

Realizing the Potential of Branchless Banking: Challenges Ahead

Being able to make payments conveniently and securely is an essential ingredient in modern life and commerce. It enables economic livelihoods and supports many social relationships (remittances between geographically split families and friends), communal support actions (e.g., joint buying of staples), and public welfare programs (payments to needy families). Yet most people and microenterprises in developing countries must rely on physical delivery of cash or actual goods to make payments. This imposes large costs and risks on those beyond the reach of modern payment networks.

The lucky few have more efficient means of exchange: checks, money orders, direct bank transfers, credit cards, debit cards, and so forth. All these cut down on the need to carry cash, making consumers and their money more secure. Even handling and exchanging cash is a lot easier: consumers have debit cards with which they can exchange electronic value for cash at any number of conveniently located automated teller machines (ATMs).

Affluent people have access to these payment facilities through the banking system. Should that remain a privilege, or should we start conceiving of retail payment networks as a utility much as we think of access to water, electricity, or phones? What would it take to provide every person with the option of participating in modern payment networks—that is, to provide them with transactional accounts that enable transactions right from their home, or at least from specified outlets in the neighborhood, affordably?

Access to payment facilities is a major enabler for achieving universal access to finance. Once I have the capability to easily pay and receive money to and from anyone, my range of financial possibilities expands. I can use this capability to put money away in a savings account. I can receive disbursement of a loan and repay it conveniently. I can pay my monthly insurance premiums. Without access to the

“payments utility,” these options are complicated for me to handle—and probably too costly for a bank or other provider to consider.¹ Once I am connected to the payments utility, I am more likely to become an attractive potential client of a broader range of financial institutions—not just for the lone bank or microfinance institution (MFI) that opened an office a long bus ride away from my neighborhood. Provision of financial services can then more easily be de-coupled from geography (bricks-and-mortar branches), placing more competitive focus on the range and quality of products and trust in the brand.

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In this paper we further develop a broad vision for financial inclusion sketched out in Mas (2008), where payments can be easily made through an electronic network. What makes visioning such a payments utility possible is the technology we have today, which can be used to bridge distances, close information gaps, contain settlement risks, and generally reduce transaction costs. We are confident that today’s technology can do the job. Now the challenge is to develop attractive services that engage customers and workable business models that enable decentralized, largely private, institutions to build this payments utility.

In the next section we first explain the basic financial needs that can be met through a payments utility, and from that we derive the main characteristics that the payment utility should have. Then we review the basic logic of branchless banking. Finally, we outline the main challenges we see for the mass deployment of branchless banking channels. In the rest of the paper we go into these challenges in more detail.

¹ The term “utility” in this paper is doing double duty, on the supply (provider) side as a description of the standard model of universal service provision for networked industries (akin to the water utility) and on the demand (client) side to indicate the value (utility) of payments and savings for currently unbanked people.

A vision of a payments network as a utility

The need

Finance can be understood to be a collection of ways of transferring value:

- **Transfers across people** (or legal entities) = payments (for goods bought or sold or services rendered) or remittances. The customer's objective is to discharge commercial or social obligations.
- **Transfers across space** = cash delivery. The customer's objective is primarily safety and convenience by limiting the amount of cash that he needs to carry around and having the option of converting electronic value to cash (or vice versa) on demand, as and where needed.
- **Transfers across time** = savings (transfer value to the future) or loans (borrow from the future). The customer's objective is to separate the timing of cash inflows and expenditures.
- **Across future outcomes** (or states of the world) = insurance. The customer's objective is to alter the nature of risks he is exposed to, by essentially contributing during good times and receiving compensation during lean times.

The first of these transactions is a spot transaction—taking place here and now—whereas the rest are a package of a spot transaction (the deposit, the collection of loan proceeds) against a promise of future offsetting transactions. Any financial product or service can be broken down into a set of transactions between the parties over time. The fact that all financial products (beyond payments and transfers) represent bundles of transactions occurring at different points in time puts trust at the core of financial service offerings.

Access to finance entails access to a basic legal, institutional, and physical infrastructure that permits

flexible transferring of value now and in the future. In principle, the most flexibility would be achieved if at least four basic elements were in place:

- A **payments network** that (i) allows value to be routed between all the parties on the "grid" and (ii) provides for ubiquitous points (access nodes) at which cash can be converted to electronic value (or vice versa).
- A **range of providers** (banks or other financial institutions) that creates and markets a range of finance products (e.g., a savings, loan, or insurance product) to meet customers' needs. Customers would need to trust the provider-product package enough to accept it in the marketplace. Thus, the provider's brand hinges on relevant products and trust.
- A basic or **transactional account** for each individual that can be used to collect and transfer value electronically. It is the individual's landing point onto the payment grid.
- An enforceable **legal framework** that specifies the rights and obligations of each player in the system. This would promote trust in the enforcement of contracts and the protection of consumers.

These are the building blocks for a payments network that reaches out to all. But for this payments network to be useful, people need to be able to transfer value through the payment network in a way that is convenient, reliable and secure, widely available, affordable, and useful.

- **Convenient**—a transactional account, and an easy way of issuing instructions for transactions.
- **Reliable and secure**—low probability of loss of value, low risk of nonacceptance of transactions because of illiquidity (that is, the cash point has cash), reasonable certainty on the finality of transactions.
- **Widely available**—ability to transfer money to anyone, and ubiquity of cash-in/out points.

Table 1: Comparing retail payments systems against other utilities

Utility	Key user benefit	Network provision	Range of services supported
Water	Health and sanitation	By state-owned or regulated monopolies	By the user: drink, cook, shower, wash, irrigate
Electricity	Energy	By state-owned or regulated monopolies	Range of electrical appliances: heating/cooling, motors
Telecoms	Communications and information	Licensed operators; oligopoly in "last mile" services	Personal communications, broadcast radio/TV, Internet content
Payments	Value transfers	By government entities or by associations of licensed or authorized institutions	Save, pay for insurance, receive loans, pay for goods, etc.

- **Affordable**—low overall cost relative to people's means, and a charging structure that correlates with customers' perceptions of value.
- **Useful**, especially for poor people who have up to now been excluded from formal financial services—the services offered on the network should make it easier for poor people to manage their financial lives, including their ability to (i) smooth their consumption in the case of seasonal or erratic earnings, (ii) handle large life events and absorb unforeseen shocks, and (iii) support their microentrepreneurial and livelihood activities.

