SBS Documentos de Trabajo
© 2012
Superintendencia de Banca, Seguros y Administradoras Privadas de Fondos de Pensiones.

Este documento expresa el punto de vista del autor y no necesariamente la opinión de la Superintendencia de Banca, Seguros y Administradoras Privadas de Fondos de Pensiones.

DT/03/2012 SUPERINTENDENCIA DE BANCA, SEGUROS Y ADMINISTRADORAS PRIVADAS DE FONDOS DE PENSIONES

Setting the Regulatory Landscape for the Provision of Electronic Money in Peru

Narda L. Sotomayor [1]
SBS

Aprobado por Manuel Luy

Junio, 2012

Abstract

Although there is much evidence that access to financial services correlates positively with economic development, basic, convenient transfer and payment services are still unavailable for low-income segments of the Peruvian population. The experience of Kenya, the Philippines, and other countries has shown that e-money products can be effective in extending payment services to them. However, in Peru, the absence of regulation for the provision of schemes based on electronic money (e-money) prevents good investments and at the same time encourages fraudulent activities.
This policy memo discusses the main elements of establishing a regulatory framework for e-money. It recommends that policymakers first define e-money, taking into account the laws and regulations of a particular country. If e-money is not defined as a deposit, then it follows that financial institutions may provide e-money products, as well as telecommunication companies and similar operators. This will provide contestability in the market and more efficiency in the provision of e-money-based products for the benefit of consumers, particularly the poor.

JEL - Classification: G28, O16, R51
KEYWORDS: financial inclusion, electronic money regulation, M-banking, mobile financial services.
E-Mail del Autor: nsotomayor@sbs.gob.pe

This policy memo was published in *Innovations*, Volume 6, Issue 4, MIT Press, 2012, and initially written for the Fletcher School Leadership Program in Financial Inclusion (Boston, MA 2011).

[1] Narda L. Sotomayor is Head of the Microfinance Analysis Department at the Superintendence of Banks, Insurance Companies and Private Pension Funds (Lima, Peru).

I. PROBLEM

Although access to and usage of financial services in Peru has improved, progress has been insufficient. From June 2006 to June 2011, the level of access measured by the total points of service, including branches, ATMs, and retail agents, per 100 000 adults has increased from 23 to 103. More specifically, the share of the number of transactions through retail agents has reached about 12 percent in six years of existence, and it is still increasing. Usage indicators in the same period, such as the number of borrowers per 100 adults, went from 18.2 to 26.1, and the number of individuals with saving accounts per 100 adults went from 61.6 to 83.9.[2]

However, a large percentage of the population still remains underserved or excluded, particularly in most rural areas, where financial institutions do not find it profitable to offer services through the current channels and products available in the market. Relatively low population densities in remote areas and the small average size of transactions hamper the expansion of the financial system's physical network. The population living in the districts with access to financial services delivery channels now includes 82 percent of the adult population. However, the remaining 18 percent of the adult population lives in 66 percent of the isolated districts without any access to the financial system.

The international experience sheds some light on this problem. It shows that alternative access channels and products can be used to expand financial services. In particular, the use of diverse electronic devices, including mobile phones, can significantly reduce operational and transaction costs for both consumers and the financial service providers. In Peru, the fact that penetration of the mobile industry is above 95 percent and that 88 percent of the districts in Peru have mobile phone coverage creates an opportunity for using these devices to increase the scope and the depth of outreach.[3] In spite of this, the lack of rules and supervision of e-money constrains the development of mobile financial services (MFS) by generating uncertainty and preventing investments in e-money-based products.[4] On the other hand, this same lack of rules and supervision leaves room for fraudulent activities.

Therefore, it is necessary to define a regulatory framework conducive to the development of e-money-based services so that they can be offered in a secure, reliable, efficient, and transparent way. The proposal of such a regulatory framework is the aim of this memo.

