

# Liquidity Management for Mobile Money Providers

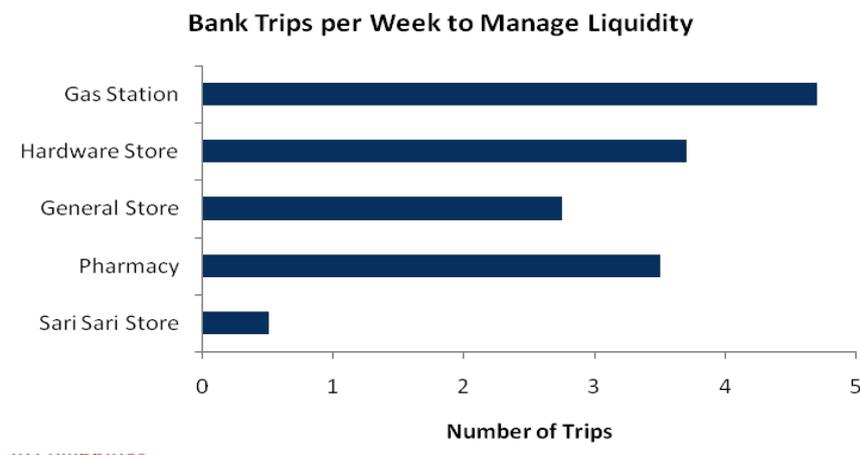
## Insights from Global Experiments



Solving the liquidity management challenge is one of the next big issues facing mobile money providers around the world. None of the players, even the most prominent like M-PESA in Kenya or Globe in the Philippines, have figured out solutions that will work across the country. Even global remittance companies like Western Union have not solved the issue. In fact, most of Western Union's payout centers are banks. In developing countries, even this strategy does not always work because the bank branches themselves run out of money.<sup>1</sup> The trade-off is to have customers return another day. It is not surprising, that the challenges are exacerbated in rural areas. Some providers, like CelPay Zambia, focus on urban areas where there is access to bank branches. Thus the company avoids liquidity problems in harder to reach areas.

Fortunately, customers appear to be forgiving. In Kenya, 20% of M-PESA customers report that they cannot withdraw money from an M-PESA agent. In 70% of those cases, the retail agent did not have sufficient funds. Nonetheless, more than 98% of M-PESA customers are happy with the solution.<sup>2</sup> This suggests that even though there are liquidity problems, the customers are willing to look past that – at least for the time being – because of the overall value they perceive from the mobile money solution. It is unknown how long this will be case.

Even if customers are willing to put up with the inconvenience of having to return to an agent to access their capital, liquidity management is currently a huge expense for the retail agent and puts a strain on the attractiveness of mobile money as a viable business for them. According to research conducted by CGAP, the primary cost of the mobile money business for retail agents is liquidity management, which consumes 20-30% of the total expenses for this business line.<sup>3</sup> In the Philippines, three out of five categories of retail agents are traveling to the bank more than 3 times per week.<sup>4</sup>



The industry is learning that building mobile money distribution channels is more difficult than exploiting airtime agent networks. Similarly, many have not yet faced the realization that liquidity is unlikely to take care of itself. It is likely to require oversight and management on the part of the MFSP and the master agents.

<sup>1</sup> Interview with Paul Sumerall, Managing Partner at New Corridor Advisory Services. October 28, 2009.