Seen in this light, the retail payments network is akin to a utility (see Table 1). The faucet in the kitchen sink provides convenient, reliable, and affordable access to a standard commodity (water), which the user then turns into a range of useful activities (drinking, cooking, washing). The power outlet provides equally convenient, reliable, and affordable access to a standard commodity (electricity), to which the user connects a range of devices (light bulb, toaster, vacuum cleaner). In just the same way, access to the payments network offers individuals access to a basic service (sending/receiving monetary value) through which they can fulfill a range of needs (save, borrow, insure, or send money to anyone).

Yet access to the payments system has never been seen as a basic enabler for individuals or microenterprises. Is it time to start conceiving the retail payments system as a utility? This does not necessarily mean provision by the state, but the creation of a policy framework that adequately incentivizes investment in the infrastructure, promotes universal extension of access, and provides minimum basic protections to consumers.

Of course, governments have always been very involved in payments systems, in at least four ways. Governments need to make many payments (welfare payments, pensions, teachers' salaries) as well as collect fees and taxes in remote areas, so many created a public bank with many branches through the country (sometimes piggybacking on postal outlets). Many governments have also used the broad postal infrastructure to create a basic postal or giro bank to serve populations in remote communities.² However, public banks often have been hampered by underinvestment in technology, undertrained and undermotivated staff who are often resistant to change, weak incentives to deliver services well, and lack of competition. Many of these banks have been increasingly under pressure to become more financially self-sustainable or have been privatized, often with the result of curtailing their reach.

² World Bank (2006) provides a comprehensive survey of postal networks in 55 countries. It reports that in 2004, postal networks supported 390 million accounts, with savings of \$94 billion, and made 3.3 billion transactions annually. Interestingly, there were 490,000 post offices in the developing world, compared to 275,000 bank branches.

At a more basic level, central banks have traditionally enabled basic retail payments by the issuance of cash, ensuring relative monetary stability and providing cash liquidity across the national geography by transporting cash to provincial offices of the central bank. They have also promoted or even incubated interbank clearing and settlement systems.

However, these government interventions have left many segments of the population outside of electronic payments networks. Some private schemes have emerged to fill the gap between interbank electronic payments systems and ever-present cash. Western Union is perhaps the main prototype. It used the telegraph network to wire person-to-person transfers beginning late in the nineteenth century. Payment card networks, which started in the 1950s, are now going beyond their original purpose of paying for goods and services to include remittances and cash deposit/withdrawal services. Their members have access to a broad range of services, but they mostly cater to middle and upper class segments, leaving the poor behind. With the proliferation of debit cards and ATMs since the 1980s, we can now truly talk of a retail payments network—for those who can afford a bank account.

The plot so far

The fact that financial institutions have to rely on physical branches that are limited in their reach makes it difficult and costly for populations in rural areas or in poorer districts to take advantage of financial services. It is also a problem for the state, which needs to distribute public sector salaries, pensions, and social benefits to a dispersed population. Three key innovations would permit us to transform the economics of financial service delivery at the customer end (see Figure 1):

1. Use existing retail outlets. Practically every neighborhood, no matter how remote or poor, has a number of retail stores selling a wide variety

of products—but not financial services. How can financial institutions use these stores, rather than build their own retail presence? Finding ways for village stores to offer financial services has three main economic advantages for banks: (i) it permits increased physical presence in the area for banks or other providers at drastically reduced set-up costs for banks; (ii) it turns customer service costs into variable costs, insofar as stores are remunerated per transaction; and (iii) it offers the opportunity to create a familiar service environment for poor, less educated people who may feel intimidated by the service style at traditional bank branches.

2. Deliver trust through technology. As the bank–customer interface shifts to third-party retail environments, ensuring trust—the fundamental product “sold” by banks—becomes paramount. Technology-assisted processes can be used to substitute for traditional means of ensuring trust, so that clients (and banks) have confidence in the transaction carried out by a nonbank agent. As described in detail in Mas and Siedek (2008) and depicted in the middle column of Figure 1, the trust infrastructure has four key elements: (i) a mechanism to **identify and authenticate** the customer (and the agent), for example using a card; (ii) a point-of-sale (POS) terminal at the store remotely managed by and with a direct communications link to the bank, so that the bank can **authorize and record transactions** in real time; (iii) a requirement that all customer transactions are immediately **offset against the store’s own transactional bank account** and are subject to availability of funds by the store, so that no credit risk is involved at the point of transaction; and (iv) a **receipt-issuance capability**, so that the customer has recourse if the transaction fails to be recorded appropriately.

3. Use existing mobile phones. Set-up costs can be reduced further by using existing mobile phones as part of the technology platform, for both clients

Figure 1: Options for reducing the cost of retail banking infrastructure



and merchants, as described in more detail in Mas and Kumar (2008). Clients can use their mobile phones as the means of authenticating themselves and identifying their account number. In fact, mobile phones already contain a smartcard (SIM card), and it or the phone itself can easily contain a “virtual” bank card. Clients would use the mobile device itself (rather than the store’s POS terminal) to enter their personal identification number (PIN) and release their account number. Merchants could also use their own mobile phones as a POS terminal. The mobile phone has similar technical capabilities as a POS terminal: a screen, a numeric keypad, and a secure communications link. In this case, we have a mobile-to-mobile service. A solution based on mobile phones can therefore substantially reduce the cost of spreading financial services over many retail environments, at least in areas with relatively high mobile phone penetration. (The receipt would take the form of a text message; alternatively, a portable printer could be attached to the mobile phone of the merchant.)

The first two steps above are the essence of the banking agent model that has had considerable success in Brazil. Extension of the model using mobile

phones is finding market success in the Philippines, Kenya, and South Africa.

As banks move from offering service through their own branches to offering service through branchless channels (using first ATMs, then retail-based POS systems, and eventually a mobile payment platform), they can achieve lower unit costs for basic transactional services. But they will not be able to support the same range of services (e.g., account sign up, financial advice, cross-selling of financial products) and will not deliver the same customer experience. With ATMs, the customer loses human interaction; with store-based agents, they will not be able to inquire about their accounts with the shopkeeper in the way they would with a teller; and with mobile payments they will have to master the user interface on their phone and interact through a very small screen and keyboard. That is the key trade-off the bank needs to manage when deploying an outlet: lower setup cost against less satisfying customer experience. In managing this trade-off, it would be entirely appropriate for a bank to adopt a mixed-channel strategy incorporating some if not all of the options in Figure 1. There is no right or wrong; the bank simply needs to match the needs of specific customer segments against their willingness to pay.