II. BACKGROUND: DISTINGUISHING MOBILE FINANCIAL SERVICES

A regulatory framework may be conceived of as the rules of the game. It conditions entrance into the market, and affects the decisions and hence the outcomes achieved by market participants. For this reason, regulators have a great responsibility and they must be very clear about the vision of the market they want to encourage.
Electronic devices, including mobile phones, may be used in different ways to access financial services. In order to clearly delineate the scope of this policy memo, it is necessary to analyze at least two of these ways:

1. **M-banking services:** The most immediate way to use electronic devices is simply as additional channels to access deposit accounts. In this case, a customer may manage her account using an electronic instrument such as her mobile phone, transferring money among her accounts or to others, or paying bills.[5] This is done by submitting orders to the financial institution (FI) holding her deposit account without her

[2] Superintendencia de Banca (2011). Note that the number of depositors may be overestimated, since the information available is the sum of depositors across institutions and one person may have accounts in more than one institution. Still, the trend observed is increasing.

[3] Penetration is measured by the number of lines over total population (OSIPTEL, 2010)

[4] Bankable Frontiers and Afi (2009) argue that in civil law environments, like those in Latin America, "what is not expressly permitted, is usually not allowed unlike common law countries (such as South Africa and Kenya) where the absence of express laws prohibiting new developments may actually create space for innovations to develop." Thus, certainty is a relatively stronger prerequisite in Latin America than in common law countries for the development of mobile financial services.

[5] From now on, the customer will be referred as "she." This is to remind us that women typically have less access to financial services than men.

making a trip to the FI's branch. This approach is usually called mobile banking, or m-banking. To sustain these operations, FIs will need to hire the services of a telecommunications company (telecom). Some examples of this approach are Wizzit in South Africa and Nipper in Mexico.

M-banking providers have to be FIs authorized to offer deposit accounts, which are in most cases, as in Peru, prudentially regulated and supervised. From a regulatory perspective, using this relatively new channel to access deposit accounts does not present a particular challenge, other than managing operational risks. In fact, m-banking activities already exist in Peru, although they are oriented to medium- and high-income segments of the population. The extension of m-banking services for the unserved population should follow after deposit accounts become available to them. To encourage this, regulatory changes have already been brought up since February 2011 to reduce the average cost of opening small deposit accounts by lessening the anti-money laundering and counter-terrorism financing (AML/CTF) rules for low-risk products.

2. **E-money services:** The supply of transfer and payment services using electronic devices does not require deposit accounts. These services can also be offered using e-money, which may involve telecoms and other specialized operators, such as service providers. This is the case with Safaricom, a telecom that offers M-PESA products in Kenya, or with GCash in the Philippines. In these cases, the customer buys electronic (virtual) money at the service provider's agent, either with cash or other means of payment, crediting the same value. The value stored is registered by the service provider and can be used by the customer at her convenience by using, for instance, a plastic card or a mobile phone. In the latter case, the product is commonly known as an "electronic wallet," where the mobile phone is used to send orders of transfers or payments to the provider's platform by using an SMS or a specially designed menu.

Until now, e-money activities have not been available in Peru. However, some investors are interested in providing these services; investors vary from little-known operators to telecoms with significant market share.
However, there is a regulatory vacuum. No definition of e-money exists and regulation does not specify who can provide services and under what conditions, thus preventing investments or leaving the door open to any participant, however credible, to enter the market. The current Law of the Payment System recognizes the existence of possible providers of e-money schemes but does not regulate or supervise them. It indicates that the central bank will supervise them only if providers pose a systemic risk. But if a systemic risk emerges, regulation may come too late. We must fill the regulatory vacuum related to e-money-based services, which is the focus of this policy memo.

III. THE OBJECTIVE OF THE REGULATOR

The main objective of the Peruvian financial regulator is to design an enabling regulatory framework for the development of a sustainable and inclusive financial system. From the regulator's perspective, stability and sustainability are essential to the provision of financial services. However, the regulatory framework should not constrain innovation in order to meet the challenge of financial inclusion. For that purpose, in the arena of mobile financial services, the rules of the game should induce the development of transfer and payment services based on e-money, offered by solid and responsible institutions under conditions of safety, reliability, efficiency, and transparency for the benefit of the population.