<sup>2</sup> FSD Kenya. "The performance and impact of M-PESA". 2009

<sup>3</sup> <http://www.docstoc.com/docs/21369876/The-Hype-Cycle-and-Mobile-Banking>

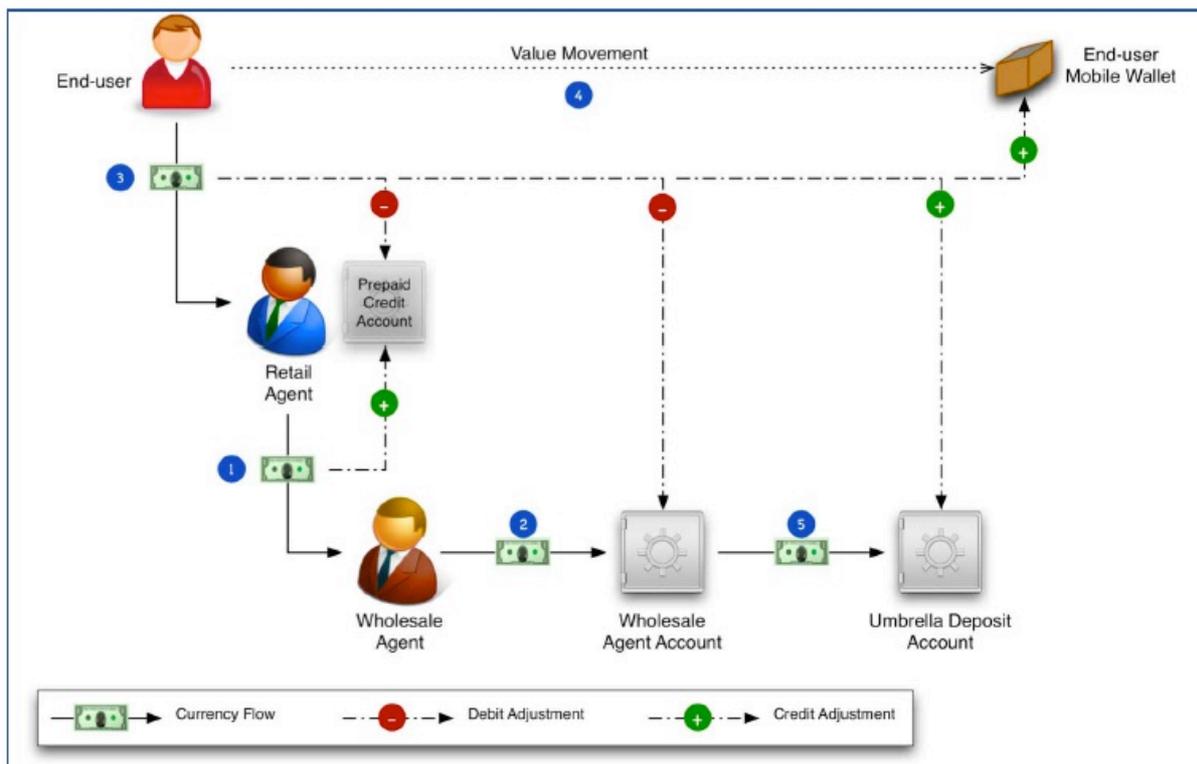
<sup>4</sup> <http://www.docstoc.com/docs/21369876/The-Hype-Cycle-and-Mobile-Banking>

Liquidity management actually takes two forms: management of electronic value in the mobile wallet and cash management. When “liquidity” is mentioned by technology providers, some MFSPs, and others they are usually referring to the management of electronic value. While scale is being built, this is the more serious of the two forms of liquidity management. While customer volumes are low, the cash impact on retail agents is also relatively low, but electronic value appears as a management problem even in the most nascent mobile money businesses.

### Liquidity Management: Electronic Value

Mobile money transactions between a retail agent and a customer requires that the retail agent has cash value in their mobile wallet. As the agent provides financial services throughout the day, the cash amount on their phone fluctuates up and down, depending on whether they are accepting funds or paying out. When the amount in the retail agent’s mobile wallet is used up, the agent cannot perform additional services and needs to refill their account. If the agent does not have a bank account linked to their mobile wallet, this means they need to make a trip to the bank to transfer cash into electronic value.

It is becoming more common for electronic liquidity to be handled not only by the retail agents, but also by the master agents. Technology is also being developed to help the master agents and the MFSP manage liquidity. The following example describes the liquidity management process in the EMIDA<sup>5</sup> system when a customer makes a deposit with a retail agent.

