



Economic Letter

Bringing Banking to the Masses, One Phone at a Time

by Janet Koech

► *The World Bank predicts mobile money could affect the lives of more than 2 billion people in developing countries by 2020, paving the way for a new era of financial services.*

More than half of the world's adult population lacks access to formal financial services. The proportion is greater in developing countries, where 64 percent on average do not have bank accounts, compared with 17 percent in developed nations (*Chart 1*).¹ Mobile communications technology is fast becoming a conduit of change. Cell phone subscriptions have mushroomed to cover 75 percent of the global population, enabling mobile banking networks to sprout and reach the unbanked, disproportionately in developing nations.

Access to financial services is considered essential for wealth creation. A banking relationship, for example, can improve living standards and alleviate poverty by lifting consumers' purchasing power. It can also benefit consumers through increased security and reduced costs for financial goods and services. Greater access to credit helps small businesses by providing a funding alternative to personal wealth or internal resources.

In developing regions, formal financial institutions often rely on brick-and-mortar branches that are geographically concentrated in high-income areas such as urban centers. Distance to banks and their limited hours of operation discourage many in poor areas from opening accounts. Moreover, poor households

may be unable to afford bank fees or meet minimum-balance requirements. They also may distrust financial institutions. A lack of appropriate products and services for enterprises that are small or in informal economic sectors further hinders inclusion. As a result, large population segments operate exclusively on a cash basis, outside the formal banking system.

Mobile technology is making possible development of advanced financial systems capable of channeling funds to their most productive use.

Avenue for Inclusion

The expansion of mobile communications systems holds much promise—6 billion mobile phone subscriptions were active in 2011, up from 719 million in 2000. Most of that growth came in developing nations (*Chart 2*), an advance buoyed by inexpensive handsets and prepaid airtime cards.

Residents of developing nations living in cities frequently seek to send remittances to families and friends in rural areas. As populations gain global mobility, demand also increases for cross-border cash transfer services.

Opportunities to innovate and use technology to lower consumer costs have grown along with economies of scale. Mobile phones represent one of the larg-

est distribution platforms to provide the social and economic benefits of formal financial services to the unbanked.² An estimated 1.7 billion people have cell phones but no bank account. In Africa, for example, cell phone subscriptions outnumber bank accounts in many countries (*Chart 3*).

Reaching the Unbanked

With mobile banking—also known as branchless banking—individuals and firms can use their phones to make deposits and withdrawals, transfer funds and pay bills. The technology can bring services to those with no previous banking relationship (the transformational channel) or augment services offered to existing customers (the additive channel).³ Mobile financial services are mainly transformational in developing countries and additive in developed ones.

To monitor the rapid expansion of mobile-phone-based banking, the Global System for Mobile Communications Association established a tracking tool that documents mobile-phone-related services targeting unbanked populations. There are currently 129 such mobile banking efforts worldwide, with 91 more planned in the near future.

Various institutional and business models deliver mobile banking. Some systems are offered by banks, others by telecommunications providers and still others by bank-telecommunications company partnerships. Regulatory factors, which can differ dramatically between countries, often determine institutional arrangements and services.

Kenya's M-Pesa Model

Kenya's system, locally known as M-Pesa, is particularly illustrative. It was launched by Vodafone affiliate Safaricom in March 2007. M-Pesa ("M" for mobile, "Pesa" for money in Swahili) allows customers to deposit and withdraw funds using a mobile phone account. To access the service, customers register with an M-Pesa agent and are assigned an electronic money account linked to their phone number and accessed through a subscriber identity module (SIM) card—a memory chip in the mobile phone.

