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# Regulating Mobile Money: A Functional Approach

Background Paper

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## Introduction

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Launched in Kenya in 2007, mobile money has grown rapidly throughout the developing world. There are now over 690 million mobile money accounts located in over 90 countries.

Many central banks and other policymakers want to review and possibly strengthen regulatory frameworks for mobile money. The traditional approach to regulating payment systems provides little guidance for these policymakers. This is primarily because normally payment systems operate through *banks*, which operate under prudential regulation. What regulation can be used for mobile money provided, instead, by *phone companies*?

This paper explains the operation of an alternative, 'functional' regulatory approach, which focuses on the functions or services provided through mobile money systems. The paper demonstrates that the functional approach, linked to a deeper understanding of domestic policy goals and resource constraints, can help policymakers better understand:

- *risks* to customers' funds stored in mobile money systems;
- the range of regulatory *tools* that can address those risks;
- and the *trade-offs* involved in using them.

The paper also emphasises that understanding of how to most effectively regulate mobile money is in an early stage. More research is required to design effective regulatory tools for mobile money, and to understand why usage is low in many countries. Perhaps most fundamentally, research is required into how public resources for regulation and infrastructure (for example, power lines and roads) can be best used to support the functioning of mobile money systems.

The paper explores these arguments by examining case studies in mobile money regulation drawn from Kenya, Tanzania, Nigeria, and Rwanda.

# 1. Challenges of regulating mobile money

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Around 2 billion people in Africa and other developing regions do not have access to a bank account. As a result, members of this 'unbanked' community, usually the poorest members of developing countries, have been unable to access formal, electronic payment systems. Instead, this community has had to rely upon cash-based payment sites<sup>1</sup>. Usually, these systems are slow, unreliable, and risky, making it more difficult for unbanked and other low-income communities to emerge from poverty.

The economic landscape is changing rapidly as mobile phones continue to spread across the developing world. Now around 1.6 billion of the world's unbanked have access to mobile phones<sup>2</sup>. Phone companies have taken advantage of this growth to begin providing 'mobile money' payment services throughout the developing world. In mobile money schemes, customers can access the same payment functions as those available through bank-based systems. Customers can deposit cash into an account, store funds indefinitely, transfer some or all of their balance to other mobile money users through SMS text messages, and/or convert some or all of their account back into cash. Usually, mobile money customers deposit and withdraw funds through a network of local agents, including corner stores, post offices, petrol stations, and other retail establishments.<sup>3</sup>

The similarity in functionality (i.e. what the service can do) means mobile money closely resembles 'mobile banking', the term applied to banks' provision of payment and other services through mobile phones. The key difference between mobile banking and mobile money stems from the nature of the providers: firms that provide mobile money are not legally classified as banks, and they are not regulated as such. Instead, these firms take the form of phone companies, payment providers, or so-called 'fintech' (financial technology) firms.

Launched in Kenya in 2007, mobile money has grown rapidly throughout the developing world. There are now over 690 million mobile money accounts located in over 90 countries<sup>4</sup>. In a growing number of developing countries, mobile money performs a significant portion of payments in the economy. For example, in 2015, M-Pesa performed 80 per cent of the volume of Kenya's electronic payments.<sup>5</sup> There are 43 million mobile money accounts in Tanzania.<sup>6</sup>

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<sup>1</sup> See also Daryl Collins, Jonathan Morduch, Stuart Rutherford and Orlanda Ruthven, 'Portfolios of the Poor: How the World's Poor Live on \$2 a Day' (Princeton University Press, 2009).

<sup>2</sup> Information Telecommunications Union, Focus Group on Digital Financial Services (December 2015) <<https://itunews.itu.int/en/6027-ITU-Focus-Group-on-Digital-Financial-Services.note.aspx> (last visited 28 December 2016).

<sup>3</sup> Jonathan Greenacre, The Roadmap Approach to Regulating Digital Financial Services, *Journal of Financial Regulation* 1 Aug 215, 298-305 (Oxford University Press) (2015).

<sup>4</sup> Groupe Speciale Mobile Association (GSMA), 'State of Industry Report: 2014' (2017).

<sup>5</sup> Simone di Castri and Jeremiah Grossman, Impact of Mobile Money on Financial Inclusion and Other Public Policy Objectives' (2015) Groupe Speciale Mobile Association (GSMA), *Financial Inclusion 2020 Week*, 4 November 2015, 17.

<sup>6</sup> Richard J. Malisa (Tanzania Deposit Insurance Board), Deposit Protection Framework for Mobile Money: Experiences and Initiatives – The Case of Tanzania (IADI Africa Regional Committee Conference, Zanzibar, 1-3 September 2016).



Mobile money appears to have significant economic and development benefits for many of its customers. Access to mobile money is correlated with increased incomes amongst customers, greater abilities to manage economic shocks, and the emergence from poverty.<sup>7</sup>

Recognising the apparent economic and development potential of mobile money, policymakers in many developing countries are eager to support the growth of such services, and to help them to reach greater numbers of unbanked populations<sup>8</sup>. To this end, initially, regulation of mobile money was relatively 'light touch' in nature. For example, many countries, including Kenya, and, later, Fiji, Papua New Guinea, Samoa, Uganda, and Tanzania issued letters of 'no objection' to phone companies wishing to launch mobile money services.<sup>9</sup>

However, public policy concerns mean that many of these policymakers are also eager to protect customers' funds stored within mobile money systems<sup>10</sup>. The growing size of mobile money means many policymakers are particularly keen to protect customers' funds from losses that can arise during periods of 'institutional distress' of the phone company providing the service. These include periods in which the non-bank payment firm faces liquidity problems, or becomes insolvent, or nearly insolvent.<sup>11</sup>

Policymakers are increasingly interested in this topic, in part, because history reveals that firms providing mobile money *do* become bankrupt, lose customers' funds, or otherwise close their operations, putting customers at risk. Examples include fraud at MTN Uganda in 2012 (theft of customers' funds from mobile money accounts); collapse of Celpay in 2014 (forced closure due to an inability to continue complying with Zambian law); and closure of Orange Mobile in 2017 (commercial decision).<sup>12</sup>

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<sup>7</sup> Olga Morawczynski and Mark Pickens, 'Poor People Using Mobile Financial Services: Observations on Customer Usage and Impact from M-PESA' (2009) Consultative Group to Assist the Poor (CGAP), Brief, August 2009, [www.cgap.org/sites/default/files/CGAPBrief-Poor-People-Using-Mobile-Financial-Services-Observations-on-Customer-Usage-and-Impact-from-M-PESA-Aug-2009.pdf](http://www.cgap.org/sites/default/files/CGAPBrief-Poor-People-Using-Mobile-Financial-Services-Observations-on-Customer-Usage-and-Impact-from-M-PESA-Aug-2009.pdf) (last visited 4 December 2016), 3. Simone di Castri and Jeremiah Grossman, 'Impact of Mobile Money on Financial Inclusion and Other Public Policy Objectives' (2015) Groupe Speciale Mobile Association (GSMA), Financial Inclusion 2020 Week, 4 November 2015, 17. Tavneet Suri and William Jack, 'The Long-Run Poverty and Gender Impacts of Mobile Money' (2016) Science 09 December, 2016.

