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BANKING THE UNBANKED USING PREPAID PLATFORMS AND MOBILE TELEPHONES IN THE UNITED STATES

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Abstract

The rapid growth of mobile phone usage and the continuous rise in wireless coverage fuel expectations that access to financial services through mobile phones could transform the way financial services are provided. The emergence of new and more efficient business models can potentially resolve supply inefficiencies that explain the large unbanked population that exists in the United States, much larger than in most developed countries.

Nearly 40 million United States households (approximately 73 million people) are financially underserved (CFSI, 2007), of which 15 million households (approximately 28 million people) are totally unbanked. This problem is explained by the non-adequacy of the value proposals offered by financial institutions to the demands of United States customers. The areas of poor alignment refer mostly to the design of products and the marketing and distribution networks used. To resolve these misalignments, this paper will argue that business models based on prepaid cards as products and mobile phones as transaction and distribution channels could be used in order to close the supply gap. The business model proposed, based on prepaid products and mobile phones, will be called mobile banking in this paper, since these two elements are the basis of the business model used by companies such as Smart Money and G-Cash in the Philippines, Wizzit in South Africa and M-Pesa in Kenya.

Keywords: prepaid platform, unbanked, financial services, mobile phones, prepaid cards.

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1. Introduction

The rapid growth of mobile phone usage and the continuous rise in wireless coverage fuel expectations that access to financial services through mobile phones could transform the way financial services are provided. The emergence of new and more efficient business models, can potentially resolve supply inefficiencies that explain the large unbanked population that exists in the United States, much larger than in most developed countries.

Nearly 40 million United States households (approximately 73 million people) are financially underserved (CFSI, 2007), of which 15 million households (approximately 28 million people) are totally unbanked. This problem is explained by the non-adequacy of the value proposals offered by financial institutions to the demands of United States customers. The areas of poor alignment refer mostly to the design of products and the marketing and distribution networks used. To resolve these misalignments, this paper will argue that business models based on prepaid cards as products and mobile phones as transaction and distribution channels could be used in order to close the supply gap. The business model proposed, based on prepaid products and mobile phones, will be called mobile banking in this paper, since these two elements are the basis of the business model used by companies such as Smart Money and G-Cash in the Philippines, Wizzit in South Africa and M-Pesa in Kenya.

According to the Mobey Forum,[1] the involvement of banks and telecom operators in the delivery of financial services through mobile phones creates four different mobile financial service ecosystems. In 2006,[2] David Porteous added to this analysis the distinction between four critical roles played in each scenario by the bank or the telecom operator. He argued that the first role to consider is the party who is legally responsible for the deposits; the second role is the party who bears the reputational risk and whose brand is most exposed to the public; the third role is whether deposits can be accessed through agents or only through bank branches or ATM's; the fourth and final role considered is who carries the payment instruction. Based on this framework, the four business models defined by the Mobey Forum have the characteristics summarized in the table below.

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[1] www.mobeyforum.org, 2006. Stomar, M., «Mobile Payments Value Chain and business model.»
[2] Report produced for the DFID, "The enabling environment for mobile banking in Africa."

Classification of emerging m-banking models[3]

Model name	Bank-centric models	Collaborative models	Independent service providers	Operator centric models
1. Who holds accounts/deposits?	Bank	Bank	Bank	Telco/Non bank
2. Whose brand is dominant?	Bank	Joint-Non Bank or Telco	Usually non bank or Telco dominant	Telco/Non bank
3. Where can cash be accessed?	Bank	Bank + alternative agents	Bank + alternative agent network	Telco network + other
4. Who carries the payment instruction?	Any Telco (sometimes 3rd party payment gateway)	Usually specific to one telco	Usually many telcos	Specific to offering telco
Examples	**Additive models**	**Smart/MTN**	**Wizzit/Mobipay**	**G-Cash/Mpesa**

According to this classification, the "bank-centric model" implies only developing new channels for existing banking products. Porteous calls this model "additive" and argues that this type of business model does not transform the way financial services are provided. The three remaining business models however do transform them and therefore we call them "transformational models," since these business models, based on prepaid electronic payments systems and cellular technology, address the supply inefficiencies in the distribution of financial services.

The use of transformational mobile banking business models could catalyze change in the way financial services are provided to the less affluent. This paper will analyze how "transformational business models" of mobile banking based on prepaid platforms that have been implemented in developing nations, can be used in the United States to provide financial services to the underbanked. Thus, the emergence of card and prepaid systems in particular, coupled with the use of cellular technology, can transform the way financial services are provided. The cases of Smart Money in the Philippines (a partnership between a telco and a bank), Wizzit in South Africa (an independent service provider), and G-Cash also from the Philippines (as an example of an operator-centric business model), show how these business models have been successfully used for banking the poor in developing nations.

Transformational mobile banking business models have not developed extensively in developed nations. NTT DoCoMo in Japan has been the only successful transformational model of mobile financial services in Europe, Japan and the United States. In Europe, the attempts by Paybox AG (Germany) and Mobipay SA (Spain) were unsuccessful. Paybox is an independent service provider that was about to become the industry standard in 2002, but the collapse of its strategic alliances led to the ultimate failure of the company. Mobipay followed a collaborative model involving financial institutions, mobile telecom operators, and payment processors. However, demand did not pick up and its operations have remained very limited in scale.

The reasons why mobile banking has not gained any significant presence in Europe are, first, the lack of demand due to the slower development of e-commerce and a much higher level of banking access, especially among immigrants. Second, the unclear regulatory framework

[3] Porteous, David, 2006.

(Santomá, Prior – IESE, February, 2008) that creates regulatory uncertainty for mobile operators that want to implement transformational models and a position of competitive disadvantage for independent service providers (such as Wizzit in South Africa). As a result, we find that mobile banking models in Europe are mostly "additive," implemented by existing banks that use mobile phones as an additional channel in the context of multichannel strategies. In addition, the slow development of ELMIs (non-bank issuers of e-money) and the prepaid industry in Europe mostly due to the lack of demand but also to some regulatory problems regarding electronic vouchers (gift cards, meal cards), transport systems, and travelers cards, deprives potential mobile operators of any technology platform with which they can operate, apart from banks. As a result, and given the current legal loophole regarding mobile operators, they prefer to operate within a close network (allowing customers to buy ring tones and digital content) instead of developing alternative business models such as G-Cash in the Philippines.