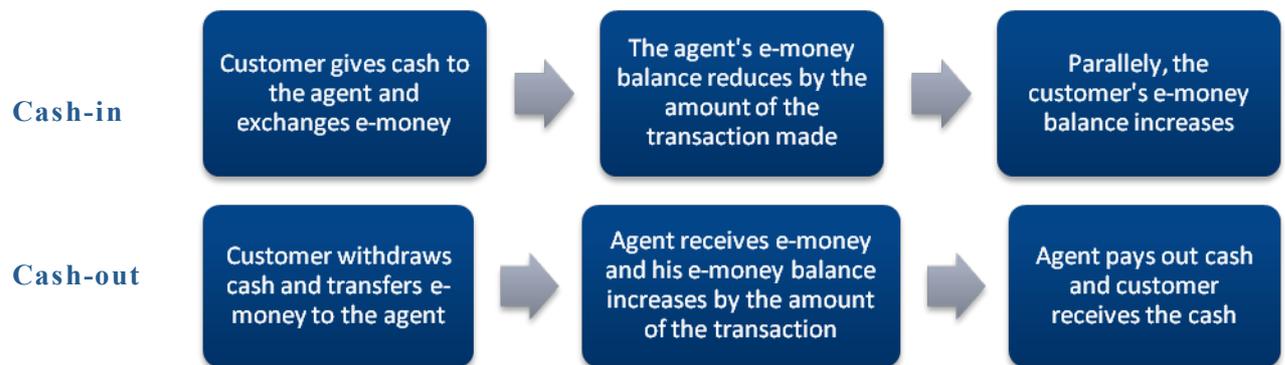


### Liquidity Management: Physical Cash

The other form of liquidity management relates to physical cash. Customers who are seeking to make cash deposits into their mobile wallets or to withdraw cash from their accounts will go to

<sup>5</sup> EMIDA is a leading electronic top-up technology provider that is moving into the mobile money space. Refer to EMIDA Example – Liquidity Management in Part 10 of the Toolkit for additional information.

retail agents. With cash-in transactions, customers deposit their money with retail agents. While cash-out transactions result in customers seeking to withdraw funds via retail agents.



Depending on the relative volumes of cash-in or cash-out transactions in any given day, the retail agent can become either cash-rich, with too much cash on hand, or cash-poor. In the latter case, the agent does not have enough cash to provide the customer with the full amount of their withdrawal request. Often customers must return the following day to obtain their money.

Unlike electronic liquidity issues that can be managed remotely via bank transfer or master agent transfers, cash liquidity can only be managed physically. While mobile money customer bases remain small or primarily urban, cash liquidity issues have not been a significant problem for many mobile money providers. But if the retail agent either has too much cash on hand, increasing security risks, or not enough cash on hand to handle customers withdrawal requests, then there needs to be a movement of physical cash. This either has to take place via the agent going to the bank or having someone, such as the master agent, bring cash. As transaction volumes increase, cash liquidity is likely to be a more challenging problem than electronic liquidity.

As mentioned previously, none of the mobile money providers have solved the problem of liquidity management adequately. This is true for both electronic as well as cash liquidity issues. There are no easy solutions or silver bullets. There has been progress, however, which points to some mitigation options. It is likely that multi-pronged strategies, including several of the following approaches – if not more - will be required

### **Choose Retail Agents That Already Handle Cash**

To date, ensuring that retail agents have enough cash on hand for customer requirements has not been a major issue for G-CASH because Globe chose pawnshops, foreign exchange offices, and Globe Telecom stores as their primary retail agents. These businesses already deal in large volumes of cash, and they all have safes. This approach coupled with the relatively low transaction volumes the market is currently experiencing has allowed G-CASH to bypass cash liquidity issues for the time being.