We see banks in many developing countries focused on their ATM deployments. ATMs are a lower cost alternative to rolling out more tellers, by automating the bank–customer interaction. This creates a paradox: is the cost of labor really the main problem for banks in developing countries? No—the problem is (i) the cost of ensuring that tellers are adequately trained and can be trusted and (ii) their inflexible labor contracts. In the agent arrangements discussed here, customers retain human interaction at the touchpoint, supported by a technology-based trust infrastructure. So customer-facing staff can be outsourced to almost any store owner.

With such arrangements, we envision a world where people are able to make small deposits into their bank account through a variety of cash handling outlets right in their neighborhood. Depositing and withdrawing money from your account could be just another product that your local store offers, along with toothpaste and mobile prepaid cards. It might even be possible and appropriate for retail stores to work for all banks, and neither depositors nor their banks need to have trust in the store, beyond what they would normally expect when buying toothpaste or a mobile prepaid card. Moreover, with mobile banking you can do cashless transactions right from your home, coming close to the typical “utility” vision of water and electricity in every home. Banks, like most service providers, can concentrate on product quality and marketing—that is, branding—and can leave retail operations to local shops.

The challenges ahead

Thus far, we have laid out an admittedly utopian view of retail payments in developing countries that would enable universal access to finance—call it a guiding vision. We are still some way from being able to make it a reality. With all the attention, and even hype, that branchless banking has been getting in industry circles and in the media, the actual situation

is lagging behind some perceptions. There are some fundamental obstacles we still need to resolve to make branchless banking an attractive proposition for financial institutions. The main challenges are as follows:

- **Understanding what drives customers** to use and pay for a range of financial and payments services. Understanding customer psychology and designing appropriate services is essential to stimulate demand. How would making financial transactions available electronically transform how people make financial choices?
- **Making the economics work for the cash-in/cash-out agents.** To go to the heart of the problem: shops are used to taking high single-digit or low double-digit commissions on selling a bottle of cola, a mobile prepaid card, a bar of soap, and so forth. So why would they offer cash-in/out services for a much lower commission, if that saddles them with extra security risks and extra trips to the bank? It seems unlikely that in most cases mobilization of microsavings could support commissions at typical retail levels.
- **Providing transactional accounts for all.** An individual’s landing point onto the payment network is his or her transactional account. It needs to be easy for people to open such accounts, and providers need to see economic benefit from offering such accounts broadly. In particular, know your customer (KYC) requirements need to be practical and proportional to the potential risks involved, and financial providers catering to poor people need to have a more efficient and lighter back-office infrastructure that works for low-balance accounts.
- **Identifying shared industry models and business cases** that support the appropriate level of cooperation and competition among all the parties involved in the payments network. Mobile operators, larger banks, MFIs, and other grassroots intermediaries each have a role to play

in marketing and delivering a range of services to the population. But of course reaching the appropriate interoperability standards, aligning private incentives, and building the necessary shared infrastructure takes time.

It's all a matter of setting up the right incentive structure: the customer needs to see benefit in the service, the agent needs to be adequately rewarded, the financial institutions need to find marketing and selling to poor people worthwhile, and the various players in the supply chain need to be comfortable in sharing and collaborating to minimize overall infrastructure costs.

In the next sections, we address each of these four points in turn. But they together raise a broader question of the role of government in enabling, promoting, and regulating the development of a new ubiquitous payments network. Prudential and market conduct regulations will need to be adapted to allow banking transactions to occur in nonbank locations and through nonbank parties. Interesting competition policy issues will emerge around converging roles of telecommunications and financial intermediaries, and around the development of interoperability standards and shared infrastructures. Consumer protection regulations and consumer education programs will need to be bolstered, so that customers with no earlier experience with financial services are not misinformed or harmed by inappropriate choices. All these aspects will need to be worked out in parallel with business and commercial aspects, which we concentrate on below.

Challenge #1: Understanding customer drivers

So far we have talked about the supply side of the equation: the infrastructure that would make it possible for every citizen to gain access to finance.

But, to use a phrase that reflects a common concern in most technology-led projects, if we build it, will they come? Looking at examples from other utilities, widespread access to electricity triggered demand for lighting and heating, but that outcome may not have been so evident when the thought first occurred to someone to connect every home in the land.

So what would it take for the vision of universal connection to a payment utility to be translated into a compelling proposition for poor people whose economic activities are largely informal, restricted to a smaller community of local suppliers and customers, and more sporadic? There are really two parts to the question:

- To what extent would currently unbanked people take up the access offer, by signing up to a transactional account linked to a card or a mobile phone enabling electronic transfers right from their home or from the local store?
- And then, how many financial services would they use, how often would they use these services, and what would they be willing to pay? The potential for extensive use of the network—getting transactions through—is what is going to pay for it and motivate all the different players to cooperate in building it.

It is important to separate the access component from the services component, at least conceptually, because they have different take-up drivers. The access component is driven by customer comfort with the use of the technology platform (whether card or mobile phone based) and related aspects, such as security, privacy, reliability, and convenience. The services component is driven by the relevance and pricing of each service. However, in practice we cannot disentangle the two components if we are talking about targeting previously unbanked customers. The only thing we can do is observe customer reaction to a *joint* offer of access-plus-services. If customers

reject a branchless banking offer, is it because they are not drawn by the range of services on offer or is it because they are not comfortable with the technology through which they need to transact?

This is why it is difficult to answer these questions based on what we know now. Early branchless banking deployments show encouraging signs of customer take-up. Widespread use of banking agents in Brazil has motivated banks to deploy agents in every municipality. In the Philippines, Smart Communications and Globe Telecom together have over 2.5 million active users of mobile money services (Smart Money and G-Cash, respectively). Safaricom in Kenya has managed to register 3.6 million customers to its M-PESA mobile money service within a year-and-a-half after launch. These are significant achievements.