Japan (with Korea) is the only developed country where mobile banking has been a real business success. Japan's mobile banking market is quite unique in several aspects, due to the dominance of NTT DoCoMo. DoCoMo's successful mobile banking strategy is based on building the supply side of the market by offering attractive commercial terms to banks, card companies, transport companies, merchants, and consumers by subsidizing their handsets. A major factor that has contributed to NTT DoCoMo's success is the development of the Felica near-field communication technology with Sony. NTT DoCoMo's success is a paradigm of an operator-centric model.

In the United States, transformational models of mobile banking have not developed extensively, due mostly to the structure of the telecommunications industry in the country and the lack of standardization in a fractured wireless market. However, the recent growth of the prepaid industry could catalyze a service that has potential demand (there is a large unbanked population in the United States, especially among immigrants), and which is not affected by any major regulatory obstacles.

This paper will begin by describing the way card and prepaid systems work, since we argue that development of the prepaid industry in the United States could catalyze the development of mobile banking in the country. Indeed, as will subsequently be shown when we review the development of the prepaid industry in the United States, the emergence of new players targeting the underbanked gives mobile operators the possibility of partnering with prepaid cards issuers and transforming the way financial services are provided to the poor.

2. The Emergence of Prepaid Card Systems: how do they Work?

The increase usage of card systems has been the driving force behind the development of prepaid cards systems in the United States. Cards can be used for basic payment functions such as cash withdrawals at ATMs and EFTPOS (Electronic funds transfer points of sale), where cash-back is offered, and for purchases at retailers with EFTPOS. EFTPOS can be physically located at the store where the payment is made, or in a remote location (virtual EFTPOS). Virtual EFTPOS allows additional payment functions such as bill payments, internet purchases or direct debits. However, depositing cash in a card (Cash in function) is limited to stored value (prepaid) cards, and depends on the regulation of both stored value cards and e-money.

Card payment systems can be classified according to the way transactions are authorized and authenticated. First, whether the transaction is authorized using a line of credit, the actual value of deposits in the bank account (debit) or the amount of e-money in an internal account (prepaid). Second, whether the transaction is only authorized when the acceptance network in online or also when the system is offline. Third, whether the transaction is authenticated by inserting the personal identification number (PIN) or by signing the receipt (either physically or electronically).

Types of Card Products Based on Authorization and Authentication Mechanisms

	Credit	Bank account balance	Internal account	Online	Offline	PIN based	Signature based
Prepaid			Yes	Yes	Only if PIN based	If POS enabled, always in ATM's	If POS not enabled
Debit online		Yes		Yes	For very limited transaction amounts	If POS enabled, always in ATM's	If POS not enabled
Debit offline	Yes				Yes	If POS enabled, always in ATM's	Yes
Credit	Yes				Yes	If POS enabled, always in ATM's	Yes

These three characteristics determine the types of cards currently available and their payment functions. Credit cards were the first type of cards issued in the United States. This product allows credit card holders to buy products or services at retailers with EFTPOS for an amount equal or less than their credit limit. Additionally, this type of cards can be used when the EFTPOS is offline, as long as the transaction does not exceed the value determined for this type of transactions (this maximum value or back-up parameter is usually large enough to allow for the necessary expenses when the customer has no access to an EFTPOS online). The authentication mechanism for credit card transactions at EFTPOS has traditionally been signature-based. However, in some countries such as France, and recently worldwide due to the EMV initiative, EFTPOS do or will require authentication using the PIN number. The authentication mechanism for credit card transactions at ATMs is PIN-based. Cash-back at EFTPOS is not currently available for credit cards in the United States.

Online debit cards were issued later by financial institutions, mostly in Western Europe and other regions of the world. In the United States, its deployment has been slower, due to the importance of offline debit, although this is changing progressively. Online debit cards were originally marketed as ATM cards, to allow cardholders to withdraw money from their bank accounts. As a result, every debit card transaction has to be authorized, verifying online the monetary value of the bank account linked to the debit card. Transactions will be accepted if the amount of the transaction is not higher than the monetary value of the bank account (in some cases, including its overdraft limit). Debit cards are also currently being used to buy products or services at

retailers with EFTPOS, although for those transactions to be approved, the EFTPOS must be connected online through its switch to the issuer's core banking platform. If it is not online, some issuers in some countries give some back up parameters to allow microtransactions while the EFTPOS is offline (less than 50 Euros.[4]) In the United States, the authentication mechanism used for online debit is PIN-based, which allows the cash-back function to be more widely developed. In other areas of the world, however, online debit authentication is signature-based, which does not support the development of the cash-back function.

Offline debit is a product mostly developed in the United States and it is still the dominant form of debit card in this country.[5] However, due to the legal process instigated by Wal-Mart in 2003,[6] its importance has decreased considerably in recent years. Its main difference with online debit is that the type of EFTPOS that accept this product are not connected through its switch to the issuing bank's core banking system, but instead they are connected to the credit payment networks of Visa and Mastercard. As a result, the authorization mechanism used verifies the credit limit that both payment networks have informed in their authorization databases. This credit limit is calculated every few days based on the information provided by the issuer concerning the monetary value of the cardholder's banking account linked to this debit card. However, is does not reflect the exact value online, and therefore generates overdraft risk for the issuing institution if the cardholder spends more than the monetary value of the bank account. The other offline debit features are similar to credit cards, since both products are marketed and accepted by the same payment networks. Summarizing, offline debit cards are credit cards (they have credit card BINS,[7]) but payable the following day by the cardholder (or the number of days that the system takes to settle the transactions).

Stored value cards or prepaid cards are the last type of cards to have been launched on the market by card issuers. This product allows cardholders the same payment functions than online debit, but the main difference is that the transactions are not authorized by verifying the monetary value of the bank account linked to the debit card, but instead the authorization process is based on the monetary value of the internal account that the prepaid card is linked to. This monetary value is gathered in a database that manages this type of internal or prepaid account. The legal definition of prepaid accounts, together with the additional functions that these types of account could have if the appropriate regulatory framework was applied, is one of the most important topics that will be addressed in this analysis. The ultimate goal of this study is to analyze how stored value cards could be used to collect deposits in a payments architecture where any EFTPOS, ATM or any other terminal connected online to the payments systems could perform this function for any given issuer. However, in order to achieve this goal, it is first necessary to understand how prepaid systems currently work. The following description briefly presents the way prepaid systems currently operate.