### **Jointly Manage Agent and Customer Growth**

Liquidity management is particularly challenging during the scale up of a mobile money service. Therefore, it is important to match the growth of the agent network with the growth of the customer base. Too many agents will result in agents that are not making sufficient revenue to make the business interesting, and will lead to high drop-out rates. Too few agents will lead to increased liquidity management challenges.

### **Use Master Agents**

Master agents are a critical element of liquidity management. They are being used extensively to ensure that retail agents are able to maintain sufficient electronic value on their mobile phone as well as to have insight into cash management issues. Technology providers, such as EMIDA, and MFSP, such as M-PESA, are building liquidity management tools into their mobile money offerings to further enhance master agents' ability to manage the liquidity needs for the retail agents in their networks.

In Kenya, M-PESA uses an agent hierarchy to facilitate liquidity management. Master agents buy and sell M-PESA electronic value from the retail agents, giving the retail agents the means to balance their relative positions in M-PESA electronic value and cash on a day-to-day basis. Master agents create accounts in banks that are located near their retail agents, and the retail agents usually visit the nearest bank branch daily to either deposit or withdraw cash from their account. In other cases, the master agents will physically collect or drop off cash to retail agents. In this way, master agents help to balance out the net cash requirements of the various agents within their hierarchy and thereby provide ways to move money from retail agents in areas with net cash in to retail agents in areas with net cash out. M-PESA mandates that each master agent be present in at least two provinces to increase the chance that the net cash requirement will balance out at the master agent level.<sup>6</sup>

Master agent head offices can also transfer float between stores as another mechanism to manage cash floats. In this case the master agent makes a transaction from one store's float account to another store's float account. The M-PESA system authorises the transaction if funds are

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<sup>6</sup> Mas, Ignacio and Morawczynski, Olga. 2009. "Lessons from M-PESA." Innovations. MIT Press

available and the rules on both accounts can be met. The master agent then finalises the transaction after checking the transaction details and the second store's float account receives the funds after the transaction has been finalised. Despite M-PESA's sophisticated agent structure, liquidity remains to be one of their top concerns.

Unlike M-PESA, most mobile money businesses have not progressed to the point where the master agents are involved in picking up or replenishing cash. This procedure is being experimented with elsewhere, however. For example, in the Philippines microfinance banks that are using G-CASH are starting to have branch managers pick up excess cash from the retail agents in their network. It is very possible that this approach will ultimately be what is required to ensure smooth cash management.

### **ATM, Bank, and Microfinance Linkages**

One of the easiest and most straightforward ways to minimize liquidity issues is to select retail agents that are located in close proximity to bank branches or ATMs. This enables the retail agent to access cash points relatively easily. But even when branches are close by, agents do not always use them as frequently as they need because they do not want to leave their shops for even the 10 to 15 minutes it would take to visit the branch. The relatively underdeveloped banking system is one of the factors that contribute to the challenge of liquidity management for M-PESA in Tanzania. The number of bank branches per 100,000 inhabitants is only 0.57 and this low level of density makes it difficult for agents to easily manage their cash floats. Agents must travel long distances to find a bank branch where they can renew their floats which means that they have less time in their shops and may not be able to top-up their floats as often as they need. As a result, agents in Tanzania face increased float management problems and customers have often complained about this. M-PESA Tanzania is still struggling with managing this problem.

Ensuring that retail agents have bank accounts from which they can pull assets is another liquidity management tool. One of the main reasons that MABS designed their Text-A-Withdrawal service was to allow their retail agents to remotely transfer funds from their bank accounts directly to their mobile wallets. This eliminated the need to continuously put more cash into their G-CASH accounts.

Providing mobile money customers with cards or pin codes that enable them to withdraw cash from an ATM is another important way to mitigate liquidity issues, particularly in urban areas with high ATM densities. Even though they have more than 16,000 retail agents, M-PESA uses this approach in Kenya where they have partnered with PayNet, an ATM and POS service provider. Customers can access a one-time pin code from their mobile phone, which they can use to withdraw funds from any of the ATMs in PayNet's PesaPoint network.