Mobile phone service in Kenya and in other developing regions is mostly prepaid—a pay-as-you-go system in which users purchase airtime from a large retail network. Most sales agents function as a kind of M-Pesa branch bank, taking in and disbursing cash. Fuel stations, banks,

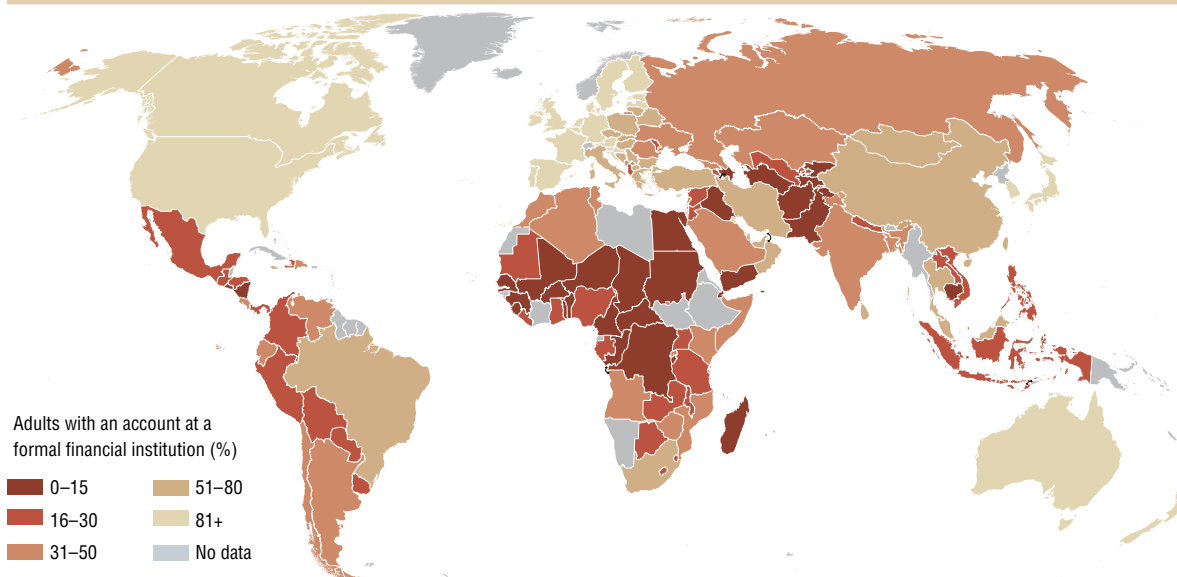
grocery stores, cooperatives, microfinance institutions and courier services have become agents. There are more than 27,900 outlets—far outnumbering Kenya's 840 bank offices.⁴

M-Pesa is designed for easy adoption by all population segments. Customer registration requires only a government-issued identification card. Account holders can make deposits through any registered M-Pesa agent—exchanging physical money for an electronic credit, called e-float, and applying it to a mobile-money account. E-float can be transferred electronically to other users by mobile phone and exchanged for cash through an M-Pesa agent. It can also be used to pay bills or purchase airtime credit or stored and kept as savings. All transactions are authorized and recorded in real time using a secure messaging system, and the electronic accounts are backed by highly liquid deposits at commercial banks.

There are no costs to set up an account, and M-Pesa customers enjoy free deposits and no minimum-balance requirement. Fees are charged only for customer-initiated transactions, such as money transfers or bill payments, plus mobile airtime. Prices are based on a

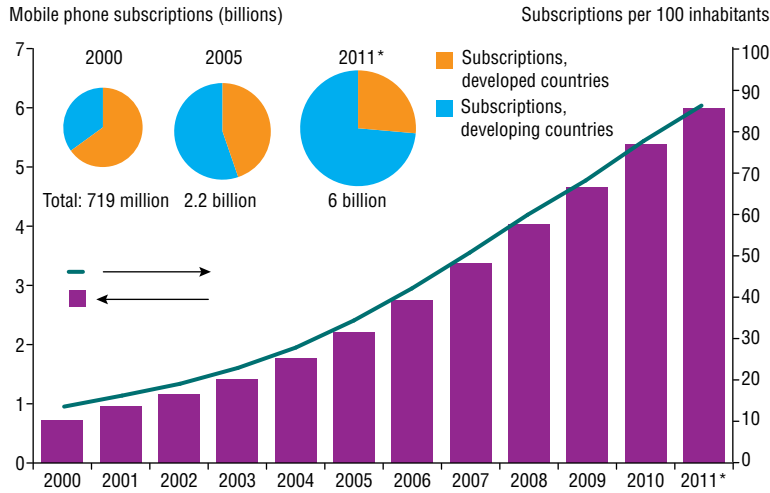
Chart
1

Percentage of Households with Bank Accounts, 2011



SOURCE: Asli Demirgüç-Kunt and Leora F. Klapper, World Bank, April 2012.