<sup>8</sup> Often this is part of a broader emphasis on encouraging people to shift from using cash to electronic payment systems. See, e.g., the Reserve Bank of Malawi, Monthly National Payment Systems Report, January 2017, page 1. See also Government of Malawi: Payments Road Map: A Five Year Plan to Digitize Government Payments in Malawi.

<sup>9</sup> This approach was used by the Bank of Uganda (Central Bank of Uganda), see Stephen Staschen, 'Mobile Money Moves Forward in Uganda Despite Legal Hurdles' (CGAP, 9 March 2015), <http://www.cgap.org/blog/mobile-money-moves-forward-uganda-despite-legal-hurdles>; the Bank of Tanzania (Central Bank of Tanzania), see Simone di Castri and Lara Gidvani, 'Enabling Mobile Money Policies in Tanzania' (February 2014) GSMA, 2 <<http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/03/Tanzania-Enabling-Mobile-Money-Policies.pdf>> accessed 8 April 2016; and the Central Bank of Kenya: see AFI, 'Enabling Mobile Money Transfer: The Central Bank of Kenya's Treatment of M-Pesa' (2010) AFI, 2 <[http://www.afi-global.org/sites/default/files/publications/afi\\_casestudy\\_mpesa\\_en.pdf](http://www.afi-global.org/sites/default/files/publications/afi_casestudy_mpesa_en.pdf)> accessed 20 April 2016.

<sup>10</sup> In recent years international organisations have also become increasingly interested in this topic. See, e.g., the Consultative Group to Assist the Poor (World Bank), 'Legal Environment for Branchless Banking, Including Mobile Payments, Implications for Financial Inclusion', (Presentation, UNCITRAL Colloquium on Microfinance, January 2013) <[http://www.uncitral.org/pdf/english/colloquia/microfinance\\_2013/1701/CGAP\\_Presentation\\_UNCITRAL\\_Monica\\_Harutyunyan\\_2nd.pdf](http://www.uncitral.org/pdf/english/colloquia/microfinance_2013/1701/CGAP_Presentation_UNCITRAL_Monica_Harutyunyan_2nd.pdf)>.

<sup>11</sup> See a broader discussion on this topic in Daniel Awrey & Kristin Van Zwieten 'The Shadow Payment System' 43 JCL (2017) 1.

<sup>12</sup> For a discussion of MTN Uganda see Jeff Mbangi, 'How MTN Lost Mobile Billions' (The Observer, 24 May 2012) <<http://allafrica.com/stories/201205250847.html>> accessed 9 April 2016.

As a result, as mobile money has grown, regulation for the sector has become more substantive. For example, in 2014, the Central Bank of Kenya passed the National Payment Systems Regulations, containing much more onerous obligations than the original letter of no objection. These regulations contain 60 provisions covering capital, interoperability, governance, reporting, and other obligations. Other countries have followed. For example, the Bank of Tanzania passed the E-Money Regulations 2015 and Payment Systems Licensing and Approval Regulations 2015, and the Bank of Ghana passed the Guidelines for E-Money Issuers in Ghana 2015.

Other countries have implemented legislation to regulate mobile money and similar payment services. For example, in 2013, the National Banking and Securities Commission of Colombia approved the launch of '*banco de nicho*' banks.<sup>13</sup> In 2015, the Mexican financial regulator launched 'specialised, limited-purpose financial institutions'.<sup>14</sup> Furthermore, in 2014, the Reserve Bank of India announced the launch of 'payment bank' licences.

Such regulation often resembles but normally does not completely replicate all key features of mobile money legislation. For example, under the original guidelines issued by the Reserve Bank of India, 'payment banks' can only provide payment functions, cannot undertake lending activities, and are subject to liquidity requirements.<sup>15</sup> However, unlike most mobile money regulation, the payment banking guidelines are silent on whether customers' funds must be stored in a trust.

Overall, however, a great deal of confusion prevails regarding how to regulate mobile money, and, particularly, how to protect customers' funds. Uncertainty exists about how to use and supervise the trust arrangements that usually underpin these schemes, potential forms of deposit insurance, capital levels, and accelerated bankruptcy regimes.<sup>16</sup> This is primarily because most concepts for the regulation of payment systems are borrowed from the type of bank-based payment systems that exist in developed countries.<sup>17</sup> This tendency creates three main challenges for the regulation of mobile money.

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<sup>13</sup> María del Rosario Moreno Sánchez, 'New Financial Inclusion Innovation in Colombia: Electronic Deposits' (2015) Alliance for Financial Inclusion (AFI), 11 February 2015 <<http://www.afi-global.org/blog/2015/02/new-financial-inclusion-innovation-colombia-electronic-deposits>> accessed 28 December 2016.

<sup>14</sup> To do so, the Bank of Mexico, National Banking and Securities Commission, and Secretariat of Finance and Public Credit harmonised different regulations that existed in Mexico at the time. See BBVA 'Mobile Banking in Mexico as a Mechanism for Financial Inclusion: Recent Developments and a Closer Look into the Potential Market' BBVA Working Papers Number 13/20 <<http://www.rrojasdatabank.info/mobilebanking4.pdf>> accessed 20 April 2016.

<sup>15</sup> See Reserve Bank of India, 'Guidelines for Licencing of Payment Banks': authority to accept demand deposits (iii)(a) and perform payments (iii)(c); the payments bank cannot undertake lending activities (iv)(a); and liquidity requirements (iv)(b).

<sup>16</sup> See discussions at the IADI Africa Regional Committee Conference, Zanzibar, 1 September 2016: Khalid Salum Moh'd, 'Opening Speech'; Charles R. Owiny Okello (Director Non-Bank Financial Institutions, Bank of Uganda), 'Presentation 3. Uganda'; and Gift Chirozva (Director Business Operations), 'Presentation 1. Zimbabwe', (IADI Africa Regional Committee Conference, Zanzibar, 1 September 2016).

<sup>17</sup> See, e.g., the growing emphasis on deposit insurance, discussed in Part 3.4.3.

First, historically *banks* provide payment systems.<sup>18</sup> This is because such scholarship has emerged from developed countries, where an overwhelming majority of the population have bank deposits and so use the bank-based payment system.<sup>19</sup> Prudential regulation protects funds received from the public stored within the bank-based system. Such regulation is normally used to address risks that can arise from a bank's intermediation function – that is, when a bank obtains funds from depositors, redeemable upon demand, and invests them in long-term, illiquid projects.<sup>20</sup> What regulation should govern mobile money, given that the primary providers are phone companies that do not perform intermediation?

