart 24
Development of the telecommunications market



Source: Osiptel

10: The concessions awarded in the telecommunications sector can be found at the following link: http://www.mtc.gob.pe/portal/comunicacion/concesion/concesiones/regcons.htm

Appendix 3: Technological framework for mobile internet service, available plans[11]

A number of different platforms provide mobile broadband service, the main ones being:

Table 11
Mobile broadband service platforms

UMTS/HSPA (High Speed Packet Access)	• Better known as 3G or 3.5G, the abbreviation for third-generation mobile telephony. Reaches maximum speeds of 14 Mbps. Provides the possibility of voice and data transfer (telephone calls) and non-voice data (such as downloading programs, exchanging e-mails and instant messaging). • It is currently the most widespread among operators on the Peruvian market. Mobile broadband is mainly provided via wireless access technologies. • HSPA+ or 3.5G+ technology offers theoretical download speeds of up to 21 Mbps and carries voice and data over the same connection, it significantly increases HSPA capacity, provides improved performance and connection for real-time conversations and interactive services such as sharing photos and videos. In addition, this technology allows major battery savings and quicker access to content since it maintains a permanent connection.
GPRS and EDGE	• These also provide mobile internet access albeit at speeds a lot slower than the above.
WiMAX – Mobile	• Allows wireless broadband to be provided with mobility and higher speeds. Spectrum ranges have been assigned in Peru (2.5Ghz and 3.5Ghz) where this technology may be developed although, at present, it has been used as a supplementary technology, mainly fixed, that allows operators to reach outlying areas or places where they currently have no infrastructure to provide fixed-line broadband.
LTE (Long Term Evolution) Advanced	• Around the world, this is known as fourth generation technology (4G) that will allow mobile broadband service to be offered with capacities and speeds higher than those currently available over third generation technologies (3G). According to a 3G Americas report, the companies Telefónica Móviles, S.A. and América Móvil Perú, S.A.C. have plans to roll out an LTE network in the fourth quarter of 2013.

Source: BBVA Research

The first company to offer these services in Peru was América Móvil Perú S.A.C (Claro) by launching the product commercially in March 2008. Although coverage was initially limited to some parts of the capital, in March 2011 the operator offered coverage in 509 districts in 21 regions of the country. In May 2009, Telefónica móviles S.A. launched its mobile broadband service commercially and had coverage as of March 2011 in 167 districts in 14 regions of the country. Lastly, Nextel del Perú commercially launched its service early in December 2009 and had coverage as of March 2011 in 234 districts on the Peruvian coast, as well as in the regions of Cuzco and Puno.

11: For further information see: "Plan Nacional para el desarrollo de la banda ancha en el Perú" ("National Plan for expanding Broadband in Peru") May 2011, available at: http://www.mtc.gob.pe/portal/proyecto_banda_ancha/index.html
Also see the websites of the service providers:
http://www.claro.com.pe/portal/pe/
http://www.telefonica.com.pe/
http://www.nextel.com.pe/portal/server.pt

Table 12
Other connection technologies offered by Claro and their features

	Claro Data	GPRS	EDGE	3.5G	3.5G+
Speed	Up to 56 Kbps	Up to 80 Kbps	Up to 256 Kbps	Up to 3 Mbps	Up to 5 Mbps
Service	You cannot receive calls while you are connected.	You can receive calls while you are connected.	You can receive calls while you are connected.	You can receive calls while you are connected.	You can receive calls while you are connected.
Cost	By minutes used	By Kbps transferred	By Kbps transferred	By Kbps transferred	By Kbps transferred

Source: Claro Perú

Table 13
Examples of plans available at Telefónica del Perú

		Free minutes to:			
Plans	**Set monthly charge**	**Minutes to Movistar network**	**Any destination**	**6 Duos**	**SMS**	**MB**
Plan Navega Control	S/.74.90	300	90	900	500	500
Plan navega S/.99.90	S/.99.90	500	160	1600	500	500
Plan navega S/.129.90	S/.129.90	500	250	2500	Unlimited	500
Plan navega S/.199.90	S/.199.90	Unlimited	450	4500	Unlimited	500
Plan navega S/.319.90	S/.319.90	Unlimited	900	9000	Unlimited	1GB

Source: Telefónica del Perú

Internet offered by Nextel:

Nextel has a Broadband service that offers access to the internet, fixed-line telephone and data connection, using the WIMAX technology (Worldwide Interoperability for Microwave Access). This allows information to be efficiently transmitted wirelessly.