IV. ANALYSIS: SETTING THE BASIS FOR E-MONEY REGULATION

There are two key elements that help define the rules of the game for e-money-based services: a clear definition of e-money, and the decision about the allowed issuers of e-money. In fact, both elements are related, as I will show.

Electronic money is generally understood as a value stored electronically that can be accessed by an electronic device. However, the consideration of e-money as being a deposit or not varies across countries, depending on how deposits are defined in their constitutions, laws, and regulations. In the case of Peru, neither the Political Constitution of Peru nor the General Law of the Financial System defines a deposit. But the latter mandates that the financial regulator supervise

depository firms collecting deposits from the public.[6] The Peruvian Civil Code sheds some light on this concept. It indicates that a (regular) voluntary deposit occurs when the depository institution receives a good for custody and later return.[7] On the other hand, an irregular deposit occurs when the depositor allows the depository institution to use the good, acquiring the right to receive (or not) compensation, according to the terms of the contractual agreement.[8]

None of these definitions of deposit tackles the way e-money-based products work in the most successful cases. Those products do not involve just custody and return of the cash handled by the customer, as stated in the general definition of a voluntary deposit in the Peruvian Civil Code. They involve more. For instance, in e-wallet schemes, the customer uses the service of having her cash de-materialized (converted to e-cash) to store value and to carry out transfers and payments in a more convenient and cost-efficient way (Mas and Kumar, 2008). Furthermore, e-money service providers are not allowed to use the value stored for lending or any other purpose that the provider may deem convenient, which differs from the concept of irregular deposits defined in the Peruvian Civil Code. The provider only performs the operations that the customer requests. The cash exchanged for electronic value remains in control of the customer at all times, much like it was interpreted when the Central Bank of Kenya analyzed the case of M-PESA (AFI, 2010).

Thus, under current Peruvian laws and regulations, e-money cannot be considered a deposit. We can define e-money as being a monetary value stored in an electronic device that is presented by a claim on the issuer and that has the following characteristics:

- It is issued upon receipt of funds at an equal value of the monetary value receipt
- It is widely accepted as a means of payment
- It can be converted back into cash
- It is not a deposit.

Analyzing Potential E-money Service Providers

Consistent with the proposed definition, the range of potential e-money service providers and models increases. According to the Peruvian constitution, prudential regulation is required only for depository institutions. Hence, it is possible to allow the entrance of other non-financial service providers without requiring them to be regulated as full intermediaries.

However, the decision of who enters the market should be made only after careful analysis. All of the stakeholders' concerns have to be taken into account—those of the regulator, of the service providers, and of the un-served population. I consider only two general types of potential e-money issuers.

1. **Financial intermediaries:** From the point of view of FIs, the issuance of e-money would just increase the array of products they can offer to consumers. Like their m-banking activities, they would have to use the services of a telecommunications company.

   From the point of view of the population, particularly of the poor, the gains are not clear. If FIs were able to reach them through e-money-based products, they could also offer them m-banking services, which would make more sense in that it implies additional services beyond transfers and payment services. However, despite the substantial increase of the retail agent of the financial system in Peru, which reached 9,204 as of December 2010, the impact appears to be limited to the low end of the market. Perhaps the advantage of offering e-money services in relation to m-banking will appear if FIs are able to increase the capillarity of their distribution networks by incorporating the mobile operator´s agent network into their distribution networks. Under this option, since deposit-taking FIs are prudentially regulated, the concerns of the regulator relate primarily to transparency issues. The regulator should require FIs to make clear for the customers the characteristics of the product that is being provided, m-

[6] Political Constitution of Peru 2003, article 87.