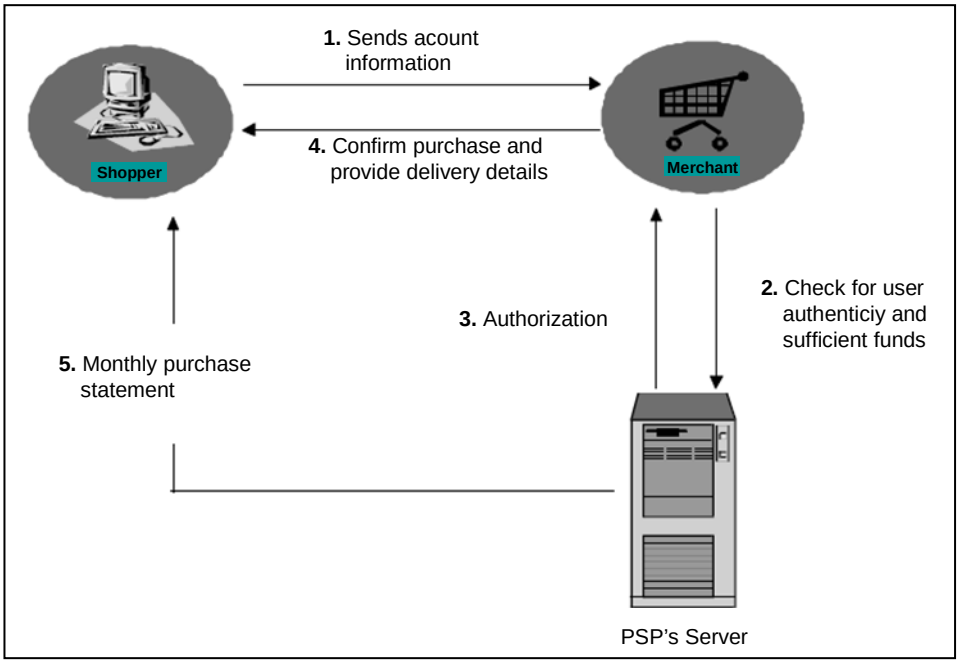
When a consumer buys a product or a service using a prepaid card from a merchant, either at a physical store (physical EFTPOS) or from an online retailer (virtual EFTPOS), the customer swipes or inserts the card in a physical EFTPOS, or inserts the card number in a virtual EFTPOS online. The EFTPOS establishes a secure protected connection (Secure Sockets Layer-SSL) with the server of the prepaid service provider (PSP). The server authenticates the customer either by using a PIN or by using his signature – physical or electronic, and checks the amount of funds

[4] Amount defined by Porteous (2006) as the limit for microtransactions.
[5] The Federal Reserve Payments Study, 2004.
[6] Barr, M., 2004.
[7] Card identification number.

available in the prepaid account (value of the prepaid account) in order to approve the transaction. The PSP informs the merchant as to whether the transaction has been approved or declined, and if it is approved the PSP credits the merchant's account (for accounting purposes only) and debits the consumer's account. Once the transaction is approved, the merchant confirms the purchase and provides delivery details if the transaction is online.

At the end of the day, the merchant sends the PSP the total amount of transactions approved, and the PSP settles the payments the following day (or the number of days agreed in the contract) by crediting its bank account. The merchant's settlement account cannot be its prepaid account since the regulator (when the regulator regulates e-money or prepaid accounts) establishes purse limits that are usually too small for merchants. The consumer can load his prepaid account using a variety of systems that depend on the local legislation of e-money. Usually, prepaid accounts can be loaded online or by phone, at a participating retailer, or at the branches of the PSP if it has any. Prepaid accounts also allow the consumer to withdraw cash at any ATM connected to the system, at POS connected to the system with cash-back function or at any participating retailer or branch of the PSP.

Processing POS Payments Using the Prepaid System[8]



Prepaid platforms have features that make them especially useful for developing low-cost payment systems:

1. Customers using prepaid systems do not need bank accounts, debit or credit cards.
2. Users do not need to develop or invest in new technologies.
3. This payment mechanism can be used in a number of platforms such as PCs, mobile phones, hand-held and set-top boxes.

[8] Santomá and Prior, 2008.

4. It is a payment system specially designed for micropayments, and microdeposits and even microcredits.

5. It allows users to control their cash flow by receiving statements (some providers offer this feature online others provide physical statements) or accessing balances through PCs, mobile phones, hand-held and set-top boxes.

Prepaid cards use accounts to manage funds in real time through host computer systems. The accounts are held in a single concentrator account with different subaccounts for each card. Some are "pooled" accounts and some, for accounting purposes, are actual bank accounts held by the individual consumer, depending on how the issuing financial institution treats the accounts. Like regular debit or credit cards, these cards have POS and ATM functionality. However, prepaid cards have the additional feature of being reloadable in a variety of ways at a range of locations. That is why the functionality of prepaid cards closely resembles that of traditional bank accounts, and why they are the basis of the model proposed.

A few recent papers have examined the role of the prepaid industry serving the unbanked and underbanked markets in the United States. Frumkin, Reeves and Wides of the Office of the Comptroller of the Currency (2003) identified payroll cards that can be used for the direct deposit of paychecks, without a necessary link to a bank account, as an innovative product for reaching unbanked and underbanked markets, and conducted a survey of financial institutions in the payroll card market. However, banks have not taken an active role in the market. They are still studying and trying to understand how payroll cards can be made sufficiently profitable, by exploiting cross-selling opportunities with the unbanked.

The possibility of using prepaid cards for asset- and credit-building purposes was raised by Chakravorti and Lubasim Seidman (2006) in a paper discussing the convergence of the interests of the financial services sector and low-income consumers. Chakravorti and Lubasim Seidman pointed out the growing prevalence of prepaid cards in low-income markets and the need for greater consumer protection and functionality with these cards if they are to truly mimic bank accounts.

