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M-Banking Liquidity Management

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Managing liquidity is critical to the success of any electronic banking initiative because in most emerging markets payment systems are still evolving and most transactions are still in cash, "cash is king". Customers usually use m-banking to transfer value which needs to be cashed by the recipient, and use m-banking agents to manage "cash in" and "cash out" transactions. Liquidity requirements can be significant: in November 2009 Safaricom's M-PESA transacted $650 million per month in cash deposits and withdrawal transactions; 27 companies used M-PESA for bulk distribution of payments; and 75 companies collect payments from their clients through M-PESA[1].

Liquidity in M-Banking Solutions

Typically m-banking works through the use of float accounts, each agent is required to maintain a balance of electronic money in their agent account. When a customer wishes to send money to a relative, she exchanges cash for e-money through paying cash to an agent - the agent's e-money balance reduces by the amount of the transaction, and the customer's e-money value increases. The customer then transfers their e-money to their intended recipient. Correspondingly, when a customer makes a withdrawal, the agent receives e-money and pays out cash, and the agent's e-money balance increases by the amount of the transaction.

The agent can continue to make transactions until their e-money balance is exhausted. At this moment the agent has effectively exchanged all their e-money for physical cash, and the agent then needs to replenish their e-money account by paying in cash to their e-money account before any further cash deposits can be made by customers.

Ensuring agents have either e-money or cash when customers require it, is the essential challenge of m-banking liquidity management. A situation where agents run out of cash, may be particularly common in rural areas where small agents do not have the physical cash for customers to make significant withdrawals. Conversely during harvest periods, too much cash may be the problem as farmers deposit cash into their e-money accounts.

So How To Design A System To Manage Liquidity?

Fortunately there are a number of emerging lessons:

1. *Select Agents Who Handle Large Amounts of Cash*: Airtime resellers, for example, have cash from selling top-up vouchers and are often initial choices by mobile phone companies. However, this can depend on the nature of the relationship between the m-banking company and airtime resellers. For example if the m-banking facilitates electronic airtime top up the airtime reseller may not wish to take part in the solution. Financial institutions can facilitate larger transactions, for example, G-CASH partners with the rural banks in the Philippines, and M-PESA partners a range of banks in Kenya. Another source can be input suppliers in rural areas.

2. *Select Multiple Agents In A Given Location*: Increasing the number of agents in a location increases the options open for customers to cash their funds. Safaricom's M-PESA product launched with 300 agents, just two years later with over 8.8 million customers, M-PESA has over 16,000 agents. One challenge here is that multiple agents in one location are great for the customer, but can reduce transactions and hence income for an individual agent. For further discussion on this point see *MicroSave* Briefing Notes 73 and 74 - Managing Agent Networks to Optimise E- and M-Banking Systems[2].

[1] Mas**,** Ignatio, "Three Keys to M-PESA's Success: Branding, Channel Management and Pricing", Bill and Melinda Gates Foundation, 2010.
[2] Wright, Graham A.N. and Veena Yamini A. *MicroSave* Briefing Notes 73 and 74 – "Managing Agent Networks to Optimise E- and M-Banking Systems", 2009.

3. *Select Agents With Multiple Outlets*: Agents with multiple outlets can transfer cash or e-money between outlets as required. This obviates the need for the agent to travel to the bank to bank cash in their e-money account during the working day. This is a key strategy in use by M-PESA, which relies upon agent Head Offices to manage the liquidity of their sub-agents. It remains a significant management challenge however, as 60% of M-PESA stores belong to agent Head Offices with less than a dozen stores[1].

4. *Encourage Electronic Payments for Business to Business Transactions (B2B)*. If agents experience significant demand for cash from customers, their cash balance goes down and their e-money balance increases. They now have two options to reduce their e-money balance, either they exchange e-money at a bank for cash or they spend the e-money through an electronic purchase. For example paying for supplies using e-money, thereby transferring their surplus e-money to their supplier. Encouraging B2B linkages facilitates this exchange.

5. *Linking to ATM Networks*: M-PESA links to the PesaPoint network, customers can obtain a one-time code which together with their phone number enables them to withdraw funds from their M-PESA account. This is particularly useful for larger transactions, where customers often require printed receipts as confirmation of transactions rather than the normal SMS confirmations.

6. *Continuous Evolution*: Successful mobile money issuers such as Safaricom in Kenya and GXI or Smart in the Philippines carefully manage and continuously evolve their channels; and increasingly link these to the formal banking sector, where large reservoirs of liquidity exist.

Issues in Liquidity Management

1. *Using M-Banking for Microfinance*: Microfinance institutions thinking about adopting m-banking must carefully plan liquidity. This is because the sums involved in managing repayments or disbursements, can be very significant. Weekly payments even in group-based microfinance collectively represent significant sums especially if paid in to agents at the same time. Similarly a single loan disbursement can be many times the average m-banking transaction. For example an average M-PESA transaction is $33 whilst a typical microfinance loan in Kenya could be $600 or more. In some cases regulators impose a maximum size for a single transaction that could be lower than a typical loan disbursement. Managing liquidity means that agents in the area of loan clients must therefore be made aware of the volume and nature of such transactions and must plan accordingly, and where necessary plan for increased security.

2. *Pricing for Liquidity*: In some M-Banking programmes liquidity is priced either explicitly or implicitly. G-CASH in the Philippines allows agents to charge different fees on withdrawals which are advertised on the G-CASH website. Zain's Zap product has a minimum, but not maximum charge. In Kenya some rural M-PESA agents were shown in research to restrict the size of transactions when liquidity was tight, which on a flat transaction fee structure puts up the cost of withdrawing a set sum.

3. *Social Payments*: M-Banking offers huge potential for making social payments, it has a significant advantage in that it is cheap to administer, especially when compared with physical transmission of cash or goods to impoverished areas or refugee camps. However, the challenge remains liquidity. Social payment recipients often live in impoverished areas where there is a limited formalised cash economy.

4. *Liquidity Management During Scale Up*: It can be particularly difficult to manage liquidity during the scaling up of a solution. As customers need to have access to a large number of agents in order to have confidence in the system and for customers to be able to manage their liquidity. However, during scaling up, there are fewer customers to be shared amongst agents. So matching growth in customers with growth in agents is likely to be extremely important.

5. *Competition for Cash – Branchless Banking*: Attention has so far focused on e-money, where virtual money is loaded onto a customer's phone and used for transactions. However, branchless banking regulations are being drafted in many countries around the world. These laws will enable regulated financial institutions to use third parties as their agents to offer a range of basic banking and payment transactions to their customers, directly through customers' bank accounts. This means by extension there will be competition for liquidity from multiple institutions. Already in Kenya, Safaricom's market position may have established a fee structure which is likely to significantly influence the price of cash for different players as branchless banking develops.