[7] Peruvian Civil Code, article 1814.

[8] Peruvian Civil Code, article 1829.

banking or e-money (deposit or non-deposit). In addition, FIs should be required to offer e-money-based services using a trust-like scheme, for two basic reasons. First, the regulation must keep consistency with the nature of e-money, whereby the service provider receives the money only to perform transfers and payments at the request of the customer. The constitution of a fund for a specific purpose is the concept intrinsic in a trust. Second, since the e-money issued is not a deposit, it is not protected by the Deposit Insurance Fund. In the event of an FI's bankruptcy, the trust assets will not be liquidated; thus, the customers' money will be safe.

3. **Mobile operators and other specialized service providers:** In this case, mobile operators have the opportunity to go beyond the communication services they provide and offer e-money services. This can be done with the relative advantage of having scope economies, since the systems needed are mostly in place, and they have experience running high-volume, real-time prepaid platforms (Alexandre et al., 2010). From the population perspective, considering the high level of penetration that mobile phones have achieved in Peru even among the poor, the gains are clear. Mobile phone users are already familiar with the mobile service and with their providers, and they can benefit from the expanded functionality of their mobiles. Moreover, the large network of retail airtime resellers may serve them as convenient cash-in/cash-out outlets.

   The argument against allowing mobile operators to offer e-money services is that they do not promote full entry into a suite of a financial institution options. Without underscoring the value of providing access to credit and deposit services, for instance, we have to acknowledge that the most basic service that the financial system should provide is transfer and payment facilities. This has not been happening in Peru as in other developing countries. So, poor migrants living in the capital, Lima, often find themselves sending money to their dependents by informal means, such as using bus services to send cash hidden in packages or using informal bus transportation remittance services, in order to avoid the high commissions that a regulated financial entity may charge. Thus, e-money services provided by mobile operators can make the unserved population better off by offering efficient payment and transfer services. In addition, alliances may take place between mobile operators and full intermediaries to provide a wider set of financial services. In fact, this entry route to financial services may be more effective for consumers, since mobile networks may have a consumer track record in payment and credit worthiness (Williams and Torma, 2007). In particular, this type of information about the poor may help to reduce the barriers to accessing a larger set of financial services, getting closer to reaching full financial inclusion, which is the final objective a country wants to achieve.

From the regulatory perspective, when mobile operators are allowed to offer a financial service (i.e., e-money based) they have to be supervised by a financial regulator. However, since the service is not a deposit, only non-prudential regulation is needed to ensure the safety of the value stored by the customers and to protect consumers from possible mistreatment by the providers. To safeguard the customers' funds, diverse financial regulators from the Philippines, Kenya, and Indonesia, among others, have made the decision to require the e-money issuers to maintain liquid assets equivalent to the total value of the funds collected in a trust account of a prudentially regulated institution. As explained before, if a specialized mobile operator goes bankrupt, customers' funds are safe and they will be able to cash out a value equal to the one they have cashed in. In this sense, there is no solvency risk posed under this approach by the mobile operator (GSMA, 2010).

V. THE CHOICE

The most conservative approach would be to allow as e-money issuers only those FIs that are prudentially regulated, which is more than what is needed to monitor e-money services. But this would create a regulatory barrier for market contestability and may hinder potential gains for financial inclusion. On the other hand, the international experience has shown that the participation of mobile operators has been the most effective way to incorporate the underserved population into the payment systems. Their advantage lies in their experience to manage high-volume low-value transactions which allows them to safely offer e-money services with lower cost structures than banks (GSMA, 2010). In addition, mobile operators generally market themselves nationwide, avoiding niche strategies which may be usual for FIs, driven by specific customer and segment profitability within defined geographies (Ivatury and Mas,

2008). Consequently, mobile operators have a larger agent network, which provides more convenience to customers for cash-in and cash-out operations. In the Peruvian case, it is estimated that the telecom with the largest share in the mobile telecommunications market has a network of almost 90,000 airtime resellers, which is about ten times the agent network of financial intermediaries. Hence, mobile operators may be in a better position to achieve mass adoption of their services.