Microfinance institutions are increasingly being viewed as a mechanism to increase the size and reach of the agent network. In most countries, relationships between MFSPs and microfinance institutions are still in their infancy, but there are a few examples that suggest these relationships might become very valuable in the future. In order to make the value proposition work for the MFI, it is important that the mobile service provider enable loan disbursements and loan repayments. MFIs can also benefit if their agents are able to provide value added services, such as bill payments, micro-insurance, and other products to their customers through the mobile phone. In exchange, the MFI branches, and potentially their loan officers, can become agents for the MFSP. Since the MFI is already in the business of handling and managing cash, they can help minimize liquidity issues wherever they operate. And often, MFIs operate in more remote

locations. In Kenya, Equity Bank has its own mobile banking service called EAzzy 24/7. The bank also provides cash-in and cash out services for M-PESA in both urban and rural areas.<sup>7</sup>

### **Service Diversification**

When the types of services available across the mobile money solution are limited, liquidity problems are likely to be even more prevalent because agents tend to end up cash rich or cash poor. As service diversity increases, there are more opportunities for retail agents to balance their cash holdings through disbursements and withdrawals. In November 2009, M-PESA, Kenya was working with 27 companies that used the service for bulk distributions and 75 companies that were collecting payments from their customers through M-PESA.<sup>8</sup> This helps the company and its agents balance out the liquidity challenges.

In Afghanistan, M-Paisa agents currently face severe liquidity management challenges since mobile money is mainly used for loan payments. This means that cash withdrawals and deposits are very unbalanced, with the number of customers repaying their microfinance loans far exceeding the number of withdrawals. Thus agents need to keep a significant amount of M-Paisa funds available, requiring them to either tie up a large amount of float in the system or to make frequent trips to the bank. In the coming months, the mobile operator that runs M-Paisa is hoping to address this imbalance by increasing the number of users receiving their salary through M-Paisa as these customers will be withdrawing cash from the agents and will, hopefully, balance the cash deposits for loan repayments.

The Brazilian government gave Caixa responsibility to disburse government benefits, including pensions. Since paying pensions is a cash-out procedure, agents faced the problem of balancing their funds and the bank had cash loading issues, especially in rural areas. Hence, Caixa started offering bill payment services as well to customers. Bill payment solutions serve as a cash-in option for the bank's agents and help in balancing the cash flow.

### **Staggered Payments**

Government pension and subsidy payments, salary disbursements from employers, and other business-to-person (B2P) payments are becoming more common in mobile money solutions. These types of cash-push solutions are becoming more commonplace as they are proving to be a good way to hook customers on the mobile solution. However, since many of these payouts tend to occur at the same time, they put enormous pressure on agent liquidity.

One mechanism to manage these B2P payments more effectively is to have the funding agency stagger their payments over a number of days or weeks. This change can have a very positive impact on the liquidity issues.

Tameer Bank in Pakistan trains their agents on how to manage cash flows by limiting daily transactions, both in value and volume, and on the timings of cash services options. This helps them to evolve more predictable liquidity models for their agents.

### **Bank Credits and Overdraft Protection**

Just as MFSPs will probably need to consider providing loans to some of their agents for start-up capital, these businesses should also consider helping their agents obtain short-term (few day)

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<sup>7</sup> <http://www.centerforfinancialinclusion.org/Document.Doc?id=731>

<sup>8</sup> Mas, Ignatio. “*Three Keys to M-PESA’s Success: Branding, Channel Management and Pricing*”. Bill and Melinda Gates Foundation. 2010.

bank credits and overdraft protections. Such mechanisms would go a long way to help agents manage their liquidity challenges.

Tameer Bank is experimenting with these types of solutions. Some of their larger franchisees work on overdrafts from other banks. So the scope of their solution expands beyond cash management to the concept of inter-bank switches that can be leveraged to provide liquidity to cash points for the agents across the country.