But the picture is less compelling when we look at the breadth of services used and the frequency of transactions (Ivatury and Mas 2008 and Porteous 2007). In particular, although poor people seem ready to embrace payment services when they are offered as a convenient and cheap solution, it does not translate into greater financial savings. When money hits the account, a vast majority of poor people draw it down immediately and in full. This despite the latent demand for better savings products in many countries (see, e.g., Deshpande 2006).

Why is use dominated by only a few payment services, rather than broadening to all payments made by individuals and households? And why doesn't this use of payment services "spill over" into use of a broader range of financial services, particularly savings? To be sure, this is explained in part on the supply side. Branchless banking providers have really marketed these services as payments solutions, not so much as store-of-value solutions—they are modeled more on Western Union than on a bank. This is especially

true of the mobile operator-backed projects, because they want to avoid the perception of offering banking services, which would trigger regulation. But what are the customer perceptions driving this behavior? Next we explore why branchless banking channels are used more for payments than for savings, by looking at three aspects of customers' financial service purchase decisions:

- **Perceived value proposition.** How easy is it for customers to assess and validate the value proposition of electronic payments and savings relative to the options they are using today?
- **Discipline and commitment.** What degree of personal commitment is required to make electronic payments versus saving?
- **Pricing structure.** How do service provider charges align with customers' willingness to pay for electronic payment versus savings services?

Assessing the relative value proposition

When confronted with a new way of doing something (in this case, from traditional methods for undertaking payments or savings to electronic modes), customers need to understand how they benefit by switching—offsetting the positives and the negatives of the new system versus the old. Customers are more likely to switch if they can (i) easily assess *a priori* the extra net benefits and (ii) readily validate those extra benefits and costs as they experiment with the new approach. How do payment and savings services through branchless banking channels compare on these two criteria?

Electronic payments seek to replace payment methods, such as giving cash to the bus driver or to a friend who is going to a remote village to carry cash to your relatives, relying on informal trust networks, such as Hawala dealers, or having to go to another town and queue up to pay your electricity bill. When choosing

payments methods, customers are likely to value certainty of delivery, convenience, and cost. These correlate well with electronic value delivery versus more traditional or informal payment mechanisms. Potential customers can fairly straightforwardly count the benefit in terms of how much less time you need to spend to send the money, how much faster the money gets there, and how much less of it you lose along the way. Moreover, the service concept is easily understood so that providers can concentrate messaging on the benefits.³ And, once you try it out and send money to your grandmother, you can call her immediately and verify that she did indeed get the money. Each transaction provides immediate experiential confirmation of the advantages of the new system, which reinforces the choice.

What about savings? Let's consider two key attributes: preservation of value (probability that value will be maintained or enhanced over time in real terms, net of costs) and liquidity (reliability, convenience, and cost of realizing the value in cash). Comparisons of benefits and costs of technology-delivered savings schemes versus more traditional brick-and-mortar savings institutions (for people who are already banked) or informal or physical forms of savings (for a majority who are not) are a lot harder to make.

For one thing, experimentation may be costly if there are account opening or maintenance fees involved. Also, there is no defined time horizon over which to assess preservation of value. For how long does the customer need to run an "experiment" to validate whether keeping money in the new form of bank accessible through electronic means is "safer" than in the savings institution in the neighboring large town or under the mattress? Therefore, trust is difficult to build because underlying concerns can linger.

In terms of liquidity, branchless banking relies on acceptance of customers' payment device (mobile

phone or card) at a network of local stores acting as banking agents. Yet customers know that the value of cash held by the local stores is unlikely to be sufficient to liquidate their entire savings, which may temper their confidence in the system. Note that the liquidity constraint at local cash-in/cash-out points may be a problem in the case of one-off payments or transfers just as it can be for savings, but customers' evaluation of the magnitude of the potential problem will be quite different in the two cases. To entrust a payment, customers just need to believe that the local agents have enough cash to meet the value of their transfer; in the case of savings, customers may assess the value of cash in the stores' till against the aggregate savings of everyone in the village (e.g., in the event of a natural catastrophe or political unrest).

To sum up, the challenge to induce financial savings by unbanked poor people through electronic offerings is that there is no quick experiential path that will make them more comfortable with the safety and soundness of the scheme. The benefits may be less apparent than the risks.

Building discipline and commitment

The fact that electronic payments flourish under electronic banking schemes but savings seem to lag might also be explained by the relative strength of customer commitment to the services. Bill payments generally have an external built-in discipline device—your power may be cut off. Remittances to relatives often involve social pressures that build commitment and occur in a regular pattern that helps build discipline through repetition. Savings, on the other hand, may be harder to "bank" because it can always be postponed—tomorrow, failing that, next week, and so forth.

How does one build discipline to be able to save? One effective (though costly) way to do so

³ Safaricom's award-winning advertising for M-PESA shows a stream of dollars physically fly out from the sender's mobile phone, which is then "captured" by the receiver's phone.

is to *borrow*. You “invest” the money upfront (for instance to buy an asset) and then face a stream of future payments against it. You need to make these payments; the (contractual) obligation to a third party builds commitment and establishes a clear timeframe for (future) savings. Asset building through lending offers liquidity today and a promise of discipline in the future. The success of microcredit stems in large part from the fact that people’s demand for savings is so strong that they are ready to do so at substantially negative interest rates (the lending rate)—when it comes with a commitment device. The alternative, to “save up” in the terminology of Rutherford (2001), may be harder to achieve because the implications of deferring payments are less immediate.

How does a world with electronic payments change this? Making savings possible through a ubiquitous network of retail outlets should increase the opportunities people have to save—it can be done at any time, at any number of convenient locations. You might need less discipline if it is convenient to do, if you have many points in time in your daily life at which you can make a deposit. On the other hand, one might speculate whether it actually weakens discipline by making it so much easier to delay action and by reducing the number of weekly events (e.g., trips to the major town nearby) that previously triggered explicit savings decisions. Which way the impact goes probably depends on cultural factors.

There is an inherent tension between two customer drivers we have discussed: I want to precommit to a future path of savings, but I want to retain liquidity of my savings—which is tantamount to the freedom to not save or even draw down savings at any time. One avenue worth exploring might be to combine more effectively the transactional capability of mobile phone banking with the personal communications capability of mobile phones through a system of reminders and incentives.

Realizing the willingness to pay

There may be a third explanation for the relative success of payments relative to savings through electronic channels, having to do with customer acceptance of the providers’ service charging *structure* (not just the *level* of fees).