Prepaid cards could be a valuable financial tool for the unbanked population in the United States for several reasons. First, prepaid cards generally lack the identification and credit requirements that effectively bar millions of individuals from opening traditional bank accounts (Bair, 2003). Second, prepaid cards can be purchased and reloaded at a growing number of locations other than bank branches, such as check cashers, convenience stores, and other retailers. The ability to load cards in multiple fashions at a variety of locations is the key to these products' success and therefore retail distributions are key to prepaid providers (Barr, 2004). This is why they are pursuing partnerships with money-service businesses, convenience stores, and other retail distribution channels to increase prepaid users' reloading options. Third, prepaid cards can provide immediate availability of funds at a cost that is, in some cases, lower than some other alternatives for unbanked consumers. Fourth, prepaid cards are difficult to overdraft, reducing the likelihood of unexpected fees. Fifth, many prepaid products offer some sort of bill payment option, especially branded cards that enable signature-based transactions. Since many prepaid users are unbanked, the functionality of paying bills without using checking accounts or money orders is important. However, most bill payment options for prepaid card users are online or in-person. Additional physical options are required, such as self-service bill payment at kiosks in retail locations, that could provide additional functionality for unbanked consumers.

Sixth, a significant number of prepaid cards providers offer remittances. This feature allows United States cardholders to transfer funds to authorized family members in other countries. Prepaid-based remittance features are structured in at least two ways. Sometimes, dual cards are issued to customers, and one of the cards is sent to family in another country to access funds from the sender's "account" via ATMs. Other cards allow cardholders to designate "subaccount" holders in other countries for the purposes of transferring money. In these cases, the subaccount holder has access only to the money that the primary account holder designates to share.

3. Review of the Prepaid Card Industry in the United States

Prepaid card systems in the United States operate in two ways. One is the "closed-loop" system, which is the largest component of the prepaid card market. Closed-loop prepaid cards can only be used for the issuers' products or for limited purposes, such as prepaid gift cards at retailers like Borders or Starbucks in a closed payment network.[9] The issuer and the merchant are therefore the same entity. The second one is the "open-loop" system that offers consumers the ability to utilize their cards for multiple purposes, such as making purchases at a variety of stores or paying bills. These cards are accepted in payment networks open to multiple issuers, where merchants and issuers are a different institution. This open payment infrastructure provides the basis of bank card systems and is currently used for debit and credit cards.

Closed-loop prepaid systems were first introduced in the early 1990s and open-loop cards became available by the middle of that decade. Closed-loop systems were originally used as a payment instrument in retail stores (sometimes provided as a gift card), but are also being used extensively as a payment instrument in transport systems and mobile telecommunications. Originally, retailers and department stores developed this kind of systems in order to avoid paying discount fees to merchant banks.[10] Closed-loop systems do not belong to payment networks[11] and as a result are also called "non-branded cards."

Open-loop prepaid cards, offer consumers the ability to use their cards for multiple purposes in multiple locations. Open-loop prepaid cards are therefore the equivalent of online debit cards for unbanked customers. "Open-loop" cards are accepted in open branded networks such as Visa or MasterCard and therefore are called "branded cards". MasterCard, Visa, American Express, or Discover branded cards use both signature-based and PIN-based authentication mechanisms. MasterCard and Visa branded Prepaid currently dominate the market but Discover and American Express branded Prepaid are becoming widely available as well in the United States. Their competitive position might also strengthen in light of recent antitrust lawsuits brought against Visa and MasterCard. Discover, for example, purchased Pulse EFT Association, an Electronic Funds Transfer (EFT) network with over 4,000 financial institution members. This could have further implications for future branding for Prepaid.

Open-loop systems can be grouped into three categories: First, payroll-only cards, which can be used only for direct deposit of paychecks or, in some cases, for receiving other automated clearinghouse (ACH) deposits, such as Social Security Payments; second, reloadable payroll cards, which serve primarily as direct deposit cards for payroll checks but offer consumers other

[9] This kind of closed system is also called private networks.
[10] Discount rates are paid to banks by retailers, when customers use bank-issued cards to pay for goods at an EFTPOS.
[11] Branded networks such as MasterCard and Visa.

ways to reload the cards; and, third, general-purpose reloadable debit cards, which consumers can reload in a variety of ways at a range of locations.

Payroll-only cards were thought to be one of the most promising types of prepaid products. However, they are generally only used for direct deposit of paychecks and other automated clearinghouse (ACH) deposits, such as Social Security or disability payments. Typically, prepaid providers market payroll cards directly to employers, who then distribute the cards to their employees. Most prepaid cards do not currently work in a way that allows a single card to contain all levels of functionality–payroll, general spending, etc. Consumers who have payroll cards, for example, may not be able to or may not be aware that they are able to load other deposits besides payroll deposits onto their cards.

Many payroll cards are only set up to accept streams of direct deposits; manual reloads might not be available. However, some providers offer reloadable payroll cards. Integrating different types of prepaid cards and adding functionality, such as reloadability, payroll direct deposit, bill payment, and others are important innovations for the future of the prepaid industry if it wants to provide an attractive value proposition to consumers.

The major players in the United States prepaid card market today are non-bank providers of reloadable prepaid debit cards such as Green dot, NetSpend and Next Estate. Banks are also providers and issuers of prepaid cards, such as Bankfirst, Bank of America, Citibank, and JP Morgan Chase; prepaid processors such as Metavante, StarSystems, WildCard and Galileo; providers of back-end services for prepaid cards, including ATM and POS processors; and payroll firms such as Paychex and Comdata. The distinction between products that are distributed by financial institutions and those distributed by non-bank firms is important. Products distributed by banks and credit unions are more likely to have additional consumer protections, lower pricing (because fewer players are involved), and more obvious transitions into other financial products and services.

Prepaid cards offer interesting opportunities for banks that see low-balance savings accounts as cost-prohibitive products. If the prepaid industry can figure out a way to offer savings and other benefits to previously unbanked consumers, it would be a win-win proposition for customers and companies alike. As issuers, banks hold the funds underlying prepaid cards in a variety of ways. Some banks hold the funds off-balance-sheet, in fiduciary accounts. Others hold the funds on the balance sheet in pooled accounts, perhaps in the name of the card's distributor, or in the case of payroll cards, in the employer's name; while still others provide individual deposit accounts in the name of each cardholder.

For large banks, interest in prepaid products may be partly due to their greater involvement in the payroll card market than in the general spending market. Prepaid cards are therefore sold to employers, who offer the cards to employees, providing consumer protections similar to those enjoyed by traditional bank accountholders. Payroll cards give banks data about customers that could then be used for opportunities to cross-sell other bank products.

On the other hand, certain small regional banks, such as the Central Bank of Kansas City and University Bank in St. Paul, have created new prepaid programs that are intended to serve as entry-level products for consumers that might access additional bank services in the future. In another recent development, New York Community Bank, the fourth largest thrift in the country, has begun to offer prepaid cards in its branches. The Bank is marketing the cards as entry-level products, and is also marketing to customers who are denied checking accounts or who prefer prepaid instruments.