Chart 2 Developing Countries Overtake Developed Economies as Global Mobile Phone Subscriptions Reach 6 Billion



tiered fee structure rather than a percentage of the transaction amount, making it easier for customers to know the cost of services used.

On the retail end of M-Pesa, agents must maintain sufficient liquidity to meet customer requests. M-Pesa relies on a system of intermediaries between agents and banks that provides liquidity to the system, exchanging e-float for cash. These middlemen have their own distribution networks and take on much of the work of ferrying cash to agent outlets around the country.

M-Pesa had more than 14 million subscribers—about 59 percent of Kenya’s adult population—as of April 2011 (*Chart 4*). The service also works through Western Union for international remittances across 45 countries. Before M-Pesa, Kenyans had limited access to money transfers.

Companies widely use the service to pay salaries to employees who lack conventional bank accounts. Through M-Pesa’s partnerships with banks, customers can withdraw money from ATMs as well as from M-Pesa retail outlets.

Many use the service as a savings tool, although no interest is paid. Eighteen months after the March 2007 implementation, survey data showed that 75 percent of users reported saving in their M-Pesa account, with 21 percent say-

ing it was their most important savings mechanism.⁵

In 2010, M-Pesa partnered with Equity Bank of Kenya to create an interest-paying mobile bank account called M-Kesho that is integrated into the M-Pesa interface on customers’ phones. Users can transfer funds between accounts and may access other resources such as micro-credit and insurance services that are offered by traditional banks and financial institutions.

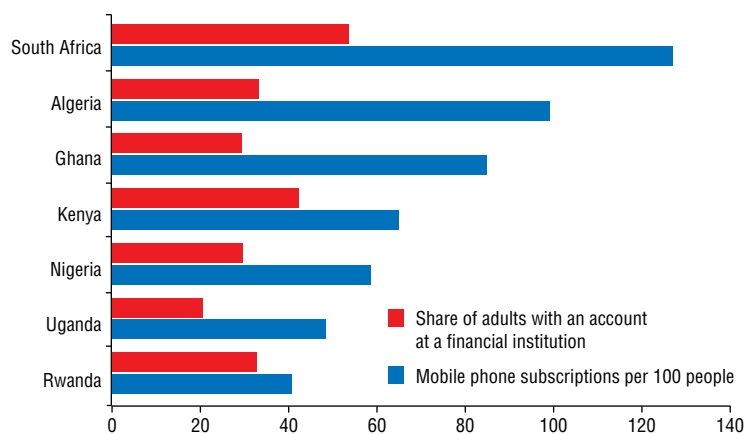
Service Challenges and Benefits

M-Pesa has experienced its share of challenges. A survey targeting early adopters noted slow service during peak times and occasional service interruptions from network and server difficulties and power outages.⁶ Additional problems cited include errant transmissions due to user error inputting recipient phone numbers and inconveniences related to liquidity management by agents. Six percent of users reported delays associated with agents running short of cash. Still, satisfaction surveys indicate customers value M-Pesa services compared with other money transfer alternatives.⁷

Economists Isaac Mbiti and David Weil found that increased M-Pesa adoption leads to greater bank use, implying that M-Pesa is used as a complementary financial tool and not as a substitute for the formal banking system.⁸ The researchers also observed less tendency to use informal savings mechanisms. The cash transfer service prompted a surge in remittances and has boosted farm employment.

The World Bank reports that the correlation between financial access and economic development is positive but weak; economists warn of limits to poverty reduction arising from increased financial access alone.⁹ An effective and inclusive financial system is a necessary, but not a sufficient, requirement for economic development.