### **Encourage Electronic Payments**

Although it is unlikely that cash will be completely replaced any time soon, moving toward services that enable more customers to make purchases with mobile money will also help manage liquidity issues. One area that could prove to be very important is transforming supply chains into electronic versus cash-based conduits.

Coca-Cola Sabco is looking at the use of mobile money as a way to shift the supply chain of its Manual Distribution Centers away from cash. In Papua New Guinea, IFC is looking at piloting mobile money to reduce the cash in the coffee supply chain. These types of shifts will be important in moving mobile money beyond a mere money transfer solution that requires an abundance of cash-in/cash-out points.

### **Combine Airtime Top-up with Financial Services**

More and more mobile money providers are recognizing that airtime top-up is a critical part of their financial value proposition. This service tends to have cash-in requirements. With the inclusion of airtime services in their mobile money product line, an agent has a repetitive business that can offset cash withdrawal services – thus balancing their cash flow a bit more.

## **APPENDIX 1**

### **GSMA Report: Managing a Mobile Money Agent Network<sup>9</sup>**

#### **How do operators ensure agents are liquid?**

Most agents will regularly need to restock their inventory of electronic value or cash in order to continue serving their customers. Agents who primarily perform cash in will need to restock their inventory of electronic value; agents who primarily perform cash out will need to restock their inventory of cash.<sup>10</sup>

Operators have developed a host of liquidity management processes, and most operators employ more than one. In part, the options that will be available to operators are shaped by their existing relationships with stakeholders like airtime dealers – as well as the quality and extent of the banking infrastructure in their markets and the willingness of banks to play an enabling role for mobile money. All of these mechanisms have a cost, whether explicit (bank transfer fees) or implicit (time, capacity at company-owned stores, etc.), and whichever entity assumes these costs will need to be compensated for them – whether it is the operator, the agent, or an intermediary.

#### **Option 1: Selling and buying electronic value directly to and from agents**

The simplest arrangement is for mobile operators to sell and buy electronic value directly to and from agents. Many operators have company-owned retail locations in the markets in which they trade, and they can use these outlets as mobile money and cash distribution points to agents (although they would also typically serve as agents to users as well). However, this approach requires agents to physically present themselves at one of the operator's outlets, which, particularly for far-flung agents, can take up a large amount of their time.

If the existing banking infrastructure in the market is sufficiently developed, an operator can leverage it to make selling and buying electronic value to and from remote agents easier. For example, MTN Uganda allows agents to buy electronic value by depositing cash into a bank account at its partner bank. Once the deposit has been confirmed, MTN Uganda transfers the electronic value to the agent. Since making deposits is free, this mechanism does not have any explicit costs, but it still takes up agents' time – again, for rural agents who live far from a branch of MTN Uganda's bank partner. This approach is a good option for operators who have partnered with a bank that can settle cash deposits in real time. It is also relatively straightforward: this approach does not require any modification to the bank's ordinary deposit-taking processes. Note, however, that buying electronic value from agents using this mechanism requires the agent to have a bank account, into which the operator can deposit funds (which the agent can then retrieve as cash).

In Thailand, where the banking infrastructure allows for instantaneous intrabank transfers, a True Money Express agent can buy electronic value by transferring money from her bank account to True's (a transaction that is completed on a mobile handset), after which her account is immediately credited with electronic value. (True enables this functionality by holding bank accounts at roughly a dozen banks in the country.) However, unlike the previous options, this approach has an explicit cost: a bank transfer fee of about 1%, which the agent pays. In addition, it works only for selling electronic value to, rather than buying it from, agents – although since True Money Express agents do not yet facilitate cash out, which would entail accepting and

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<sup>9</sup> GSMA. Managing a Mobile Money Agent Network: A Handbook for Mobile Network Operators. May 2010. This appendix was taken verbatim from this document.