Second, most payments-related regulation draws upon objectives commonly observed in developed countries, such as financial stability and consumer protection. Many developing countries have additional 'financial inclusion' objectives to encourage people to move from cash to electronic payment and other formal financial services.<sup>21</sup> Many policy organisations make this goal clear. For example, the Better Than Cash Alliance states that it is 'a partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments in order to reduce poverty and drive inclusive growth'.<sup>22</sup> Members include a range of United Nations entities, the Inter-American Development Bank, the European Bank for Reconstruction and Development, the Bill and Melinda Gates Foundation, and a large number of developing countries. Financial inclusion can conflict with traditional objectives, particularly consumer protection, in ways that have received little academic and policy attention.

Third, payments-related scholarship and policy usually assume that policymakers and regulators can effectively implement and supervise regulation. However, many public agencies face challenges from internal corruption and/or limited capability from inadequate training and education.<sup>23</sup> These resource constraints mean that many policymakers may be unable to credibly commit to implement and supervise complex prudential regulation.

What is needed is a rethink of the regulation of payment systems. This involves, as far as feasible, leaving behind the bank-based payment system and its regulatory arrangements from developed countries. The next section provides a framework for doing so.

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<sup>18</sup> See, e.g., Hans Blommestein and Bruce Summers, 'Banking and the Payment System' in Bruce Summers, *The Payment System: Design, Management, and Supervision* (1994) 427. See also Marvin Goodfriend, who states 'It is thus the banking system, with the central bank at its head, which serves as the backbone of the cashless payment system': Marvin Goodfriend, 'Money, Banking and Payment System Policy' in David Humphrey (ed) *The U.S. Payments System: Efficiency Risk and the Role of the Federal Reserve* (1990) 1.

<sup>19</sup> Estimated at around 80 per cent to 90 per cent. See, for example, Lords Select Committee, 'Financial Exclusion Committee', (UK Parliament, 2016) <<https://www.parliament.uk/financial-exclusion>> accessed 29 December 2016.

<sup>20</sup> Bank regulation is also often justified by the potential systemic risk that can arise when banks collapse.

<sup>21</sup> Currently, 66 developing countries have committed to the 'Maya Declaration', which imposes a range of financial inclusion-related obligations on policymakers (see 'Alliance for Financial Inclusion: <https://www.afi-global.org/maya-declaration>).

<sup>22</sup> See Better than Cash Alliance, 'About', <<https://www.betterthancash.org/about>> accessed 15 August 2018.

<sup>23</sup> Resource constraints apply can apply to policymakers in developed countries (see, e.g., John Armour, Daniel Awrey, Paul Davies, Jeffrey Gordon, Colin Mayer, and Jennifer Payne, *Principles of Financial Regulation* (Oxford University Press 2016), 26, 582) but tend to be particularly high in developing countries, with weak judiciaries and other public agencies. See sources in 33 and Lant Pritchett, 'The Problem with Paper Tigers: Development Lessons from the Financial Crisis of 2008' (Harvard Kennedy School and Non-Resident Fellow, Center Global Development, 28 November 2009).



## 2. A path forward: a functional approach

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A key starting point involves adopting a 'functional approach' that aims to leave behind existing regulatory approaches. In its place this approach focuses on the *services* or *functions* of a financial system or service rather than the institutions providing it.<sup>24</sup> A functional framework can be used to analyse a business model by identifying the following:

- economic *functions* performed by a financial market or service;
- *risks* arising in connection with the performance of these functions;
- the range of potential *policy* responses to these risks;
- trade-offs involved in using these different tools.

This paper combines the functional approach with the domestic arrangements faced by many countries that are trying to regulate mobile money in ways that foster financial-inclusion regulatory goals, and, at the same time, work within resource constraints. This combined framework can help a policymaker seeking to regulate mobile money by:

- developing a functional or 'service-based' approach to mobile money by focusing the actual service performed, rather than the identity of the firm providing the service;
- identifying a wider range of potential tools to protect funds, rather than simply trying to copy and paste bank regulation;
- improving understanding of the trade-offs involved in using such tools.

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<sup>24</sup> Robert Merton and Zvi Bodie, 'A Conceptual Framework for Analyzing the Financial Environment' in Dwight Crane, Kenneth Froot, Andre Perold, Robert Merton and Peter Tufano, *The Global Financial System: A Functional Perspective* (Harvard Business School Press 1995). See also Armour and others (n 24) ch 1, 10-11. *ibid* and at 13.

## 3. Application of a functional approach to mobile money

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### 3.1 Functions

Mobile money systems provide the same payment functions as the bank-based payment system:

- custodial storage: the protection of customer funds from loss, theft, and destruction in the period between their transfer into the payment system and their eventual conversion or use to make a payment;
- transactional storage: the safe and secure transfer of stored funds to third parties;
- liquidity: the ability to use funds to perform basic economic activities, such as purchasing products and services, repaying a debt, or converting funds stored electronically back into cash or cash equivalents upon demand.<sup>25</sup>

### 3.2 Risks

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Customers' funds are exposed to a range of risks in mobile money systems. For example, the mobile money operating system could collapse, or agents could have insufficient amounts of e-money or cash to process customers' requests to deposit or withdraw cash from the system. Like depositors' funds stored within the banking system, customers' funds are exposed to two sets of risks in such a situation:

- *Loss of value*, which can arise when those funds are characterised as unsecured liabilities in the context of bankruptcy proceedings. In this case, some or all of those funds can be used to repay debts owed to third-party creditors. This means that little, if any funds are available for customers at the end of the bankruptcy proceedings (hence *loss of funds*);
- *Illiquidity*, meaning a *delay* in converting or transferring funds while bankruptcy proceedings take place.<sup>26</sup> This arises because customers are usually unable to withdraw their funds until the end of bankruptcy proceedings.

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<sup>25</sup> Awrey and Van Zwieten supra note 11, 9.

<sup>26</sup> Awrey and Van Zwieten supra note 1, 12-13. These risks apply in Kenya: loss of value: Insolvency Act (ss 247, 471) and illiquidity: Insolvency Act (s 558).

### 3.3 Regulatory Tools

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Policymakers may be tempted to copy and paste bank regulations to the new era mobile services, particularly given that mobile money provides the same functions as the bank-based payment system, and that users of the service are exposed to the same institutional distress and bankruptcy risks as depositors. However, a key difference exists between the two systems. The bank-based payment system *also* performs intermediation functions which are a source of a range of risks. By contrast, mobile money does not usually perform intermediation functions. Instead, many contractual and regulatory frameworks aim to protect customers' funds by establishing one of three stipulations:

- Funds must be placed in a trust account;
- Trust accounts must be placed within a bank;
- The phone company cannot use trust accounts for any purpose other than mobile money transactions.<sup>27</sup>

The following discussion and diagram outline the operation of mobile money schemes that use this model. Agents obtained a 'float' (money supply), by providing cash to the phone company in exchange for an equivalent value of 'e-money'. The phone company declares that it stores all customers' funds received from the public on trust for customers in a bank deposit.<sup>28</sup> The agent uses their own reserves of cash and e-money to maintain their liquidity.