Customers are satisfied when the service provider’s charging structure aligns with their own perceptions of value. This is easier to achieve for payments than for savings. Customers understand payments to be one-off transactions, each of which is concluded in a relatively short period; hence, charging the sender per payment event makes intuitive sense.

On the other hand, savings entails a sequence of related open-ended transactions: there is an *a priori* undefined pattern of deposits and withdrawals. In this case, when is it appropriate to charge? We know that customers dislike account opening fees (I must pay just for the privilege of joining?), fixed monthly fees (even if I do nothing?), deposit fees (I have to pay to give you money?), as well as withdrawal fees (you charge me to get what is rightfully mine?). Because we cannot pinpoint the benefit of saving to an individual customer-triggered event, any charging scheme seems arbitrary—and hence hostile—to customers.⁴

In fact, door-to-door deposit collectors have succeeded in many markets. For example, *susu* collectors in Ghana collect a prespecified amount from customers each day and return the monthly collections, less those corresponding to one day, back to their customers at the end of the month. Thus, there is a negative interest of around 7 percent—payable each month.⁵

One can speculate that customers are willing to pay this extremely high fee because it is actually not visible at any point in time: the fee is deducted at

4 In principle, the dislike of bank charges is shared by rich and poor people alike. Even affluent people are often irritated by relatively small ATM fees. But the issue may loom larger for people with low savings balances, for whom charges represent a larger percentage of their savings balance.

5 Here is a back of the envelope calculation. Suppose that daily collections are 1, and a month has 30 days. Thus, the collector’s fee is 1 and the average monthly savings balance is 15; 1 in 15 is about 7%. If a customer takes this service for 1 year, the collector’s fee is 12 and the average monthly savings balance is still 15; 12 in 15 is about 80%.

some undefined point between when customers pay in their daily contributions and when they get the sum back at the end of the month. Is it possible that electronic forms of savings have the disadvantage that fees need to be accrued on a specific day and appear as a line on statements and, hence, are more visible to the customer?

In other words, if you wanted to run an online *susu* collection scheme in which the customer could check on daily savings balances, would you deduct your fee a little bit with each deposit (so that the customer daily pays 1 but only sees 0.93 hitting his account), or would you charge it at the end (so that on the last day the customer gets 7 percent less than he saw was the balance just the night before)? How would the customer feel in either case?

Challenge #2: Making the economics work for retail agents

Branchless banking propositions have to satisfy the needs of agents as much as customers. Agents are the bridges between the “old” cash economy and the “new” electronic payments utility. Without a workable set of options for customers to cash in and cash out, they will find limited benefit in storing value electronically, and they will not find much acceptance of their stored value as a means of exchange.

In standard branchless banking models, agents are normal retail outlets: airtime resellers, post offices, lottery houses, pharmacies, down to the smallest corner shops. They operate on thin margins on goods and services sold, and decisions about product placement on shelves are strictly a matter of which products sell enough volume given the margin they produce. If we expect more retail stores to take

on the agent business, we must ensure that they receive adequate incentives to offer and promote the cash-in/cash-out service. Banking services have the advantage over other products sold at the store in that they do not require physical handling and do not occupy space on shelves or in the back room, but they still impose a (often disproportionately) large cash-handling burden on the store (with the attendant costs of more frequent trips to the bank and higher security risk).

In fact, the economics for agents in many branchless banking environments is still uncertain, for two reasons. First, the volume of transactions is relatively low—an agent doing 15–30 transactions per day is not uncommon. This is because of the low number of transactions undertaken per customer, coupled with the financial provider’s need to create a fairly dense agent network to establish a footprint and offer enough convenience to customers. Second, retail stores are used to product margins in the upper single digits or lower double digits, and that sort of commission is hard to sustain on basic financial transactions, such as deposits or peer-to-peer payments. Customers may not be willing to pay fees in excess of 1 percent,⁶ and the bank may not find these customers sufficiently profitable to absorb agent commissions significantly beyond that. But if that is so, is there enough value in it for the agent?

There are three possible ways of making the economics work for the agent, which we explore in turn below:

- Substantially increasing transaction volumes
- Shifting the incidence of transactions cost away from the consumer and cross-subsidizing
- Lowering the agents’ cost of providing the service

⁶ For reference, 1% is what Smart Money and G-Cash in the Philippines, as well as MTN Banking and WIZZIT in South Africa, charge their customers for depositing cash. Most banks in Brazil, Colombia, and Peru that offer branchless banking go for a fixed payment per cash-in transaction instead of a variable fee. Note that this is the commission charged to the user and is split between the bank or operator and the agent.

Substantially increasing transaction volumes

Ultimately, the success of the payments network will be determined by how many transactions flow through it. Transaction volume will reduce unit transaction costs, incentivize agents to participate as cash-in/cash-out points across the territory, and entice different types of service providers to join the system. The existence of branchless banking transactional channels may not (at least at first) make customers transact more in total, so we must see which of the existing transactions can be captured electronically. We offer the following considerations.

As a starting point, branchless banking providers need to find ways to automatically fill their customers' wallets, through direct deposit of salaries and wages, payments for goods sold or services rendered, government welfare or pension payments, or inbound remittances. If these payments are made in cash, it is less likely that recipients will deposit the cash into their transactional account to fund savings or future transactions.

More broadly, electronic payments should be particularly well suited for transactions that low-income people need to do with outside parties (large employers, the state distributing benefits, utility bill payments, remittances from distant relatives or friends, loan repayments). Service providers need to take an ecosystem view and attract all those remote parties who wish to transact with their customers. They are in a two-sided market: the market for end-users (customers) and the market for external parties wishing to transact with their customers (including payers, billers, and other financial service providers).

Being able to make payments to remote parties is particularly valuable to users, but this by itself will not generate a significant volume of transactions—

perhaps up to one per week per user. Significant transaction volumes will develop only when people use electronic payments for their daily life—in the communities where they live, to pay for day laborers, buy goods at the store, pay local fees, transfer money between family members, and so forth.

However, there is as yet very limited evidence anywhere that branchless banking solutions are being used for intracommunity transactions in any significant volume.⁷ Many innovative virtual cash products have been tried in developed countries, but they have met very limited success, indicating that cash is very hard to displace for smaller in-person payments. The stronger driver for cash substitution ought to be security, and hence it may be that mobile money products would be particularly successful as an alternative to cash in particularly crime-ridden areas or in conflict zones.