Non-bank firms are beginning to replace bank distributors as the most active players in determining how to add enhanced features to prepaid products that could provide increased service to lower-income consumers as the marketplace matures. Perhaps because of regulatory uncertainty, to be discussed later, or a more conservative approach to entering new markets, banks are lagging in innovation with regard to these products.

However, the most important remaining challenge for prepaid issuers is to devise a business model that assures profitability. Issuers do not currently know what features make products successful. However some facts are clear: First, large scale is needed to be profitable. Second, in order to develop a profitable prepaid business model, customer relationship management strategies using data mining processes are required. These processes are already widely used in the credit card industry and therefore the synergies between credit card issuers and prepaid issuers need to be exploited. Providers of prepaid cards need to take into account how many cards are active in their system, how much money is loaded onto each card, how frequently the cards are used, the number of transactions occurring each month, and how much unspent money is left on unused cards.

Prepaid cards main income streams are fees paid by cardholders for activation, maintenance, and debit transactions, as well as through interchange fees from merchants and earnings from float on the funds held. The lack of consensus around the key profitability drivers might help explain the wide variety of pricing structures and fees levied by prepaid providers. The business case has not been clearly defined and issuers of prepaid cards are unclear on what specifically attracts consumers to stored value products.

Although the increasing competition in the marketplace is decreasing prices for prepaid cards, they are still higher than regular bank accounts. The fees that consumers might pay to sign up for and use prepaid cards are estimated at $25.45 a month for general-purpose cards (CFSI, 2007). Costs of a regular bank account are lower. Bankrate.com conducted a survey of checking accounts in spring 2003 and discovered that the average monthly fee for a non-interest bearing checking account in the country's 25 largest markets was about $6. Therefore, a prepaid card could be a highly expensive option, perhaps even more costly than using a check casher for basic transactions. In other cases, however, a prepaid card with a lower pricing structure or a structure that is consistent with the holder's usage pattern could be cheaper for certain consumers than using a check casher.

Prices could come down if additional income revenues were exploited. One potential feature that is currently lacking in most prepaid cards is the ability for cardholders to save and build assets. Families with relatively low incomes have assets that could be stored in a savings vehicle (Hogarth, Anguelov and Lee, 2003). But many of these families may not have access to traditional accounts at banks or credit unions. Therefore, demand for savings features in prepaid products is potentially powerful.[12]

Research shows that lower-income consumers desire products that provide a safe, convenient and inexpensive way to pay bills, make purchases, save, and build credit. For example, a 2000 industry survey of check-cashing customers showed that 49% would use savings accounts if they were available from their regular check-cashing outlets (Santomá and Prior, 2008). Market research in lower-income urban markets showed that an overwhelming majority of low and

[12] The Federal Reserve Board's 1998 Survey of Consumer Finances estimated that 60 percent of households at or below the poverty level had positive assets.

moderate-income consumers, given the opportunity to spend $10,000, would invest the money in some type of asset-building opportunity (Jacob, 2005). But in order to save, lower-income families need an opportunity, or the ability to access a savings vehicle; incentive, or the ability to earn interest on funds; and motivation, such as direct deposit, which makes automatic saving much easier.

A few prepaid companies have experimented with offering savings features with their cards. Directo included a savings component as part of the bundled services offered with its card program, but the company suspended it in part because few customers were using the feature. NetSpend, one of the largest providers of prepaid cards in the United States launched a strategy to link a savings vehicle with its prepaid program. IndiGOCARD started a program linking savings accounts to its prepaid program but has marketed it as an overdraft protection program. Linkages with savings accounts, tax refunds (such as the prepaid programs offered by Jackson Hewitt and H&R Block), Individual Development Accounts (IDAs), or other savings vehicles through an issuing financial institution are possibilities for prepaid card growth.

However, prepaid card providers must face important customer barriers to providing unbanked consumers with savings opportunities. First, savings or credit-building features would require more stringent identification verification. This requirement would decrease the relative anonymity offered by prepaid cards, which is one of its most desired features. Second, prepaid users may not want transaction history data to be reported for credit-building purposes. They may wrongly perceive that such data could negatively affect their credit scores, based on their previous banking experiences. Third, "Saving" has different meanings for different people and therefore the product may need to be adapted according to the type of customer targeted. For some, a rebate or a flexible spending account may act as a savings feature. For others, "savings" vehicles must provide accessibility, tangibility, anonymity, or address other concerns.

However, one of the most important perceived customer barriers to providing unbanked consumers with savings opportunities through prepaid cards is the lack of consumer education. The need for consumer education in appropriate use of such features may be a barrier. Consumers already face difficulties in understanding how prepaid cards work, how fees are structured, and how to manage their funds. To solve this problem, employees at current prepaid card distribution points (places of employment, check cashers, retail locations) should be more willing and able to explain products to consumers. As a result, adding new features such as savings and credit-building features may require a level of sophistication and education in consumers that currently does not exist.

A second potential revenue source for prepaid card issuers could include adding credit-building features to their products. Since cards are marketed primarily to unbanked customers, prepaid cards have the potential to be an effective personal financial management tool for some people. However, very few companies are attempting to provide credit-building features such as a payday advance or an overdraft protection feature tied to a prepaid card.

These small extensions of credit, both formal (such as payday advances) and informal (such as paying overdrafts on a discretionary basis), could be an additional feature that would add value to the issuer's prepaid value proposition. However, even if these products were marketed properly they would not currently help build a consumer's credit score. Existing credit models

do not allow for the reporting of credit relationships lasting fewer than 30 days.[13] IndiGOCARD, Eufora Credit Builder and the NetSpend CredAbility program have sought to leverage the credit-building component as a marketing tool for the cards, extensively advertising this feature and using a variety of strategies to try to link Prepaid with the credit bureaus.

The structure of the United States' credit reporting system presents therefore important barriers for the development of credit features tied to Prepaid. First, the credit bureaus do not currently accept individual tax identification numbers (ITINs) as an identification document, although the United States Patriot Act allows the acceptance of ITINs as a substitute for Social Security numbers for credit reporting purposes. Second, credit bureaus currently can only collect credit data; debit and prepaid data are not considered to be "credit." Some prepaid companies have attempted to report monthly fees as "bill payments." However, laws in some states restrict the reporting of bill payment histories by utility companies, although the federal Gramm-Leach Bliley Act (GLBA) allows such reporting by financial institutions to credit reporting agencies. As a result, current credit-scoring models in the United States do not use prepaid-related data.