A customer can exchange cash in return for an equivalent value of e-money.<sup>29</sup> Funds provided from the customer can be stored with the phone company in the manner outlined by Diagram 1. A customer can transfer units of e-money to another person by typing instructions into her mobile phone.<sup>30</sup> A customer can convert any portion of her funds back into cash by providing an equivalent value of e-money to an agent.<sup>31</sup>

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<sup>27</sup> See, e.g., Malawi's Mobile Payment Guidelines, cl 8.10.

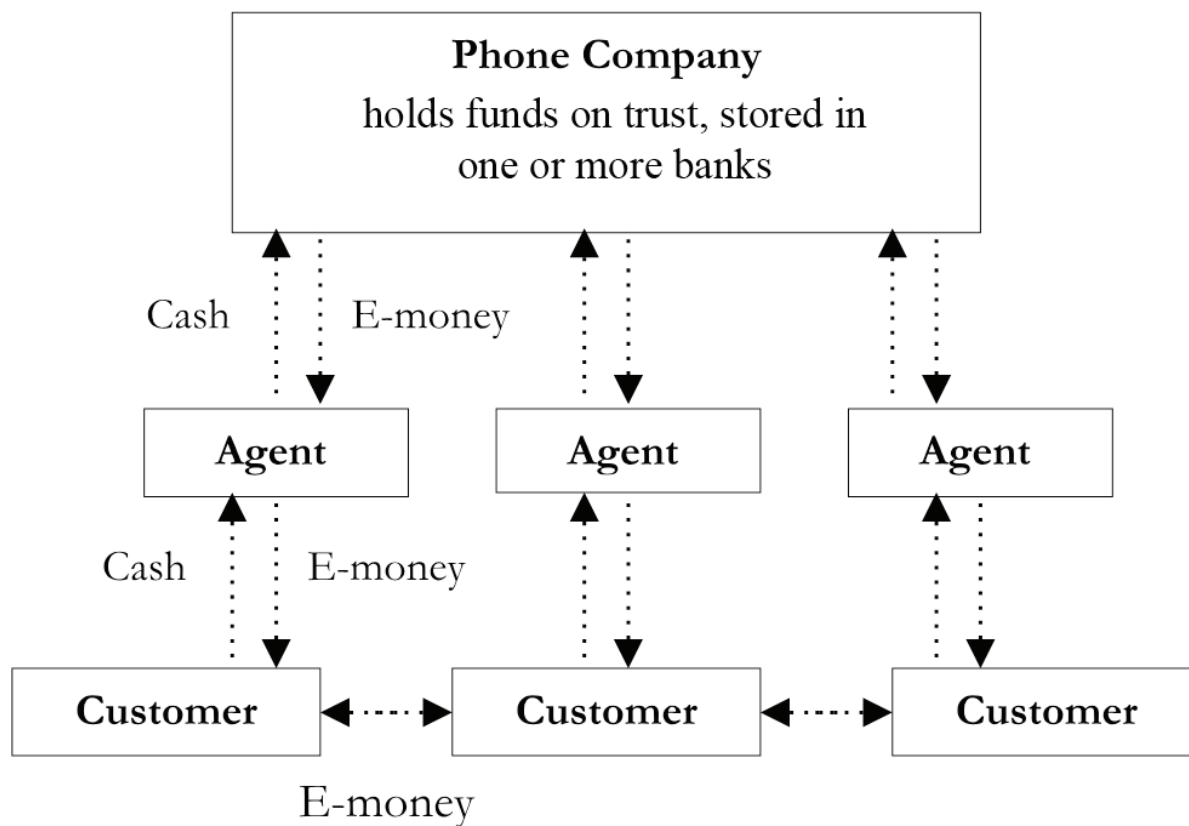
<sup>28</sup> M-Pesa Amendment Deed, Clause (E); M-Pesa Trust Deed, Clause 2(i).

<sup>29</sup> In legal terms, a customer then received a beneficial interest in the trust fund. The quantum of this beneficial interest is the amount of each depositor's funds in her mobile money account received. E-money is defined as electronic monetary value depicted in the customer's M-Pesa account (definition of E-Money in cl 1). M-Pesa Holding Company limited holds an equivalent amount of cash on the customers' behalf (definition of 'Account' in cl 1). The customers' cash represented is held on trust (cl 2.9). The customer acknowledges the sufficiency of the M-Pesa Trust Deed as creating a valid trust over the funds (cl 2.9).

<sup>30</sup> This means the customer simply transfers her beneficial interest to another customer: Pesa Amendment Deed, cl 4.2.I; M-Pesa Terms and Conditions, cls 8.9, 8.10 and 9.1.

<sup>31</sup> In legal terms, this means she transfers her beneficial interest to the account of the cash merchant who provides an equivalent amount of cash to her: M-Pesa Amendment Deed, cls (b)(5) and (C)(5).

Diagram 1: A Common Model of Mobile Money



Customers' funds are exposed to loss of value and illiquidity risks in the event of institutional distress or bankruptcy. Again, a policymaker may be tempted to apply the full range of bank regulations in order to address these risks. Such regulations could include capital requirements and/or ex-post regulatory regimes, such as deposit insurance. The following section explores how the functional approach can help develop more tailored regulations that take into account financial-inclusion goals and resource constraints. The analysis focuses on addressing perceived limitations with three specific regulatory tools.

## 3.4 Specific Tools

### 3.4.1 Trusts (Kenya and Tanzania)

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Trusts can address loss of value risk. This is because trusts can legally ring-fence customers' funds from other assets of the phone company. This means that, should the phone company become bankrupt, customers' funds cannot be distributed to creditors.<sup>32</sup>

However, policymakers have raised concerns that more is needed to make sure that trusts are instituted and administered effectively. In particular, there is a concern that the phone company may use trust funds for purposes other than making mobile payment transactions, contrary to law and/or contract. This, in turn, means that trust funds may co-mingle with the assets of the phone company. In such a case, the trust would not be legally valid and customers' funds would remain exposed to loss of value risks.

A key challenge for customers and policymakers in determining whether the phone company is co-mingling funds is that, under the original model, the phone company had direct access to the trust account. This direct access makes it difficult for a customer or policymaker to distinguish how a phone company is using funds - that is, whether the funds are being stored in a trust, or whether they are being used to finance the mobile phone business.