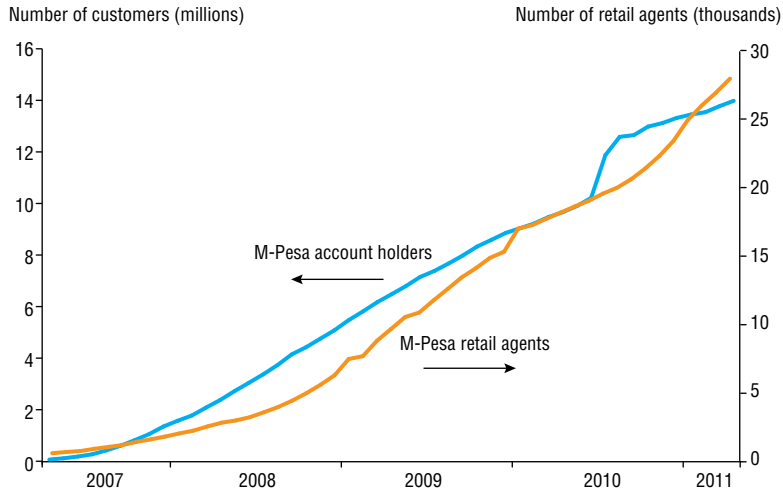
Chart 3 Cell Phone Subscriptions Outpace Bank Accounts Across Africa



NOTES: A mobile phone penetration rate above 100 implies multiple phone subscriptions to an individual entity.
SOURCES: World Bank Global Financial Inclusion database; International Telecommunication Union (2011 data).

Chart 4

Kenya's M-Pesa Customer and Agent Bases Growing



SOURCE: Kenya's Safaricom database.

Factors hindering faster adoption of mobile payment services in other countries include uncertainties about the pace and scale of customer adoption. Most systems require high transaction volumes to be viable. Policy regimes may be insufficiently open to allow a range of models to start up and develop. Kenya's rapid acceptance of M-banking is attributed to the system's simplicity and a supportive regulatory environment. Similar mobile-banking successes include GCash and Smart Money in the Philippines, Wizzit in South Africa and M-Paisa in Afghanistan.

A Game Changer

In developing countries with a high mobile-phone penetration rate but a lack

of robust financial services, the need for efficient payment methods has contributed to M-banking's appeal. The use of mobile phones as a channel for delivering financial services offers an enticing development opportunity with the capacity to boost the purchasing power of unbanked households. The World Bank predicts mobile money could affect the lives of more than 2 billion people in developing countries by 2020, paving the way for a new era of financial services in which banking will no longer be the domain of a small upper class.

Koehn is an assistant economist in the Research Department at the Federal Reserve Bank of Dallas.

Notes

¹ See "Access to Financial Services and the Financial Inclusion Agenda Around the World: A Cross-Country Analysis with a New Data Set," by Oya Pinar Ardic, Maximilien Heimann and Nataliya Mylenko, Policy Research Working Paper no. 5537, World Bank, January 2011.

² See "A Research Agenda for Applying Mobile 2.0 Solutions for Base-of-the-Pyramid User Communities," by Tim Kelly, Teleuse@BOP3 Working Paper, LIRNEasia, October 2009.

³ See "The Enabling Environment for Mobile Banking in Africa," by David Porteous, Bankable Frontier Associates, May 2006.

⁴ See "Out of Thin Air: The Behind-the-Scenes Logistics of Kenya's Mobile-Money Miracle," *The Economist*, June 10, 2010.

⁵ See "Mobile Money: The Economics of M-Pesa," by William Jack and Tavneet Suri, National Bureau of Economic Research, NBER Working Paper no. 16721, January 2011.

⁶ See "M-Pesa: A Case Study of the Critical Early Adopters' Role in the Rapid Adoption of Mobile Money Banking in Kenya," by Benjamin Ngugi, Matthew Pelowski and Javier Gordon Ogembo, *Electronic Journal of Information Systems in Developing Countries*, vol. 43, 2010.

⁷ See note 5.

⁸ See "Mobile Banking: The Impact of M-Pesa in Kenya," by Isaac Mbiti and David N. Weil, National Bureau of Economic Research, NBER Working Paper no. 17129, June 2011.

⁹ See "Access to Finance and Development: Theory and Measurement," in *Finance for All? Policies and Pitfalls in Expanding Access*, by Asli Demirgüç-Kunt, Thorsten Beck and Patrick Honohan, Washington, D.C.: World Bank, November 2007, pp. 21–53.

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FEDERAL RESERVE BANK OF DALLAS
 2200 N. PEARL ST., DALLAS, TX 75201