Nextel offers an internet access service with permanent internet connection at a flat rate. Some of the uses of this service are: sending and receiving e-mails, instant messaging, sending and downloading files, audio and video replay in real time, e-commerce. It also offers a data transmission service that allows users (especially businesses) to interconnect with several premises on their networks and create a Virtual Private Network (offering intranet, extranet and telework services).

Appendix 4: Financial inclusion and the internet market

Inclusion plans on the government's agenda include the expansion of broadband to extend internet access across the country. For this purpose, a multi-sector commission was set up that produced the "National Plan for Expanding Broadband" which proposes and recommends a series of initiatives and policies, also establishing different connectivity goals for coming years. In order to achieve these goals, the government has seen mass adoption of broadband as strategic through promoting the deployment of fourth generation technologies; spectrum tenders will be offered soon to facilitate the roll-out of advanced technologies.

In order for a mobile line with internet access to be considered as such, OSIPTEL sets out the following requirements: (i) being an active voice line (without drops or service cuts); (ii) having accessed internet at least once in the last three months; (iii) allowing access to a wide selection of internet content (lines with restricted access to only e-mail, chat or social networks are excluded); and (iv) allowing navigation above 256 kbps.

It also establishes the following access categories, according to the characteristics of the contracted plan:

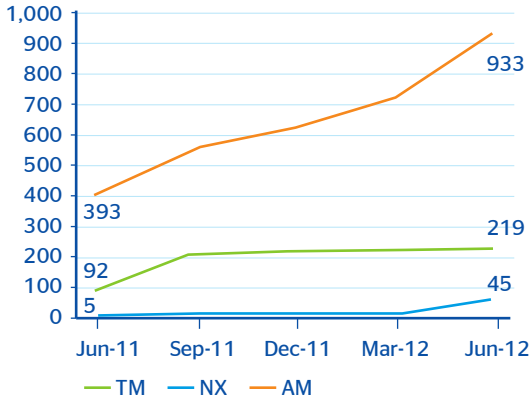
Table 14
Access categories, according to the characteristics of the contracted plan

Access category	Characteristics
Combined voice and data subscription	Subscription from a cell phone to a plan or package containing a number of voice and data minutes where users can use both indiscriminately. In addition, the subscription may include other services (SMS, MMS, etc.).
Exclusive data subscription (cell phones)	Services acquired separately from the standard voice service, such as an additional data package that allows internet access via subscription from a cell phone.
Exclusive data subscription (USB modem and others)	Services acquired separately from the standard voice service, such as a data plan or package for a USB modem or other mobile device.

NB: this classification has been adopted following the OECD guidelines and the current range of commercial services offered.
Source: Osiptel

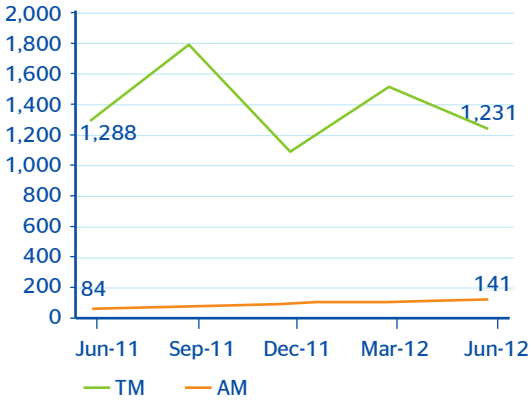
The mobile internet service in Peru currently has around 3 million registered subscribers. Of these, 46% are exclusive data subscriptions with cell phones, 40% are combined voice and data subscriptions with a cell phone and the remaining 14% are exclusive data subscriptions with a modem, USB, tablet or other devices. Operators offering these services are basically the same as for mobile telephony: Telefónica Móvil, América Móvil and Nextel. The respective market share for these operators is 53%, 44% and 3%.