A method to address this problem involves requiring the phone company to store customers' funds with a *separate firm*. This approach is used in 'M-Pesa' in Kenya. In this service, Safaricom, the phone company, never receives customers' funds. Instead, it is paid directly to another firm, called the 'M-Pesa Holding Company' (MPHC)<sup>33</sup>. The MPHC stores customers' funds in a trust account with the Commercial Bank of Africa. This approach creates the following distinction: Safaricom performs mobile money services and facilitates mobile money transactions. However, the MPHC actually performs the payment function because this firm, not Safaricom accepts, stores, transfers, and pays out funds. The Central Bank of Kenya has given itself the authority to monitor the trust account and its management by the MPHC.<sup>34</sup>

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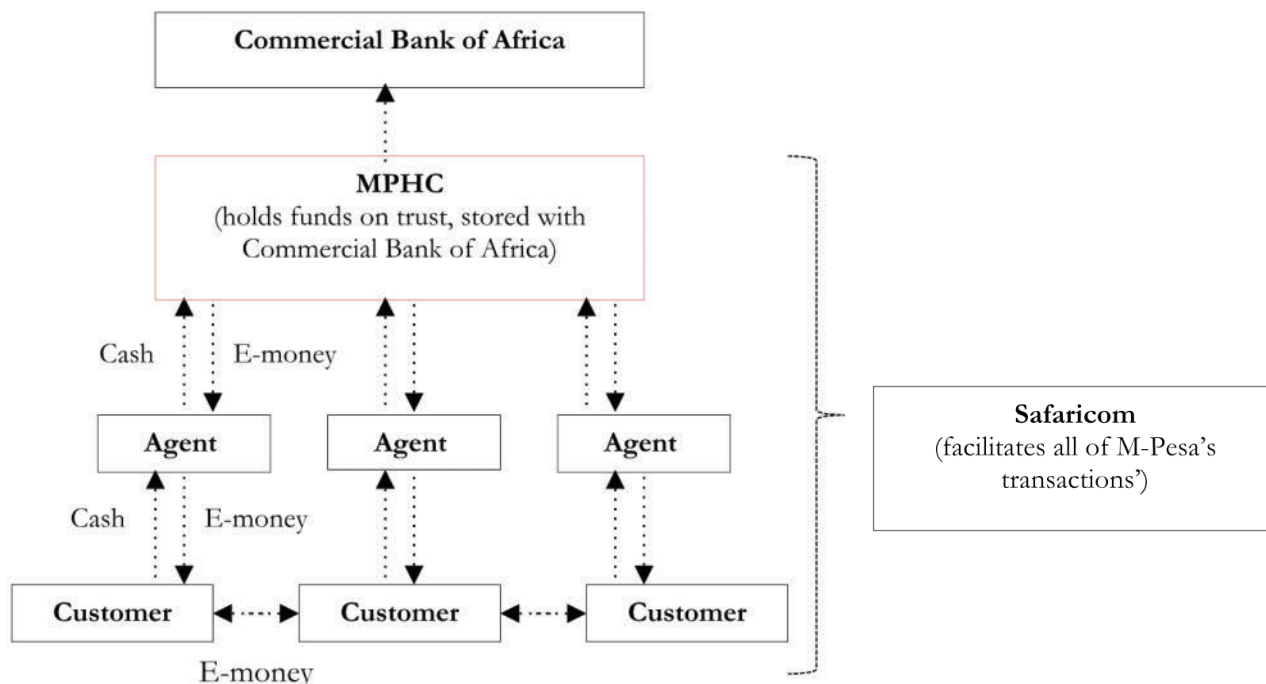
<sup>32</sup> Re English and American Insurance Co Ltd [1994] 1 BCLC 345 and Re Kayford Ltd [1975] 1 WLR 279 would suggest that trust property (in this instance, customers' funds) does not form part of the company's estate, and so is not available for creditors.

<sup>33</sup> M-Pesa Amendment Deed, Clause (E); M-Pesa Trust Deed, Clause 2(i). Note that Safaricom has various contractual methods to control MPHC actions that could also lead to co-mingling. This is because Safaricom operates as an 'agent' of the MPHC (M-Pesa Amendment Deed, cl 7.1). As a result, Safaricom gains the contractual right to operate the commercial bank accounts in which customers' funds are stored (M-Pesa Amendment Deed, cl 7.1(a)). Safaricom can also effect payments from the trust fund back to customers who wish to redeem their funds (M-Pesa Amendment Deed, cl 7.1(a)). Authorised Safaricom personnel are signatories of the bank account under the name of the MPHC (M-Pesa Amendment Deed, cl 7.1(a)).

<sup>34</sup> Online monitoring of electronic money, s 49(1).



Diagram 2: The Original M-Pesa Model (separate firm in red)



The M-Pesa model may make it more likely that funds in the trust account are properly protected. Depending on other arrangements used by the phone company and regulation, protection of funds is more likely because:

- The phone company does *not* have direct access to customers' funds, and, thus, may face greater difficulty in accessing and using such funds.
- Regulation and supervision may be simpler. This is because in order to address payment-regulated risks, a regulator must focus primarily on the separate firm (which simply receives funds), rather than on a phone company (which performs a range of other services, such as mobile phone-related activities).

Other countries have moved to institute the sort of model used in M-Pesa. For example, in Tanzania, a phone company must establish a separate entity to manage the trust account.<sup>35</sup> The policymaker then has power to monitor the trust account.

<sup>35</sup> National Payment Systems Regulations, s 27.

## 3.4.2 Accelerated Bankruptcy Regime (Kenya)

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Awrey and van Zwieten (2017) explain that storing customers' funds in a trust can, in theory, protect against loss of value risk. This is because funds stored in a trust will not form part of the company's estate, and, as a result, these funds will not be available for other creditors during bankruptcy proceedings.<sup>36</sup> Awrey and van Zwieten (2017) also explain, however, that storing funds in a trust cannot, in itself, address illiquidity risk. This is because the corporate bankruptcy regime in the relevant country may operate slowly, creating a delay before customers' funds (trust assets) will be distributed to customers (as beneficiaries).

The World Bank's 2016 'Doing Business' report on Sub-Saharan Africa, estimates that the average length of a corporate bankruptcy process in Sub-Saharan Africa is approximately *three years*.<sup>37</sup> In Kenya, this figure is four and a half years, meaning that customers of mobile money systems potentially face a considerable delay in receiving their funds in the event of corporate bankruptcy.<sup>38</sup>

Kenya has aimed to address this problem by introducing an accelerated bankruptcy regime for mobile money.<sup>39</sup> Should the relevant phone company become insolvent, the Central Bank of Kenya (CBK) can take control over the mobile money business; notify the company to cease dealing with the funds until the institution receives directions from the CBK; and appoint any person, including another shadow payment firm, to distribute the balances held in the trust fund.<sup>40</sup>

The accelerated bankruptcy regime has never been used, and so it is not clear how it would operate in practice. In particular, it is not clear how funds would be distributed. Studies suggest that the unbanked comprise a considerable portion of M-Pesa and other mobile money services.<sup>41</sup> As a result, Kenya's accelerated bankruptcy regime would likely need to return a considerable portion of mobile money funds to customers in cash because so many customers do not have a bank account.