International experiences in credit scoring models prove that prepaid usage information should be used. In many European countries, the practice of collecting deposit data for scoring purposes is widespread, but the data is usually limited to the financial institution's internal system (banks cannot view another institution's customer data). Some have argued that the Fair Credit Reporting Act (FCRA) has prevented financial institutions and other entities from reporting prepaid transaction information due to privacy issues.[14] However, as long as institutions follow FCRA guidelines, privacy issues should not stop banks and others from reporting prepaid transaction data to the bureaus. Nonetheless, this is not presently occurring in the marketplace.

Adding credit features to prepaid cards can also generate other regulatory problems. It is unclear whether these services should be considered extensions of credit from a regulatory perspective and therefore subject to corresponding disclosures and regulations. Besides, the ultimate benefit to the consumer is disputed, since the costs of payday lending and overdraft protection are so high. Some argue that low-income consumers should be able to access small credit at reasonable costs, and currently these costs are prohibitive (Center for Responsible Lending, 2007).

4. Mobile Banking in the United States

In the United States, approximately 17.5 million people with mobile phones do not have access to bank accounts (CFSI, 2007). Mobile banking services in the United States could be highly attractive for this group, taking advantage of the synergies with the existing value propositions being offered by issuers of prepaid cards. The success of Mobile Banking with this part of the population will depend on whether the value proposition is right in terms of prices, distribution method, usability, security, product design, communication and marketing. However, the high adoption rates of new mobile technologies by the population groups most likely to be

[13] Fair Isaac Corporation recently announced the development of a new credit score for those with little or no credit histories; this credit score may use data on payday loan repayment, although it is unclear how such data would be used.

[14] For example, how much money went into an account, and how much came out, in addition to information on balances and length of card ownership.

underbanked align well with the eventual acceptance of MFS, if appropriate value propositions are offered.

Mobile banking services have not had the same degree of technological innovation and market penetration in the United States as in other international markets such as Japan or the Philippines. The most important obstacle to the development of mobile banking in the United States is the structure of the telecommunications industry in the country. The slow standardization and the fractured wireless market hamper uptake of Mobile Banking in the United States. Mobile phone penetration in the United States is lower than in most developed countries, and even lower than in some developing nations. High penetration in some developing countries can be traced to the lack of legacy land-line infrastructure. As a result, users have moved directly into wireless telephony.

The continued lack of dependable, universal wireless coverage, even in metropolitan areas, renders mobile banking alternatives like online banking more reliable and user-friendly. And because the United States' mobile market is only now approaching saturation, carriers have remained more focused on customer acquisition than on increasing functionality, prioritizing "new subscribers over new services." Finally, some experts suggest that consumers in the United States may be less willing to engage new technology than in other markets as Korea and Japan.

From a regulatory perspective, federal and state banking regulations may limit the financial services that telecommunications companies can provide. As a result, carriers may be obliged to partner with banks or third-party providers, slowing the development of MFS solutions led by telecoms. However, the recent and important development of the prepaid industry could catalyze a service that has potential demand given the significant unbanked population in the United States, particularly among Hispanic immigrants. Telecommunication companies could partner with specialized providers of prepaid cards in serving the unbanked, and therefore increasing accessibility and functionality to existing prepaid cards. Regulatory issues should not be a concern, since prepaid cards are already regulated as Money Service Businesses (MSB), and telecoms could be viewed as agents currently not regulated under the MSB framework.

Beyond the specific challenges that will be encountered by individual players, a number of general questions face the emerging mobile banking industry in the United States. First, security and how providers can balance convenience and security to ensure that both users and providers are fully protected against fraud, data theft, and other threats. Second, reliability and how the mobile financial services infrastructure can prove dependable enough to attract and retain customers. Third, partnership models and what kinds of revenue-sharing arrangements will be arranged by key players without proving to be prohibitively expensive for end users. Under these agreements, the key element of discussion will be to determine who "owns" the end-user relationship. Fourth, achieving necessary volume and network effect issues, convincing not only consumers but also merchants and distribution networks to build a sustainable business case. Fifth, to what degree legacy systems will be an obstacle for the development of new mobile banking solutions.

- *Emerging domestic players:*

Established banks such as Citigroup (Citimobile), JP Morgan Chase, HSBC and Bank of America have developed "additive mobile banking business models" (Porteous, 2006) where transactional services are offered by mobile telephone on traditional banking products. The most advanced multichannel offering using mobile phones, however, has been the mobile

banking offering from Banco Popular. The bank, which has branches in six states and throughout the Caribbean, allows users to consult their account balances by text message and sign up to receive notifications for various types of account activity. The free service is currently available to users of Centennial Puerto Rico, Cingular, Movistar, and Verizon.

Among domestic mobile carriers, Cingular, currently being rebranded as AT&T, is leading the market, having announced its mobile banking alliance with enabler Firethorn Holdings, a mobile transaction streamlining company. However, its mobile banking strategy has been limited to providing an additional transaction channel to established banks, and therefore allowing them to implement additive mobile banking business models. In March 2007, AT&T signed a partnership with Wachovia Corp. and other banks that will allow subscribers of its Cingular brand to check account balances, transfer funds, and receive or pay bills. The Firethorn technology connects with Firethorn's servers, which then communicate with the users' bank systems.

Among manufacturers, Motorola has led the market, with the development of M-Wallet Solutions. Its application allows users to download directly to their phones through their mobile internet connections. M-Wallet includes such features as bill payment (linked to online bill payment service providers), point-of-sale payment, and money transfers, and would be funded by credit, debit, or gift cards stored in the phone. According to media reports, the solution also allows users to make payments from prepaid wireless accounts, or have payments charged to their monthly phone bills. Motorola must now broker deals with wireless carriers and issuers to bring the service to end users. Motorola is currently running a pilot with Morgan Stanley that will allow 1,000 Discover Card clients in the Chicago and Salt Lake City areas to use their Motorola phones as a means of payment.