Ultimately, transaction costs still need to come down significantly if we want people to use electronic payments within their communities and to manage their own daily financial lives. The system should work for transactions of as little as \$2—the daily income for many—on agent commissions of not more than 2 percent. That means that customers' transaction fees should be in the range of 2–4¢ (1–2 percent of a \$2 transaction).⁸ Only then will the size of electronic transactions match the daily cash flows of the poor.

A final element that can help drive transaction volumes at agents is to share the agents across all financial providers—much like ATMs are shared in many countries. This way, they can grab banking business from their entire regular clientele (regardless of who they bank with) rather than only from those with the "right" bank. And by eliminating needless duplication of agents (each serving niche banking customer bases) the same number of transactions could be handled by fewer agents.

⁷ The mobile telephony world is leading in this respect as well, with airtime transfer products that allow airtime gifting between friends or parents buying airtime for their children.

⁸ Person-to-person transactions through the Smart Money and G-Cash systems in the Philippines are within range: they cost 2–5¢. Compare this with person-to-person charges of M-PESA in Kenya (46¢) and MTN Banking and WIZZIT in South Africa (39¢).

Seeking customers other than the end-users willing to pay commissions for services

Ivatury and Mas (2008) noted that the use of a branchless banking system is dominated by one or two “anchor” payment services, which constitute the main drivers for pulling customers into the branchless banking platform and account for the bulk of transactions. These are utility bill payment in Brazil and airtime reselling and receipt of remittances in mobile-operator-centric systems, such as in the Philippines and Kenya. What these three have in common is that branchless banking providers can take advantage of a higher willingness to pay by parties other than the beneficiary customer:

- Utilities traditionally incur high collection costs, and hence they are often willing to absorb a fee for new forms of electronic bill payment by their customers. By shifting transaction costs from the payer (the customer) to the payee (the biller), banks engaging in branchless banking can tap into a larger willingness to pay. Banks thus have incentives to promote electronic bill payment services, and customers find the pricing very attractive relative to their existing options.
- Over 1 million of the estimated 2.5 million active mobile money customers in the Philippines are airtime resellers. In fact, most use the mobile banking platform only to convert electronic money into prepaid airtime. This is because mobile operators are able to provide a much higher commission on airtime reselling, typically around 10 percent, funded by the high product margins available to mobile operators. It is no surprise that most of these stores advertise the airtime product (attracting a commission of 10 percent) but not the cash-in/cash-out product (attracting a commission of less than 1 percent).

- Likewise, international remittances remain a highly profitable business, with commissions typically in the range of 7–10 percent. The success of remittance networks is based partly on the density of in-country termination points. Hence, they are generally willing to provide a significant commission on termination to reward local outlets’ participation in their network.

Taking the lead from the very encouraging experience with these services, we need to find more players other than low-income end-users willing to pay commissions for bottom-of-pyramid transactions. It is these transactions that should be generating the bulk of commissions, permitting lower marginal commissions on user-paid person-to-person payments and microdeposits (Goldfinch 2006).

We see opportunities in this respect for business-to-person payments (e.g., salaries), government-to-person payments (e.g., pensions and social welfare entitlements), and person-to-government (e.g., taxes and duties). Businesses, whether formal or informal, stand to gain significantly from distributing payments electronically to laborers or suppliers. This offers them the opportunity to reduce cash handling costs while they increase their control over spending. Similarly, governments often pay very high prices to deliver cash payments to rural remote populations on welfare programs or pensions. Branchless banking providers should develop strong payment service propositions for them, at a price that is better than their current alternatives but that creates significant commission for agents.

There is also an opportunity to tie electronic banking platforms more closely to electronic commerce offerings. Airtime reselling by Smart or Globe is an example of that: consumers use the mobile money platform to purchase airtime, and resellers use the same mobile money platform to settle with the

operator. By linking the payment with a product sale, agent commissions can be higher.

Lowering the cost of providing the service by the agents

There are two main costs for stores offering banking services: (i) cash handling costs (including working capital, trips to the bank, and risk of loss or theft) and (ii) use of store resources, including space and staff. There are potential cost-saving opportunities related to each of these two components.

The cash handling costs depend strictly on the timing and volume of cash-in versus cash-out transactions the store has to meet. If the transactions were perfectly timed (a customer deposit being matched immediately by an equal and offsetting withdrawal), there would be practically no cost to the store for offering the service (beyond staff time), and it would be justified in accepting a much reduced margin relative to the other products it sells (which require financing and warehousing).

Financial service providers could use product portfolio and marketing levers to balance cash-in and cash-out costs at the community level, so that agents could manage local liquidity with less (if any) trips to the bank. Reducing the burden on stores for fulfilling the cash-in/cash-out function in this fashion should result in significantly lower agent commissions and more reliable liquidity for customers. This would require financial service providers to carefully analyze net cash trends location by location and to devise ways to stimulate use of cash-in or cash-out services as required. For instance, local cash shortfalls could be countered through attractive new savings products or getting more employers to pay wages into accounts; local cash surpluses could be countered by increasing the range of bills that can be paid at the agent or by offering larger loans into the right segment.

Regarding the other component of cost, the use of store resources (staff time, space): do the agents need to be stores? By taking the banking agent business out of more established stores, which have higher overheads and are used to higher margins on product sales, it might be possible to reduce the cost of cashing in and out in poorer communities, while at the same time creating new livelihood activity. We could thus turn access to the payments system into new business opportunities for people and hence go beyond convenience and cost as drivers of take-up.

There is a powerful precedent: among the 1 million airtime resellers on the Smart Money or G-Cash platforms in Philippines, in addition to many tiny “sari-sari” stores, there are many youth acting as “freelancing” resellers within their social circles. We can even conceive of a new kind of *susu* collector who uses branchless banking technologies to guarantee a higher level of service and trust to his or her users. Another area with promise is bill payments: one can imagine roving bill payers who use their mobile phones to make bill payments on behalf of customers—and get a fee in return. This model might not work everywhere, but it is worth exploring.

Challenge #3: Providing transactional accounts for all

Universal access requires having a set of financial institutions that, together, market and sell their services to all segments of the population. Financial institutions have to develop business models that allow them to find all segments profitable.