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<sup>36</sup> Jonathan Greenacre and Ross Buckley, *Using Trusts to Protect Mobile Money Customers*, 59 *Sin. j. of Leg. Stud.* (2014) 59.

<sup>37</sup> This is measured by reference to the time between default and the distribution to a senior secured creditor in full or partial satisfaction of their claim.

<sup>38</sup> See World Bank material on this topic: <https://data.worldbank.org/indicator/IC.ISV.DURS?locations=KE&view=chart> accessed 15 August 2018.

<sup>39</sup> See an excellent discussion in Katherine Kemp and Ross Buckley, 'Resolution Powers Over E-Money Providers', (2017) 40 *University of New South Wales Law Journal* 1539.

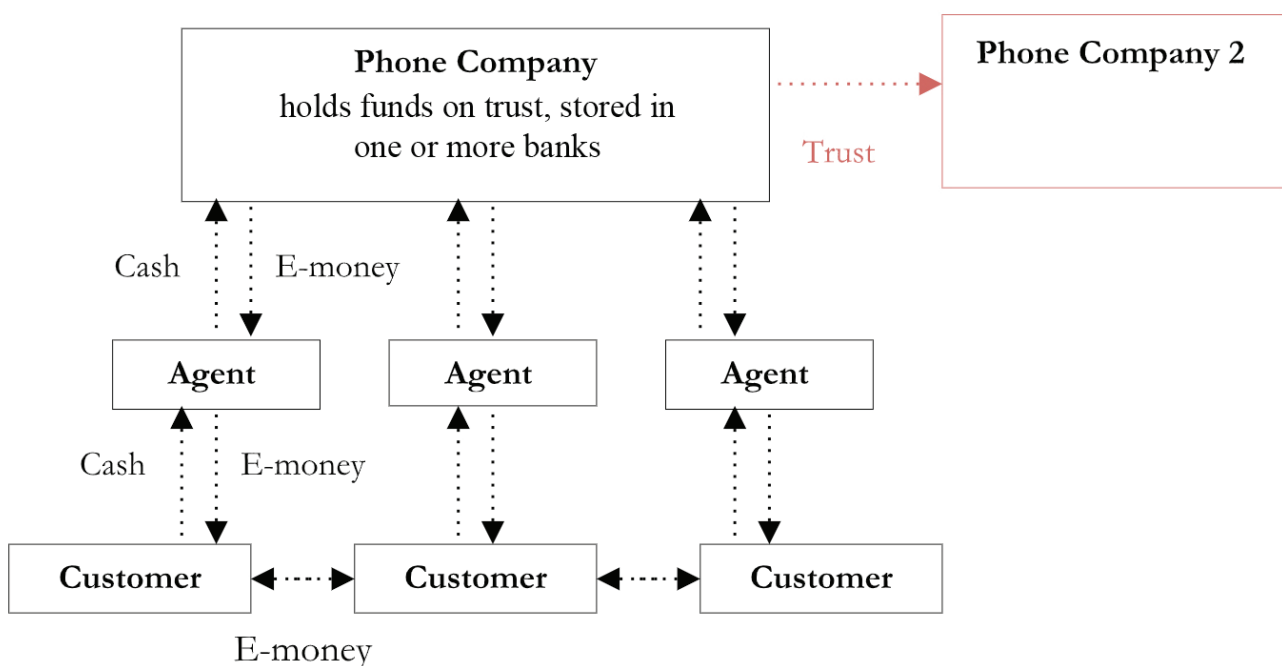
<sup>40</sup> National Payment System Regulations (2014) (Kenya) s 10 (5) (7) (8).

<sup>41</sup> For example, a 2010 study conducted by Jack and Suri of Georgetown University and the Massachusetts Institute of Technology, respectively, found that the unbanked comprise 50 per cent of M-Pesa's customer base: William Jack and Tavneet Suri, 'The Economics of M-Pesa: An Update', (2010) Massachusetts Institute of Technology, Working Paper, October 2010 <[http://www.mit.edu/~tavneet/M-PESA\\_Update.pdf](http://www.mit.edu/~tavneet/M-PESA_Update.pdf)> accessed 28 June 2016.

Such an accelerated regime may have a range of consumer protection benefits. This is because, in theory, such regimes can ensure that customers' funds are returned more quickly than if normal insolvency law were used. However, institutional factors, particularly the desired role for mobile money in the economy and financial-inclusion objectives, might impact the desirability of such a regime. For example, as discussed previously, financial inclusion involves encouraging people to move from cash-based to electronic payment systems.<sup>42</sup> As it is currently drafted, Kenya's accelerated bankruptcy regime would return funds to unbanked customers in cash form. Such an approach may be desirable for customers who have lost trust in mobile money and other financial services, but it would defeat financial-inclusion objectives.

An alternative approach, and one that may better enable mobile money to deliver on its financial-inclusion role in the economy, would involve enabling Kenya's accelerated bankruptcy regime to keep funds within the payment system in electronic form. The model used by the U.S. Federal Deposit Insurance Corporation offers an example of such an approach. Under its authority, funds could be quickly transferred from an insolvent to solvent phone company.<sup>43</sup> The diagram below outlines how such a scheme would operate.

Diagram 3: A Common Model of Mobile Money



<sup>42</sup> See Section 1.

<sup>43</sup> See discussion of the type of issues involved in such an extension: Ann Wardrop, 'Theorising Insolvency Law in the Context of Insolvent Utilities' (2014) 29(3) *Ban. and Fin. La. Rev.* 435. See also CMS, 'Does the Oil and Gas Industry Need a Special Insolvency Regime?' (CMS, 12 October 2015) <[http://www.cms-lawnow.com/ealerts/2015/10/does-the-oil-and-gas-industry-need-a-special-insolvency-regime?cc\\_lang=en](http://www.cms-lawnow.com/ealerts/2015/10/does-the-oil-and-gas-industry-need-a-special-insolvency-regime?cc_lang=en)> accessed 12 April 2016. John Armour, 'Making Bank Resolution Credible' in Moloney, Ferran and Payne, 2015.

A key claim of this paper is that we are only beginning to explore what novel regulatory tools might be required for mobile money. An accelerated bankruptcy regime provides a useful example. It is not clear how such a transfer would operate. It could take the form of transferring customers' contracts from one phone company to another. But this raises a range of additional questions. For example, how would such a system work in markets dominated by one phone company? Would other phone companies have sufficient infrastructure to accept a very large number of new customers should that phone company become bankrupt? Additional research is required.