From the regulator's perspective, the concerns involved in allowing mobile operators to offer payment services can be easily addressed. In fact, there is not a tradeoff between the participation of financial intermediaries and mobile operators. Under the two possible scenarios, competition between different types of service providers or alliances among them, the population can be better off. In the end, by allowing all types of participants, the financial regulator leaves the market to figure out what works best, and the customers will benefit from the result.

VI. OTHER REGULATORY ISSUES

The fundamental principle that the financial regulator should follow when defining the regulation is to establish a level playing field for all types of service providers. For this purpose, a key approach is to focus the regulation on the service rather than on the service providers (GSMA, 2010). And, to guarantee that all participants will follow the same rules, they should have a common supervisor; in this case, the financial supervisor. During the whole regulatory and supervisory process, the financial supervisor will need to maintain a continuing dialogue with other supervisors including, in the Peruvian case, the Central Bank that oversees the payment system and the regulator of the telecommunications sector. Thus, mobile operators must obtain a special license from the financial supervisor to provide e-money services only, fulfilling the usual entry requirements to ensure the viability of the project. The financial supervisor should evaluate the suitability of the shareholders, and make sure that directors and management are qualified, fit and proper to manage the operations soundly and prudently. Also, a minimum capital sufficient to support the startup of operations and deter investors who are not serious may be considered.

Once the firms are incorporated into the regulated market regulators should make sure that e-money providers have adequate risk management processes to identify, assess, control and monitor the potential risks arising from their activity, so that the service is provided under conditions of security and reliability. In many countries, including Peru, the existing risk management principles are in general applicable; however, regulators may need to tailor them to the activity of e-money provision. The regulation on operational risk may need to be made more specific, focusing on the information technology risk. In relation to other electronic channels to deliver financial services (internet in personal computers, automatic teller machines), the use of mobile phones and the mobile network in e-money based products are new sources of technological risk. It is recognized the existence of data and network security risks, which may negatively affect the authenticity, confidentiality and integrity of the financial transaction, and also the availability of the service.

In response to these risks, uniform requirements and rigid levels of security may be inconsistent with the objective of incorporating the unserved population into the payment system. The level of security functionality of the mobile phone, which is most likely basic among the poor, and the degree of dependence from a particular telcom directly affect the aforementioned risks.[9] In view of that, some countries, such as Pakistan and Mexico, have assumed a tiered approach, requiring data security levels that vary with the data channels used and transaction size (AFI, 2010). Moreover, the standards defined are technology neutral in order not to constrain continuous innovation and efficiency gains observed in the telecommunication sector. In addition, regulators should be very careful in reviewing the providers´ risk policies, procedures and tools for managing the risk. For instance, the high risk associated with lower levels of security in basic mobile phones may be mitigated by effective business process and product design controls (Bezuidenhoudt and Porteous, 2008). In this way, regulators can create a flexible, proportionate regulation to allow continuous supervision that may eventually help to fine tune the regulation.

[9] A complete description of the risks involved and strategies to mitigate them can be found in Bezuidenhoudt and Porteous (2008).

On the other hand, liquidity risk is also viewed as relevant to mobile financial services, and in this context it is usually understood as the risk that retail agents may not have enough cash to meet customers´ request of withdrawals. However, this is not a risk specific to the provision of e-money based products, but to the use of retail agents to deliver financial services. In the case of Peru, where this scheme is well developed, this risk does not seem to be critical, and may be a consequence of the retail agent model. In order to keep retail agents as low sources of risk, FIs are required to establish operational limits consistent with the business activity of the agent; they may also consider limits per type of transaction and per person. Thus, a customer may be unable to transact in an agent if the limits there are binding. However, she may find it easy, depending on the density of the agent network, to go to another agent nearby to perform the transaction. Even so, the regulator may require to the service provider a contingency plan in case of sudden demand for cash-outs, including information on agreements with liquidity suppliers to cope with this eventuality.