Or, to look at it from the customer’s point of view: so far we have talked about use (broadening the range of services and increasing the number of transactions), but what about access? If we define access as having a transactional account—a landing point on the electronic payment network—several

barriers need to be overcome to be able to ensure all have a transactional account:

- **Cost base.** There needs to be a class of financial service providers with a sufficiently low-cost banking platform (the system that maintains customer accounts) to be able to profitably offer accounts to all.
- **Revenue model.** Recognizing that low-income people have transactional needs but are likely to maintain relatively low savings balances, financial service providers targeting low-income segments need to shift from a float-driven model to a transactional-driven one.
- **Information issues.** All need to be able to provide the necessary information to open an account.

Low-cost banking

To take full advantage of the payment network, and in particular the savings services attached to it, I need a transactional account. Who will give me one? The answer may not be that encouraging when it comes to poor people with no regular sources of income, with low financial savings, and with the need to make small transactions. For many banks, the revenues and costs associated with putting poor people onto their banking platforms just don't add up.

The complexity and cost of traditional core banking systems are driven by the high platform requirements for reliability, accuracy, and security; the need to obtain a consolidated picture of the customer across many different products; and regulatory reporting requirements. The requirements of core banking systems are generally specified against the needs of more sophisticated customers, who are presumably more profitable. Regulations also often mandate onerous minimum requirements, for example, in terms of maintenance of records. All this raises the

fixed accounting cost per customer to a level that may render serving poorer customers uneconomic.

MFIs can develop cheaper core banking systems that are more tailored to the needs of poorer people. But they generally face a problem of scale, because they must amortize (lower, in absolute terms) the fixed system costs over a much smaller asset base.

This makes it difficult to expect rapid progress in banking the very poor or destitute, at least on a purely commercial basis. There are two basic approaches that pro-poor market participants could adopt to solve this problem. One approach is for MFIs to share the back-office system. The shared core banking system would be developed, managed, and hosted by a third-party application service provider (ASP). The ASP might adopt a leaner core banking system, reflecting the more basic needs of MFI customers, and spread the cost over a larger volume of customers. This, however, would make the participating MFIs very dependent on data connectivity to be able to access the banking application remotely.

The second approach may be to specialize a banking platform to support only one product—transactional accounts. Through specialization, the core banking system could be rid of much of its complexity, and the end result would be something much akin to the prepaid platforms used by mobile operators to maintain the airtime balances of their customers. This approach can be particularly impactful if nonbank financial institutions (including mobile operators themselves) are allowed to issue prepaid cards or other forms of electronic money. By allowing players with more brand affinity for and marketing presence with the mass market to offer limited savings and transactional services, today's unbanked customers would have an alternative path to join the payment network, and it would stimulate competition for financial services at the much neglected bottom of

the pyramid. Of course, such players would need to be licensed with due care for the preservation of the public's moneys.

If the market fails to achieve sufficiently broad inclusion despite these lower cost alternatives, there are two more heavy-handed options left for government. The first one is to mandate universal access for a defined basic account (at a defined price point for customers), in effect requiring banks to cross-subsidize loss-making customers from the broader pool of customers. This is a common practice in utility sectors, where customer fees are geographically averaged (e.g., the customer pays the same for a rural or an urban telephone line, despite the costs being very different). In the case of banking, this is likely to be ineffective: banks will have mandated low-cost products on their portfolio but will neglect to market them effectively. The second option would be for government to offer a subsidy to make poorer or rural customers appear more profitable for banks. However, we do not yet know enough about the economic impact from achieving universal financial inclusion to justify such a policy action.

Nontraditional revenue models

For banks to implement a low-cost banking platform is not enough to ensure an inclusion or pro-poor focus. Given the low savings balances held by poor people, they will also need to shift their revenue model from the traditional float-driven one to a transaction-driven one. Also, they will need to develop ways to cross-sell services to customers (from payments to savings to insurance, for example) to enhance customer profitability.

Knowing me, knowing you

Let's say there exists a low-cost payments network in my village (over the air, at retail shops). Even

then, can I get on it and use it the way I want to? Unfortunately, there are some things about me that service providers will need or want to know, and without that information, they will deny me service. There are some information sources that need to be attached to the low-cost payments network described above to achieve universal access.

The first and fundamental aspect relates to proving *identity*—a legal requirement under Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT) rules. It follows that every citizen should be able to conveniently demonstrate proof of identity. There are certain things that the state can do to facilitate this: ensuring that there is a single or a combination of cards that are trusted and singly or collectively cover the entire population; providing electronic access to identity databases so that service providers can check the validity of identity cards presented to them; and allowing authorized third parties to physically check identity cards (matching photos and signatures) on behalf of service providers under reasonable risk-related limits. There might also be exemptions from proof of identity requirements in low-risk situations where customers can maintain only small balances and undertake small transactions.

The second informational aspect relates to the ability of customers to borrow. Having affordable access to credit may be an important driver for using branchless banking services. Lending is subject to well-known informational asymmetries: I know how good a borrower I am; I know what I will do with the money once I get it; I know the quality of the project I want to fund; I know how hard I intend to work if I get the loan—but the bank cannot be as sure about these things as I am. If these information asymmetries are not addressed, they are likely to lead to an undersupply of credit (or "credit rationing"). This happens because, if the bank responded to higher perceived credit risks by raising the interest rate

beyond a certain threshold, “safe” borrowers would be discouraged by the onerous interest rate, leaving credit demand from only “risky” borrowers who do not care much about the interest rate (because there is a good chance they won’t be able to repay anything at all anyway).

There are some pieces of market infrastructure that can help address these information asymmetries. Credit bureaus can report on the past credit history of borrowers, which can be a proxy for “character” or willingness to repay. Collateral registries can be used to verify the legal title of property, which is pledged as collateral. By letting service providers know these things about me and my assets, they will be in a better position to more accurately “price” the services they are willing to offer me. This can result in increased use of financial services through branchless banking channels. But also branchless banking can help draw people into savings products and build a positive financial profile, which can then become a stepping stone into credit or other products.