Chart 25
Cell phone internet subscription by operator. Combined subscriptions (cell phones)



Source: Osiptel

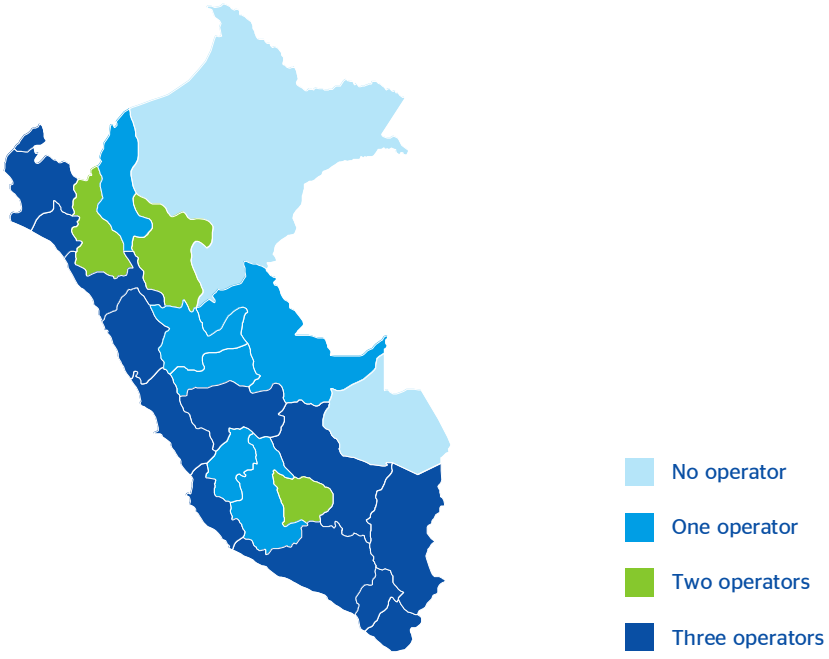
Chart 26
Cell phone internet subscription by operator. Exclusive subscriptions (cell phones)



Source: Osiptel

Available reception levels cover almost all regions in the country, although not all cities in these regions. Those living in the jungle region have the most problems with mobile internet coverage, especially Loreto and Madre de Dios, where no operator offers 3.5G internet services. The coastal region, with a higher urban population percentage, has the highest coverage; the three operators (Claro, Telefónica and Nextel) offer their services in these cities. (see map below)

Chart 27
Coverage by region according by number of operators



Source: Osiptel

Appendix 5: Wanda

Wanda was a new company created by Telefónica and MasterCard to develop mobile financial solutions in the 12 countries of Latin America where Telefónica operates through the brand Movistar. Via its mobile wallet or prepaid account, Wanda provided solutions focused on integrating the advantages of using a cell phone with associated financial solutions that offer security, reliability and acceptance of current electronic payment systems via an open model that guarantees interoperability between those segments that use a bank account and those that do not.

In Peru, Wanda has been launched in a pilot phase, available for some workers at Telefónica del Perú and Banco de Crédito (BCP), but has not yet been launched on the open market. Users deposit money, i.e. they top up their e-wallet at any BCP agent (partnered with Telefónica) or at any Telefónica office, with a maximum PEN 1,000 per day and PEN 500 per transaction. The requirements to access this service are being over the age of 18 and having an active Movistar line. The transaction available over this service are: cash deposits and withdrawals in the e-wallet, paying accounts, sending and receiving money and topping up cell phones. The main target public for the service are the socioeconomic strata B, C and D, mainly aged between 20 and 50 years old.

Chart 28
Wanda website in Peru

Source: Wanda Peru website

Appendix 6: B móvil, mobile banking from Claro and Scotiabank

This service allows Claro cell phone users who are Scotiabank customers to carry out financial transactions with their cell phone 24 hours a day. Access is via a pre-installed app on a 128kb SIM Card (Claro Chip). The main transactions offered by this application include: balance enquiry, transfers, prepaid top-up, available credit, outstanding debt enquiry, Claro bill payment, payment for public services, registering a loan, cash advance, blocking a card. The service currently only allows transfers to and from Scotiabank Perú accounts.