Pertaining to money laundering risk concerns, all type of e-money services providers must comply with already existing regulations on AML/CFT, monitoring and reporting suspicious activity. Moreover, the involvement of mobile operators may facilitate the identification of suspicious behavior, given their more advance computing power and their ability to handle large amount of information. In addition, fieldwork revealed that low amounts of money, traceability, and the monitoring features of mobile money can make it far less risky than other means of payment, especially cash (Chatain et al., 2011). Thus, it is possible to introduce some flexibility to the usually rigorous "know your customer" requirements of AML/CTF norms in order to ease the unbanked population's access to financial services. Moreover, if the regulations are too rigid, people will not move out of the informal sector (Mas, 2010), which is another desirable objective to pursue.

Peru has taken this "proportionate to risk" approach by defining in the AML/CFT regulation three regimes, recognizing the existence of varying risk levels associated with customers and the services and products provided. The first regime is a general one, where regular measures of know your customer and due diligence apply. The others are special regimes. In the second regime, exemptions from traditional customer due diligence rules aimed at preventing money laundering apply to low-risk products. Under this regime, the regulation defines a general basic deposit account with balance and transaction limits, per month and per day. This product can be contracted with the (widely available) Peruvian National Identification, even at the financial intermediary's retail agent network. For e-money-based products, the same balance and transaction limits should apply. Finally, in the third regime, firms should apply reinforced measures of due diligence for customers whose transactions are inconsistent with their business profiles and for those highly exposed to the risk of engaging in money laundering activities.

Most of the previous risks trigger consumer protection concerns if the subsequent losses affect consumers, particularly the poor who have less ability to complain and obtain compensation for damages. The regulatory framework for consumer protection is well developed in Peru, and the responsibility of compliance rests with the service provider independently of the channel used to deliver the service. However, some aspects may need to be tailored to e-money services, addressing the consequences of the new risks derived from the use of the mobile phone and the mobile network. The basic purpose of the consumer protection regulation in Peru is to induce service providers to adopt a conduct of respect with consumers, creating a customer service system with clear policies of consumer protection and mechanisms for complaints and dispute resolution. Transparency in the provision of the services is also a key element in the regulation of consumer protection, since it allows consumers better decision making, which also contributes to the healthy development of service providers. However, some requirements may become cumbersome and costly when dealing with low-risk products. Thus proportionality is also required. In this spirit, a simplified regime is also defined for consumer protection rules as maintaining transparency on the most important elements of information. This framework should also apply to the provision of e-money services with some fine tuning. In this case, basic elements for consumer protection include information on commission charges for each type of transaction, clear guidance to prevent frauds and identity theft, and information about alternative channels in the event of system failures. As a part of their consumer protection policies, service providers may be required to get involved in programs to increase financial capability and customer awareness with regard to the e-money service being provided. [10]

In regard to factors that affect competition in the market, the role of interoperability is frequently discussed.

[10] A detail analysis of consumer protection issues in branchless banking can be found in Dias and McKee (2010).

Interoperability exists when the service is network independent, allowing consumers to transact beyond their service provider's network. Otherwise, consumers would have to choose their providers by evaluating whose offer is more suitable for them, taking into account, among others, prices and the possibility to transact with a larger group of individuals or with those with whom they interact more. This incentivizes competition, e-money service providers will take action to add value to their networks and attract customers either by product differentiation or by cutting prices. However, there is a concern that the final outcome may be a reinforcement of the dominant position of the operator with the largest network. The challenge for regulators is to decide whether or not interoperability should be imposed by regulation and what is the most appropriate timing for doing so. Considering the market dynamics mentioned above, interoperability should not be imposed at an early stage of market development, when e-money services are not developed, to avoid the risk of hampering market development and innovation, which is motivated by competition. At the same time, regulators should make sure that technical interoperability remains feasible at a low cost, while reserving a credible option for regulatory intervention to secure interoperability in the future, in the light of market developments (Houpis and Bellis, 2007). In fact, even at an early stage of development it is likely that interoperability will emerge spontaneously if the leader wants to build up a large customer base, which is a necessary condition for the viability of this low-cost, large-volume service. In general, consumers are better off with as much interoperability as possible, provided that they get value propositions at reasonable prices.