<sup>10</sup> The few agents who find that they perform about as much cash-in as cash-out will have to restock much less frequently; the hypothetical agent whose electronic value float requirements were exactly equal to her cash float requirements would find it necessary to restock only when her business is growing.

potentially accumulating a large volume of electronic money from customers, there is rarely a need for agents to sell electronic value back to True.<sup>11</sup>

## **Option 2: Using super agents and master agents**

In most markets, however, it is unrealistic to expect agents to travel to an operator-owned outlet or a branch of the operator's bank partner and impossible for the banking system to facilitate instantaneous transfers and thus purchase of electronic value. In these cases, operators appoint intermediaries to whom they will sell and from whom they will buy electronic value, who, in turn, will sell and buy electronic value to and from agents. Like wholesalers in other distribution systems, these entities earn a somewhat lower commission than regular agents do, because they deal in bulk, but nevertheless they must be compensated for their role.

The most obvious candidates for this role are banks, ideally those with a relatively large network of branches, and banks who agree to perform this function are sometimes designated super agents. For a fee, super agents agree to buy and sell electronic value in exchange for cash. Safaricom has signed agreements with several banks in Kenya to perform such a role.<sup>12</sup> In this model, the restocking fee can be paid either by the agent or by the operator. While this model still requires agents to physically present themselves at a bank branch as they would in Option 1, it does enable an operator to partner with multiple banks – and leverage multiple networks of branches – to provide agents with more options. It also allows agents to convert cash into electronic value and vice versa instantaneously.

While banks occasionally play this role, more commonly, it is taken on by figures called master agents, who agree to manage the liquidity of a set of agents. (Master agents are almost always the same entities as aggregators, but for clarity we distinguish these roles from each other, since in theory their functions could be delivered by different entities.<sup>13</sup>) This means a master agent buys electronic value from the operator and then resells it to agents under its umbrella. If a master agent supports a group of agents who, net, perform more cash out than cash in, the master agent will purchase electronic value from agents and sell it to the operator. To minimize the frequency with which master agents need to trade directly with the operator, operators can insist that master agents support agents in both urban and rural areas, balancing cash-in and cash-out requirements.

Sometimes, master agents employ staff who can shuttle cash to and from agents. More generally, they can be expected to take responsibility for ensuring that their agents are liquid and thus ready to transact with customers. It is for this reason that most operators give master agents tools to monitor the electronic value balances of its agents. That allows master agents to act preemptively when an agent may need to buy more electronic value soon. Of course, it is not possible to electronically monitor cash balances, but operators can encourage close communication between agents and their master agents to ensure that cash doesn't run out: Vodacom Tanzania has recently issued its master agents with mobile numbers that are toll-free for its agents so that they can communicate their liquidity needs freely, without worrying about incurring the cost of airtime.

This difference in degree of responsibility between super agents and master agents is reflected in the way that they are typically paid. Super agents are paid each time they buy or sell electronic value from or to an agent, while master agents are paid for liquidity management indirectly, by

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<sup>11</sup> For more information, see “True Money and M-PESA: Two Unique Paths to Scale” by Paul Leishman at <http://mmublog.org/south-east-asia/new-gsma-case-study-on-thailand's-true-money/>

<sup>12</sup> See “Three keys to M-PESA's success: Branding, channel management and pricing,” a forthcoming article by Ignacio Mas and Amolo Ng'weno, for a more detailed discussion of the liquidity processes that Safaricom has put into place.

<sup>13</sup> For more on aggregators, see the GSMA's “Building a Network of Mobile Money Agents” at <http://www.mmublog.org/agent-networks/>

sharing with the agent a cut of the commissions that the agent earns by transacting with customers.<sup>14</sup> By tying the compensation of a master agent to the success of its agents, operators motivate master agents to ensure that their agents are liquid. Banks cannot assume this responsibility (and in any case are not usually tasked with managing particular agents, as master agents are) so it makes more sense to pay them on a per-transaction basis.

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<sup>14</sup> Unlike airtime superdealers, mobile money master agents sell electronic value at the same price at which they buy it from the operator.