Challenge #4: Interoperable business models

In the above discussion, sharing is a recurring theme: the agents might be shared (just as the ATMs that they functionally replace might be), the mobile phone platform may be shared, the credit bureau is shared by definition, and even the core banking system may be shared under an ASP model. Financial service providers might choose to share rather than build their own channels or systems for entirely pragmatic reasons: to reduce cost, to accelerate speed to market, and to extend reach beyond what it might be able to achieve on its own. Sharing most bits with other providers allows the provider to specialize in what is really important to it, whether that is to leverage specific core competencies or to target specific markets. In so doing, the provider can harness

economies of scale within its scope of activities while at the same time broaden the service offering to its customers.

Interoperability—the basis for sharing—is one of the key considerations of any networked business, and the payments network is no different. To bring it back to the customer: once customers have an account, they will want to use it for many types of payments. Indeed, the value to customers of joining the network depends on how many of their friends, business counterparties, utilities, financial institutions, agents, and so forth, are connected to that network. If all account-issuing institutions are able to connect to the same national payments network, then it will be possible to use any agent for cash-in/cash-out and undertake any-to-any payments, and value to all customers in principle would be maximized.

But the story is more complicated on the supply side. Because for providers, bigger is better in terms of customer numbers, larger institutions may in fact opt to maintain their customers on a closed network (i.e., not to interoperate with others) in an attempt to turn their size into a comparative advantage. Smaller competitors would have more to gain than they would from sharing customers and platforms; indeed, interoperability is a great “equalizer.” So much so, that if interoperability were mandated at an early stage of development of a network, it might actually kill off innovation and incentives for growth. Why invest to create and grow a network if others will be able to latch on at a later point in time and take full advantage of the network size?

Indeed, regulators are rightfully very cautious about mandating outcomes in this area. It is generally better to let the markets work out the optimal timing and wholesale (interprovider) pricing that drives an interoperable outcome while recognizing the differential contributions and benefits each player can

realize. Interoperability does not mean “free,” but of course if compensating prices between players are excessive and those are passed on to the customer, then customers may opt out of those services, and the benefits from interoperability will exist only on paper. Regulators need to keep a watchful eye for competitive dynamics in the payments network, but they should avoid intervening too hastily or dogmatically.

Thus the key issue will be how to manage *cooperation*: to work *cooperatively* with other providers to build the basis of an interoperable network within which each provider can *competitively* solicit business from a broader range of people.

To realize the full shared agent network and any-to-any payment scenario, interoperability would need to happen at several levels:

- **Terminal equipment.** POS terminals through which customers and merchants transact need to accept payment instruments of any of the participating banks. Otherwise, merchants would need to deploy specific infrastructures for each bank, which would make it too burdensome and costly for merchants to work with many banks.
- **Transaction switching.** Customer instructions (for a cash withdrawal, deposit, or account transfer) need to be passed on between financial institutions involved at each end of the transaction in real time, so that the customer can walk away from the ATM or banking agent with full and instant gratification (cash in hand, deposit receipt, transfer confirmation). This provides for transaction finality from the customer’s point of view, even if the transaction is in the account of another bank and the banks have not yet settled between them.
- **Interbank clearing.** Transactions for customer accounts that cross over multiple banks need to be accounted for, so that the relevant banks can

keep track of how much money they owe each other. For small enough transactions, they are recorded and periodically netted off against each other. A clearing function also allows bulk billers like utilities to request payment instructions from their customers at multiple banks.

- **Interbank settlement.** Interbank amounts due need to be settled from time to time (i.e., moneys actually need to move from one bank to the other). This is done by transferring money between the accounts that each bank maintains at an agreed clearing bank—often the central bank.

Banks can achieve interoperability at any of these levels by striking bilateral agreements between them. It is much more common, though, to rely on specific institutions to perform each of these roles: an ATM/electronic funds transfer–POS or card payment switch, an automated clearinghouse (ACH), and a real-time gross settlement system, respectively. The first two are often owned by a consortia of banks, while the third is often owned by the central bank. There may be multiple competing switches or ACHs, but these also can be interconnected to present a seamless interworking from the point of view of customers.

Although such an interoperable system should, in principle, offer a higher level of efficiencies through aggregation of transactions, such efficiencies may fail to materialize if joint decision making causes suboptimal infrastructure investment decisions. And even if efficiencies are reaped, they may not translate into lower cost services for end-users if the benefits are appropriated by the operators of the shared infrastructure who have a bottleneck control over the entire transaction processing chain.

Summing up

In the traditional banking environment of high-cost proprietary distribution channels and back-

office systems, the corresponding high direct and indirect costs to customers have resulted in very limited penetration of current accounts within the population. Many poor and rural people manage their lives without using the services of the formal banking system. For some it is simply not an option, whether because of lack of physical bank presence, lack of appropriate documentation, or prohibitive cost. For others, the perceived value proposition is simply too weak or too fuzzy relative to their current approaches to managing their savings and payments, which may include cash under the mattress, saving in physical goods or livestock, and so forth. And in some cases, it may be general perceptions, combined with insufficient awareness of what banks have to offer, that preclude them from trying something different to what they have always done. Whatever the case, what formal financial institutions have to offer does not appear compelling enough for these potential customers.

Sometimes customers who are new to savings accounts take up the service primarily because it is a prerequisite to something else: to get a loan from a bank or an MFI, to collect a salary, to receive remittances from friends and family, or to claim social payments from the government. The savings product is “pushed” by the provider rather than “pulled” by the customer. There is nothing wrong with that: use of certain financial services requires access to the payments network. But that can be only the beginning of the road to financial inclusion.

Branchless banking offers an opportunity to dramatically slash transactions costs and expand geographic coverage of formal financial services. Offering relevant, compelling products will be essential to trigger demand through these new channels. Yet realizing this potential also poses several policy questions. What is the role of government in causing low-cost retail payment and banking infrastructures to

propagate across the territory? In this endeavor, what is the right balance of priorities between fostering technology-enabled innovation and ensuring system stability; between sparking competition and driving toward interoperability; between creating financial choices for and protecting consumers?

The barriers to customer adoption have less to do with attitudes about technology (fear of change, unfamiliar user interfaces, security concerns, etc.) than with communicating precise customer benefits and the financial incentives (or business case) for the various providers. Consider the one million tiny “sari-sari” stores and resellers in the Philippines that use the operators’ mobile money platforms to recharge customers’ airtime: they show that an electronic value transfer system can go mass market—provided users have a real incentive to use them. With a population of some 17 million households, that’s one out of 17 households in the Philippines taking it up as a side business.

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