However, where "transformational models" are being developed is when mobile virtual network operators (MVNOs) partner with prepaid providers. As resellers of wireless services, MVNOs frequently target niche markets such as youth and ethnic minorities that mobile operators would otherwise have difficulty accessing. Consequently, MVNOs may prove particularly suited for banking the unbanked among their customer bases. They may also provide major mobile operators with the opportunity to experiment indirectly with mobile banking without the risk of public failure.

AMP'd Mobile, a youth-oriented MVNO with a focus on multimedia content, has announced a partnership with the mobile payments company Obopay. Virgin Mobile, another youth-focused carrier, will launch a prepaid Visa debit "Stash" card with prepaid provider NetSpend. The product's mobile-based features include P2P transfers and text-based account alerts. Movida, a MVNO targeting the Hispanic market, has plans to offer a mobile-linked prepaid debit card that will facilitate top-ups and provide an opportunity to develop credit for the unbanked population. Movida's m-payments solution will also integrate the prepaid debit card and phone to provide wireless remittance services, in addition to wireless transaction and balance alerts.

Finally, in the last two years, a number of mobile-oriented financial services companies have entered the market or announced their intention to do so. Most are start-ups, some of which have received substantial venture funding. A notable exception is PayPal, which has leveraged its successful online payment platform with more than 100 million users to start providing mobile payment services (service launched in April 2006). PayPal uses SMS or IVR technology to offer P2P transfers and merchant payments at participating retails using their Pay Pal Accounts. Currently, the SMS service works on Alltel, Sprint, T-Mobile and Verizon. Text-

message payments may be attractive to offline merchants who are too small to afford credit card merchant accounts, and to online merchants who have signed up for PayPal merchant services.

PayPal Mobile leverages the API platform developed by PayPal Merchant Services, the PayPal unit responsible for developing business outside of the eBay payments world. PayPal was founded in 1998 and launched originally as a "person-to-person" electronic payments network. However, it soon became clear that PayPal's most important revenue generating activity was servicing "online auction marketplaces." It was attractive to auction sellers, most of whom were individuals or small businesses that were unable to accept credit card payments directly from consumers. Many sellers could not qualify for a credit card "merchant account" because they lacked a commercial credit history; for others, the fixed fees associated with a merchant account would be onerous, given their small scale. PayPal offered auction sellers a quicker and more convenient payment method. With PayPal, sellers did not need to wait to receive checks or money orders by surface mail before shipping goods. The service also appealed to auction buyers because they could fund PayPal accounts using credit cards or bank account balances, without divulging credit card numbers to unknown sellers. Sharing personal financial information was a serious concern that led many consumers to avoid buying online.

In July 2002, the online auction leader eBay – conceding the defeat of its Billpoint service created to compete with PayPal – acquired PayPal for $1.4 billion in stock and shut down Billpoint. PayPal's first-mover advantage and torrid viral growth caused not only Billpoint but also many other early online payment rivals to fall by the wayside. As a result, paying in eBay became the "killer" application that PayPal needed to achieve enough scale and become a serious competitor in the "off eBay" world.

At a February 2005 analyst conference, PayPal management described the off-eBay opportunity, citing Forrester research that estimated 2004 United States e-commerce spending to be $144 billion, with eBay garnering a 12% share. The research further segmented the United States off-eBay market into three groups based on annual online sales: sole proprietors (less than $250,000), small-to-medium businesses ($250,000 to $5 million), and large merchants (more than $5 million). Merchant Services would target small-to-medium and large online merchants, which together made up $116 billion in off-eBay United States sales. In these markets, credit cards were the dominant payment solution.

The Pay Pal Merchant Services strategy was based on the development of the Website Payments Pro Merchant Services launched in June 2005. Pay Pal Merchant Services targeted small and mid-size online merchants that wished more control over their transactions. The Pro product suite featured two new functions: Express Checkout and Direct Payment API. Express Checkout allowed shoppers with PayPal accounts to pay for items and supply shipping information with just three clicks at merchants' websites. Direct Payment API allowed sellers to accept credit cards from buyers who did not have PayPal accounts, then process the payments through the PayPal system and deposit them into merchants' PayPal accounts. With Direct Payment API, PayPal offered a one-stop alternative to traditional credit card acquirers, merchant processors, and gateways.

Recent investments in the online world are consolidating PayPal Merchant Services strategy as an "off e-Bay" payment system. In October 2005, PayPal announced its acquisition of VeriSign's payment gateway business for $370 million, boosting its transaction volume and acquiring a large base of online merchants to which Merchant Services could cross-sell its products, including

Website Payments Pro. In July 2005, eBay purchased a leading United States comparison-shopping site, Shopping.com, for $620 million. In September 2005, eBay acquired Skype, the world's leading voice-over-Internet-protocol (VoIP) provider, for $2.6 billion.

- *Mobile Banking Technologies:*

In the United States, Near Field Communications (NFC) technology, consisting of "standards-based short-range wireless connectivity technology" that allows communication between enabled devices, is driving the development of the industry. Mobile banking technologies in developing countries such as the Philippines where the industry has developed extensively are based on SMS technology. In Japan, the developed country with the highest penetration of mobile banking, the industry has developed also using NFC technology. For use in mobile phones, NFC chips may be attached to headset covers or incorporated directly into the phone hardware.

Currently, NFC technology is already being used in tags, fobs and cards such as MasterCard's successful PayPass product, but it also enables additional mobile functionality. As a result, the merchant locations that currently accept contactless payments (including a number of high-profile fast-food and retail chains) will in theory be able to receive payments from NFC-enabled phones. Like existing contactless payments products, NFC will likely leverage the card-payment networks already in place by linking to users' association-branded cards.

A significant development for the use of MasterCard's successful PayPass product in mobile banking comes from Giesecke & Devrient42 (G&D) and MasterCard International,[15] which announced the development of a secure over-the-air (OTA) personalization scheme. (MasterCard®) PayPass can be enabled directly with the customer's phone, making a one-time request to their bank to register for the service. Data is sent over the carrier network and then automatically loaded and activated by the PayPass payment application in the mobile phone while personalizing the phone's built-in 'secure area' with the customers' card payment account details. This technology enables card issuers to securely load accounts to customers' mobile phones without accessing the phone's SIM card or creating vulnerabilities for the phone's NFC chip. During the first quarter of 2007, Citibank, MasterCard, and Cingular began testing the technology in the United States, in the New York City market, using NFC-enabled Nokia headsets.