The advantages offered by this service are:

- Security: Information is encrypted on a 128kb SIM Card (Claro Chip)
- User-friendly, available 24 hours a day, every day of the year
- Free for customers (text messages for the service are free).
- Accessibility: All 128KB Claro Chips allow access.
- Mobility: Carrying out transactions without going to the bank, based on national Claro mobile coverage

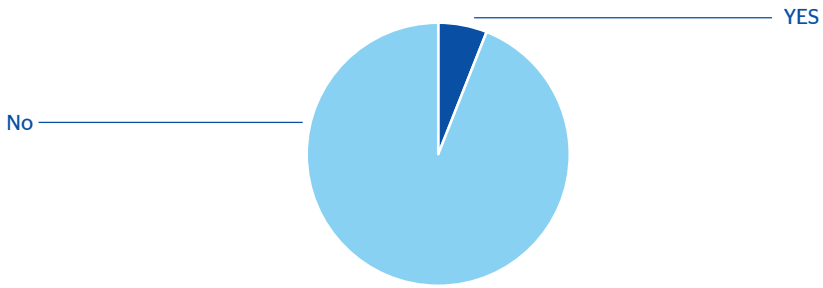
The requirements to access the service are:

- Having a Claro móvil line with a compatible 128 Kb SIM Card (Claro Chip) and having the "Mobile Banking" menu active (visible).
- Subscription to the service and pass-code generation: Claro users who are Scotiabank customers need to subscribe to the service at the bank and obtain a pass-code to be able to use the service.
- In order to make transactions over the cell phone, customers need to register their accounts or credit cards and loans, if they so desire, over the Scotiabank website.

Appendix 7: internet use for online banking

According to data extracted from the 2011 ENAHO, internet use for online banking transactions is not very common. In fact, only 5.6% of those who used internet stated they have used it for an online banking transaction, with a difference between men and women (6.5% and 4.4% respectively). This gap widens slightly when we look at the results taking into account the area where the people live. In the Metropolitan Area of Lima, the percentage is 7% while on the central coast and in the central mountains, these numbers drop to 2.4% and 3.4% respectively.

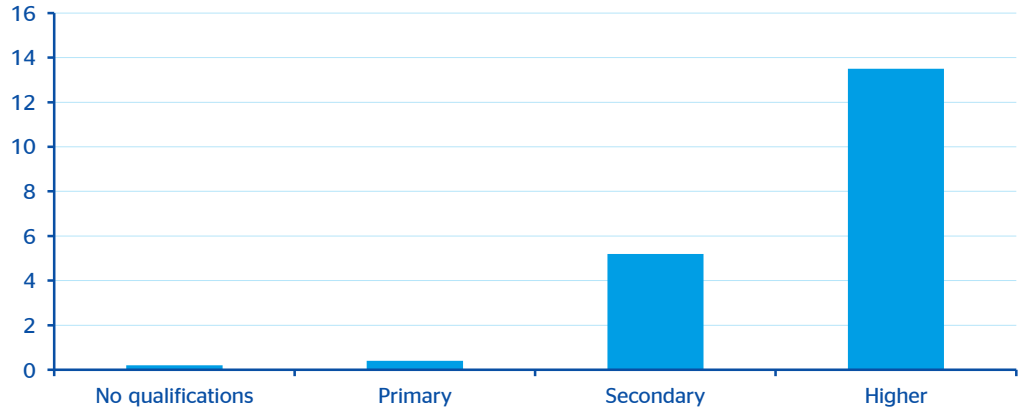
Chart 29
People who said they use internet, and used it for online banking transactions



Source: ENAHO

The difference in internet use for online banking transactions taking into account education level is significant. While almost 14% of those with higher education state they have used internet to carry out online banking transactions, this percentage falls to zero for those with primary education or with no education. This would be linked not only to the higher level of trust those with more qualifications may have but also to their greater capacity to understand how these systems work.

Chart 30
People who said they use internet: and have used it for online banking transactions



Source: ENAHO

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