### 3.4.3 Pass-through Deposit Insurance (Nigeria)

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Originally it was widely believed that customers' funds stored in a bank would be fully protected from risks from the banking system. It is not clear why this view became prominent. One reason may be that banks are usually subject to heavy capital requirements and regulatory oversight. In developed countries, banks usually receive deposit insurance and other government insurance. However, in recent years this view has come under examination. This is because many developing countries do not have deposit insurance. Moreover, even in those countries that do have deposit insurance, policymakers have realised that this may not protect customers' funds from the institutional stress of the bank in which such funds are stored. In particular, the amount of funds stored in a bank account may far exceed the ceiling of the country's deposit insurance scheme. This problem was identified in Kenya in 2013.<sup>44</sup>

In 2016, Nigeria extended pass-through deposit insurance to mobile money as a means to address this problem.<sup>45</sup> In the event of institutional stress of the country's bank or banks, the Nigerian Deposit Insurance Corporation (NDIC) acknowledges that the bank account in which customers' funds are stored will be characterised as a number of smaller accounts for the purposes of deposit insurance protection.<sup>46</sup> In effect this means each mobile money account receives the full protection of Nigeria's deposit insurance scheme. The policy intention is that mobile money funds are 'safe' because they are supported by prudential regulation.<sup>47</sup>

The extension of pass-through deposit insurance to mobile money raises a number of important trade-offs given the policy and wider institutional environment in Nigeria. Pass-through deposit insurance may increase the availability and safety of customers' funds, depending on the credibility of the NDIC. Extending this type of insurance to mobile money may contribute to financial-inclusion goals by increasing the trust that unbanked people have in mobile money.

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<sup>44</sup> Studies find that M-Pesa customers' funds are, in effect, completely uninsured against bank failure: Jack and Suri, *supra* 41, 10.

<sup>45</sup> See announcement in Babajide Komolafe, 'NDIC Issues Deposit Insurance Guidelines for Mobile Money' (Vanguard, 18 January 2016) <<http://www.vanguardngr.com/2016/01/ndic-issues-deposit-insurance-guidelines-for-mobile-money/>> accessed 12 April 2016.

<sup>46</sup> GSMA, 'Safeguarding Mobile Money: How Providers and Regulators Can Ensure that Customer Funds Are Protected' (January 2016) GSMA 25-26.

<sup>47</sup> This intention can be inferred from Nigeria's pass-through deposit instrument, which states that mobile money subscribers need assurances that 'their deposits are safe and available at all times as provided by the Deposit Insurance Scheme' Guidelines for the Operations of Electronic Payment Channels in Nigeria 2016, s 13.

However, pass-through deposit insurance brings a range of costs. Perhaps most obviously, it imposes extra obligations on the NDIC, which then makes resource constraints more pressing. A representative of NDIC has already publicly expressed doubt over the effectiveness of Nigeria's pass-through deposit insurance due to its own resource constraints.<sup>48</sup> Deposit insurance agencies in Kenya and Tanzania have also expressed interest in establishing pass-through deposit insurance over mobile money, but they are concerned about resource constraints.<sup>49</sup> These institutional factors may mean that a policymaker cannot credibly commit to provide pass-through deposit insurance.

There are a range of other potential costs to extending pass-through deposit insurance to mobile money. In theory, doing so raises an arbitrage opportunity between the mobile money and banking sectors. This is because Nigerian phone companies are offering an equivalent payment function as a bank, and receiving functionally equivalent deposit insurance protection, yet, they are subject to lower ex ante regulatory requirements.<sup>50</sup>

Furthermore, phone companies must comply with a range of ex ante requirements in order to obtain access to pass-through deposit insurance. This includes taking fidelity bond insurance for losses caused by fraudulent acts of their staff.<sup>51</sup> These requirements increase the phone company's regulatory costs, which can impair the ability of mobile money services to use innovative institutional arrangements, and limit their reach to additional numbers of low-income communities in Nigeria. These costs may be even greater should a phone company be required to contribute to the cost of pass-through deposit insurance. However, this is not clear from the empirical material available.

Given these institutional issues, a policymaker might more efficiently deliver on public policy goals of financial inclusion, including encouraging people to transfer 'savings' from cash into electronic form, through permitting what might be considered unorthodox organisational relationships between phone companies and banks. Such relationships can enable customers to transfer funds from the former to the latter.

Kenya has taken the lead at this junction. In 2012, with the CBK's approval, Safaricom launched 'M-Shwari' in partnership with the Commercial Bank of Africa. A customer can transfer funds from her M-Pesa account to a linked M-Shwari bank deposit provided by the Commercial Bank of Africa. Unlike M-Pesa, M-Shwari was specially designed, regulated, and marketed as a savings service.<sup>52</sup> A customer can obtain an interest rate of 6 per cent through her M-Shwari deposit, and her funds are fully protected by Kenyan bank regulation. Similar products have been launched in Ghana, Rwanda, and Tanzania.<sup>53</sup> Diagram 4 outlines the institutional arrangements used in M-Shwari.

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<sup>48</sup> Ibid.

<sup>49</sup> For Kenya, see presentation by Mohamud Ahmed, CEO-Kenya Deposit Insurance Corporation (KDIC) (IADI Africa Regional Committee Conference, Zanzibar, 1-3 September 2016). For Tanzania, see presentation by Richard J. Malisa (Tanzania Deposit Insurance Board), 'Deposit Protection Framework for Mobile Money: Experiences and Initiatives – The Case of Tanzania' (IADI Africa Regional Committee Conference, Zanzibar, 1-3 September 2016).

<sup>50</sup> Noting that a deeper study should be done comparing regulatory costs on firms providing mobile money and banks.