VII. CONCLUSION AND RECOMMENDATIONS

An enabling environment for the development of sustainable and inclusive mobile financial services requires creating a clear regulatory framework without preventing innovation and competition in the market. Key recommendations for crafting such a regulatory framework for e-money-based services can be summarized as follows:

- A clear definition of e-money must first exist, which takes into account the laws and regulations of a particular country. A key element in that definition is to establish whether or not e-money is a deposit. This defines the array of service providers that may be allowed into the market.

- In order to induce market contestability, it is important to allow all types of e-money issuers, if possible. In particular, the participation of mobile operators may have the potential to accelerate the incorporation of the poor into an efficient payment service system by providing them convenient and affordable products.

- Risk-based approaches deal with money laundering concerns without jeopardizing the objective of financial inclusion. The literature has shown that e-money-based schemes offer less risk than the use of cash, since they are traceable and easy to control.

VIII. REFERENCES

AFI-Alliance for Inclusion. (2010). *Enabling Mobile Money Transfer: The Central Bank of Kenya's Treatment of M-Pesa,* case study.

AFI-Alliance for Inclusion. (2010). *Mobile Financial Services. Regulatory Approaches to Enable Access,* policy note.

Alexandre, Claire, Ignacio Mas, and Dan Radcliffe. (2010). *Regulating New Banking Models That Can Bring Financial Services to All,* Bill & Melinda Gates Foundation.

Bezuidenhoudt, Johann, and David Porteous. (2008). *Managing the Risk of Mobile Banking Technologies,* report commissioned by FinMark Trust to Bankable Frontier Associates.

Bankable Frontier Associates and Afi-Analistas Financieros Internacionales. (2009). *How Enabling Is the Latin American Environment for Mobile Money?* briefing note 1.

Chatain, Pierre-Laurent, Andrew Zerzan, Wameek Noor, Najah Dannaoui, and Louis de Koker. (2011). *Protecting Mobile Money against Financial Crimes,* World Bank.

Dias, Denise, and Khaterine McKee. (2010). *Protecting Branchless Banking Consumers: Policy Objectives and Regulatory Options*. CGAP focus note no. 64.

GSMA. (2010). *Mobile Money for the Unbanked,* annual report, 2010.

Houpis, George, and James Bellis. (2007). Competition Issues in the Development of M-Transactions Systems. In Vodafone policy paper series, no. 6, *The Transformational Potential of M-Transactions.*

Ivatury, Gautam, and Ignacio Mas. (2008). *The Early Experience with Branchless.* CGAP focus note no. 46.

Mas, Ignacio, and Kabir Kumar (2008). *Banking on Mobiles: Why, How, for Whom?* CGAP focus note no. 48.

Mas, Ignacio. (2010, November 23). *Servicios Financieros en Todas las Comunidades.* Presentation made to the SBS and other regulatory authorities and potential e-money market players in Peru.

Organismo Supervisor de Inversión Privada en Telecomunicaciones-OSIPTEL. (2010). *Statistics of National Coverage of Mobile Phone Services.* Available at http://www.osiptel.gob.pe

Superintendencia de Banca, Seguros y AFP –SBS. (2011). *Reporte de Indicadores de Inclusión Financiera,* June 2011. Available at http://www.sbs.gob.pe

Williams, Howard and Maili Torma. (2007). Trust and Fidelity: From "under the mattress" to the mobile phone. In Vodafone policy paper series, no. 6, *The Transformational Potential of M-Transactions.*