Unlike the contactless payment cards currently available, phones with built-in NFC devices can be linked to "mobile wallets" that allow access to multiple accounts or cards. Limited by definition to local (non-remote) transactions, NFC technology can be also be used to "top up" prepaid mobile accounts at merchant load stations, or to facilitate in-person transfers between two users with NFC-enabled headsets. Supporters of NFC maintain that the technology will prove more user-friendly than SMS-based payments at point of sale and even faster than traditional cards or cash. Broader adoption, however, will require certification of the technology, standardization across mobile carriers and financial institutions, and, most notably, substantial investments by retailers in POS infrastructure.

An alternative to SMS and NFC technology is to provide access to online banking and payment platforms through users' mobile phone internet browsers. However, this solution is creating little enthusiasm in the industry since online content must be resized to fit small-screen cell

[15] MasterCard International and GSMA have launched a global initiative to enable international migrants to transfer money home through their cell phones.

phones, most likely through the creation of dedicated websites. Besides, the relatively slow speed of many users' mobile-based web access may also be a significant obstacle. The final barrier is cost, since mobile users connecting to the internet generally pay substantial fees.

5. Conclusions: Mobile Banking and the Underbanked – Partnerships Between Prepaid Card Issuers and Mobile Operators will Shape the Future of Mobile Banking in the United States

Mobile banking has a potential market segment in the United States, already targeted by prepaid issuers. The customers who are not being currently served by the traditional banking sector could be interested in this value proposition if it aligns with their requirements. Among the unbanked, Hispanics are potentially the population segment that emerging mobile banking initiatives are currently targeting. Banking access and mobile phone usage among Hispanics in the United States is very similar to banking access and mobile phone usage in some developing countries such as South Africa, where mobile banking has made important inroads.

As many as 40 million American households are underbanked (CFSI, 2007). Likewise, a 2004 Mintel report shows that 65% of Americans own mobile phones (Mintel Market Study, 2005). Because of the strong relationship that still exists between mobile phone ownership and income, it does not automatically follow that 65% of the underbanked are mobile phone users. A more cautious estimate rests on Mintel's finding that 44% of Americans with a household income of under $25,000 have cell phones. Assuming, quite conservatively, that only 40% of underbanked households include at least one mobile phone user, the existing market for underbanked mobile banking would exceed 17.5 million people.

Hispanics over the age of 18 without bank accounts who have mobile phones number approximately 3,7 million consumers (CFSI, 2007). This estimated pure "unbanked" population excludes the millions of Hispanics who have some kind of banking relationship but continue to use alternative financial services, such as check cashers and money-transfer operators. They too could derive significant value from mobile banking offerings targeting the underbanked. As a result, Hispanics likely constitute at least one-third of the potential underbanked mobile banking market.

Though no definitive data exists on cell phone usage among the underbanked, mobile technology has become increasingly popular among the population groups most likely to be financially underserved by the traditional banking system. The market research firm Mintel[16] shows that in 2004, 57% of Hispanics owned mobile phones. Furthermore, according to the Pew Internet and American Life Project, young and non-white users are significantly more likely to claim that "they can't live without their cell phones." The Pew study also identifies a subpopulation of "cell only" users who do not have land lines (largely for financial reasons) and who are "disproportionately male, under 30, non-white, unmarried and from households ... earning less than $30,000." A study by the Tomás Rivera Policy Institute notes that of all ethnic groups in the United States, Hispanics are the most likely to give up land lines in favor of

[16] Mintel Reports: "Mobile Phones-US-May 2005: The consumer," based on research conducted by Mintel/Simmons NCS in Fall 2004.

exclusive mobile phone use.[17] They also tend to have the highest average wireless bills, at approximately $71 per month, which indicates the intensity of their mobile use (Mintel, 2005).

"Cell-only" users tend to use their mobile phones for a greater range of services, including text messaging and internet applications – two key platforms for Mobile Banking. Indeed, 61% of cell-only users employ text-messaging, compared to 31% of cell users with land lines; cell-only users are also far more likely to use their mobile phones to access websites and send email. Minority groups and younger users appear to share these preferences.

Partnerships between prepaid card issuers and mobile operators will shape the future of mobile banking in the United States. In many ways, preloaded mobile payment solutions closely resemble prepaid cards. Indeed, they may provide similar benefits to users: better security than cash, reduced risk of overdraft or penalty fees, convenient loading of value, and, in the case of the most advanced cards, opportunities to save, transfer funds among users, and build credit history. Indeed, the dividing line between prepaid cards and m-payments could prove hazy, as many prepaid companies begin to contact customers through text messaging, while at the same time many m-payment platforms, such as Obopay, seek to overcome the hurdle of POS accessibility by issuing branded prepaid cards.

One of the most natural applications of Mobile Banking technology, then, may be to build on existing prepaid infrastructure, leveraging mobile technology to provide greater accessibility and functionality to prepaid products currently marketed to the underbanked. These partnerships, would allow mobile banking value propositions to leverage the experience of prepaid card issuers in the Hispanic market, designing products specifically tailored to this population segment. In addition, alliances between prepaid card issuers and specialized mobile virtual network operators would allow both to benefit from income and operational synergies. Besides, by partnering with prepaid card issuers, mobile banking value propositions would be able to include services such as merchant payments, bill payments, remittances, person-to-person (P2P), prepaid Top-up and Tie-ins, Short term credit and even savings.

The most important challenge that would need to be overcome in order to create competitive value propositions based on the mobile banking business model identified is to build extensive load networks. For underbanked users of mobile financial services, the ability to easily load money to their phones may prove as important as the ability to spend and transfer funds. Customers without bank accounts or credit cards – the most common source of funds for existing mobile banking platforms – will require alternative load mechanisms.

Prepaid load networks such as check-cashing outlets, direct payroll deposit, designated kiosks or "reverse ATMs" that accept cash, and point-of-sale loads through partnerships with retailers could be leveraged in order to build extensive load networks. Some Mobile Banking providers have already started to think along these lines. Though the service is not currently offered, Obopay envisions a strategic partnership with a payroll card company that would enable customers to receive their salaries directly deposited to their mobile accounts. Retailers like convenience stores and discount chains, that are already beginning to offer transactional financial services, could provide a particularly valuable link to Mobile Banking services for this segment, not only as recipients of payments but also as load and unload locations. Because the underbanked already use extensively these kinds of retailer, they represent a promising customer service point for Mobile Banking.

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[17] Macias, E., et al., 2005.

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