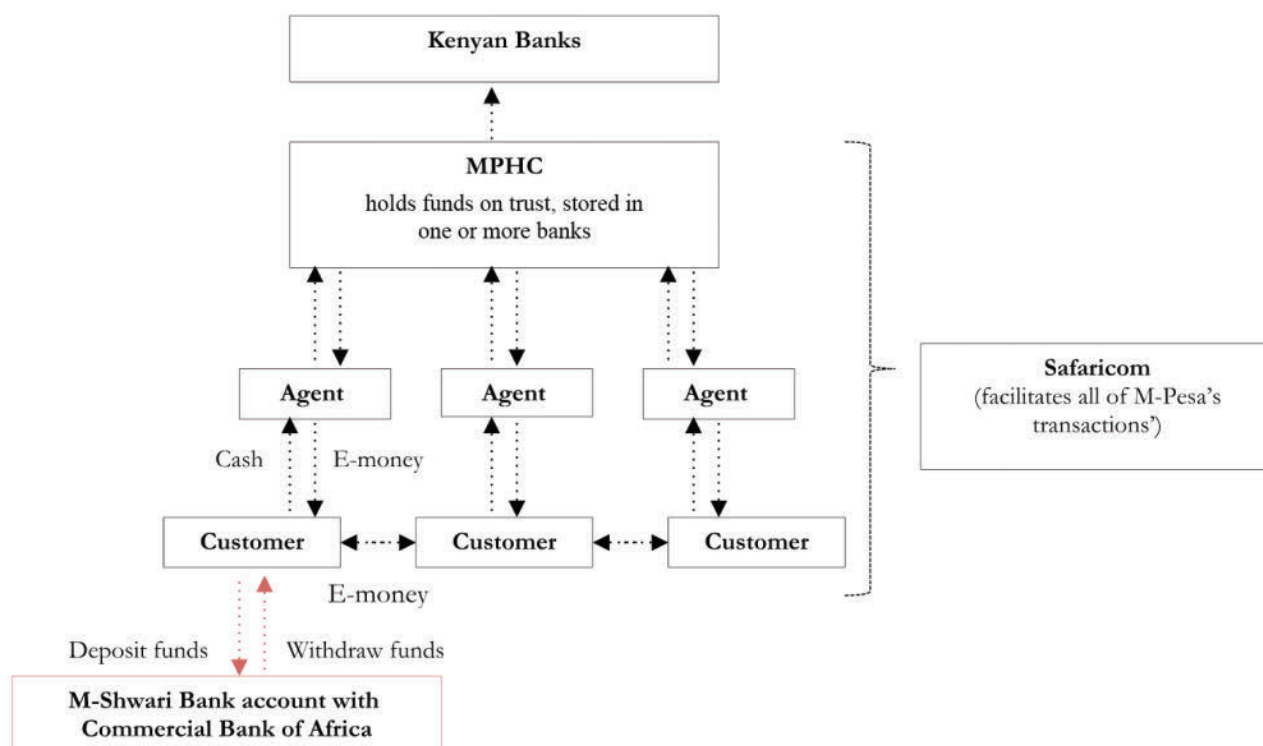
<sup>51</sup> Framework for the Establishment of Pass-Through Deposit Insurance for Subscribers of Mobile Money Operators in Nigeria 2015, s 71.

<sup>52</sup> Ibid.

<sup>53</sup> See Professor Njuguna Ndung'u, 'Digitization and its Potential' Brookings Institute, 2018, 5.



Diagram 4: The Extension of M-Shwari (in red)



The M-Shwari product maintains organisational, functional and regulatory distinctions between the mobile money and banking systems. M-Pesa can continue to operate as a retail payment system subject to the 'light touch' regulatory regime, which appears to have contributed to the service's enormous expansion, including the growth amongst low-income communities.

M-Shwari should not put the CBK's resource constraints under substantively additional strain. This is because the functional limitations on storage and customers' exposure to risk of failure, as discussed in Part 2, should mean that customers continue to only store a small amount of funds in their accounts. Furthermore, any funds earmarked for 'saving' will be transferred to the Commercial Bank of Africa, which ensures interest payments, provides deposit insurance, offers accelerated bankruptcy regimes, and serves as a lender of last resort - measures that already apply to Kenyan banks. This also means that, unlike Nigeria's regulatory frameworks, Kenya's framework requires little, if any additional regulation.

There are insufficient data to determine the impact of Nigeria's pass-through deposit insurance on the usage of mobile money. However, rapid growth of M-Shwari and similar services suggests they are attractive to potential customers. Since its launch in November 2012, over 20.4 million M-Shwari deposit accounts have opened. 'M-Pawa' in Tanzania, launched in May 2014, now boasts over 6.5 million accounts. 'Mokash' in Uganda, launched in August 2016, now has 2.71 million accounts. And 'Mokash' in Rwanda, launched in February 2017, already has more than 550,000 accounts.<sup>54</sup>

<sup>54</sup> Ibid, 7.

## 4. Beyond regulation

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Though this paper has focused overwhelmingly on the regulation, the mobile money issue raises broader public policy questions, largely related to financial-inclusion objectives. Many policymakers have a mandate to increase the *use* of mobile money and other payment systems to achieve broader financial inclusion of unbanked populations.<sup>55</sup> At the same time, a closer analysis of the data suggests that an overwhelming majority of customers use mobile money for very few of their financial needs. For example, of the 690 million mobile money accounts, just 168 million were 'active'. Even then, usage is minimal given that 'active' means used at least once every 30 days.

Use is limited even in well-developed jurisdictions such as Kenya and Tanzania. For example, surveys have found that although roughly three-fourths of Kenya's adult population are mobile money users just 1 per cent of the value of expenditures and 3 per cent of the value of all transactions were made electronically.<sup>56</sup>

This low usage has continued despite the introduction of regulation for mobile money in many countries. This leads to the following questions: should other public resources be spent to increase the use of mobile money? If so, how? Efforts to this end are already underway. For example, many policymakers use public education campaigns to teach the population, particularly unbanked communities, about the benefits of mobile money and other formal, electronic services. But there has been no substantive research into the potential effects on mobile banking through investment in other public resources, such as building more serviceable roads to transport cash between agents, or providing more effective and reliable mobile phone systems, particularly in rural areas where the unbanked live and work.

This is part of a broader limitation: there is very little scholarship into how public finance can be used most efficiently to develop such systems in developing countries. This is because most scholarship into regulation and public policy assumes that a functioning payment system exists.<sup>57</sup>

Next-generation research should explore how public resources – both regulation and beyond – can be used to support increased uptake of mobile money services. The potential of mobile money is considerable, but to realise this potential will likely require a combination of regulation and other public support.

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<sup>55</sup> See the discussion in Section 1.

<sup>56</sup> See Jay Rosengard, 'A Quantum Leap over High Hurdles to Financial Inclusion: The Mobile Banking Revolution in Kenya' (2016) Harvard Kennedy School, Faculty Research Working Paper Series, June 2016 <<https://research.hks.harvard.edu/publications/getFile.aspx?id=1416>> accessed 14 December 2016.

<sup>57</sup> This is part of the broader tendency to assume that banks provide payment systems, as discussed in Section 1.

## 5. Conclusion

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This brief survey of M-Pesa, M-Shwari and similar products reveals the importance for policymakers of thinking carefully about the impact of the selection of different roles for mobile money within an economy. As mobile money grows, public policy concerns may prompt policymakers to borrow banking regulations. Such an approach may result in overregulation, particularly because phone companies providing mobile money do not perform intermediation.

Instead, a functional approach, focusing on the actual service being performed, can deliver more nuanced results. When combined with a better understanding of domestic policy goals and resource constraints, a functional approach can provide a useful framework for designing more targeted regulation of mobile money.

More research is required into the design of regulatory tools for mobile money and why, in many countries, mobile money usage remains low. Most fundamentally, research is required into how to best channel public resources to support the function and expand the use of mobile money systems. This will include needed regulation and needed infrastructure, such as roads and power lines.

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