Promoting Responsible Financial Inclusion: A Risk-based Approach to Supporting Mobile Financial Services Expansion

Maria C. Stephens[*]

The convergence of an increased development and philanthropic focus on promoting financial inclusion, the ubiquity of mobile telephony, and the introduction of non-traditional actors (mainly mobile network operators) into the cross-border payments system has led to the need for a balanced global regulatory framework that can shape and inform the mobile financial services sector, with particular focus on money-transfer services. This paper reviews and draws some similarities between characteristics of earlier examples of technology-based financial innovation and those of the growing mobile money-transfer services sector, particularly within the context of cross-border payment systems and light regulation. The paper proposes a framework for navigating the balancing act of encouraging financial innovation while simultaneously adopting a risk-based approach to regulating the mobile financial services sector, drawing from other successful industry approaches to managing risk.

L'intensification du développement des services financiers à distance, combinée à l'intérêt des milieux philanthropiques pour la promotion de l'inclusion financière, à l'omniprésence de la téléphonie mobile et à l'entrée d'intervenants non traditionnels (principalement des exploitants de réseaux mobiles) dans le système de paiements transfrontaliers, ont créé le besoin d'un cadre réglementaire mondial équilibré, susceptible d'encadrer et même de transformer le secteur des services financiers mobiles, plus particulièrement quant aux services de transfert de fonds. L'article passe en revue les similitudes entre les caractéristiques d'innovations financières antérieures fondées sur la technologie et les caractéristiques du secteur grandissant des services de transferts de fonds mobiles, principalement dans le contexte des systèmes de paiements transfrontaliers et de la régle-

[*] U.S. Agency for International Development. The views expressed in this paper are those of the author and do not necessarily reflect the views of USAID or the U.S. government. Thanks to the following individuals for reviewing and providing their invaluable insights and technical expertise into this paper: Lisa Dawson of Booz, Allen and Hamilton, Cynthia Merritt of the Federal Reserve Bank of Atlanta, Gail Hillebrand of the Consumer Financial Protection Bureau, Joshua Mugerwa of IEH Laboratories and Consulting Group, Inc, William Maurer of the University of California-Irvine, Paul Davis (ret) USAID, Andrew Zerzan, Ambreena Manji of the British Institute in Eastern Africa and Alice Brooks, USAID.

mentation actuelle, peu contraignante. L'auteur propose un cadre pour établir un équilibre entre l'objectif de stimuler l'innovation financière et celui de gérer les risques en ce qui concerne la réglementation du secteur des services financiers mobiles, en s'inspirant de modèles qui, dans d'autres secteurs, ont connu du succès en matière de gestion des risques.

> *Because financial markets do not tend towards equilibrium, they cannot be left to their own devices. Periodic crises bring forth regulatory reforms. That is how central banking and the regulation of financial markets have evolved. (Soros, 2009)*
>
> *We cannot control ourselves. You have to step in and control The Street. (John Mack, Chairman and CEO, Morgan Stanley, 2009.)*

1. INTRODUCTION

Two striking themes characterize the current state of international economic development: the desire to create an inclusive financial system and the introduction of technology-driven services and products that have, in many parts of the world, led to unprecedented increases in the provision of financial products and services to those previously excluded from access to both. At its core, financial inclusion is a systems-based approach which holds that, absent some risk-based rationale for not doing so, financial services providers should avail the opportunity to all people — particularly those previously excluded — to access financial services and products that are delivered in a convenient, reliable, and affordable manner.

However, if this approach is to be credible and sustainable, it must function within a well-defined, -articulated, and -regulated framework that provides actors with a safe and reasonably predictable space within which to develop a full range of market-driven and innovative financial products and services, including those that are technology-based and -driven. Such a framework should contain elements that can accommodate the unique business models of various financial institutions, ranging from community banks to large retail commercial banks, regulatory authorities with various levels of supervisory and oversight capacity, and information security and technology specialists. At the same time, the framework should maintain a structural integrity that applies to all actors functioning within an inclusive financial ecosystem. This paper proposes one suggestion for how to navigate the delicate balancing act of encouraging financial innovation while simultaneously adopting a risk-based approach to regulating the mobile financial services (MFS) sector, of which mobile money transfers (MMT) are a part.

2. SETTING THE SCENE: FINANCIAL TECHNOLOGIES PAST AND PRESENT

Common themes unite financial technologies from the present, including MFS, with technologies from the recent past. Four trends are common both to some derivatives-based financial transactions and to the current unregulated state of the bulk of MFS transactions: First, the "shock and awe" factor of technology-based financial transactions; second, the tendency toward building "too big to fail" entities; third, the potential for rapid and high rates of return and growth; and finally, the absence of robust supervision of inherently risky financial transactions. (Note that throughout this paper, the ubiquity of mobile at the person-to-person (P2P) level for transfers that may avoid regulated financial systems is most prevalent

within the predominantly mobile network operator (MNO)-led model. Therefore, the MNO-led model is considered the most risk-bearing model.)

(a) The "Shock and Awe" Factor of Technology-Based Financial Products and Services

The complexity and speed of transactions made possible by technology, the lack of full disclosure to clients regarding the true value and disposition of the underlying derivatives and corresponding transaction parts, and the lack of regulatory oversight of a moving and lucrative target led ultimately to the collapse of many derivatives-based transactions over the past two- to three years. In part, the sheer complexity and speed with which the transactions could be transmitted led some to focus less on the inherent risks of the transaction itself in exchange for admiring the ultimately short-term, but immediately lucrative gains brought on by these transactions. Similarly, more recent attention is given to the role technology may play in promoting financial inclusion. The Economist lauded mobile banking's potential "transformational power" in 2007[1] and again in 2009.[2] And in a November 2010 New York Times article, "Do Believe the Hype," one can see Thomas Friedman setting the stage for a next book, "The World is Flat, Hot, Crowded, and Mobile."

(b) The Complexity of Technology-Based Products and Risk Models

(i) The Case of Derivatives

By their very nature, derivatives are complex. Advances made in the computer technology required to calculate the valuation of derivatives-based transactions made them even more complex. Alan Greenspan himself admitted to the inherent complexities of many derivatives-based transactions shortly after stepping down from the Federal Reserve:

> I've got some fairly heavy background in mathematics, but some of the complexities of some of the instruments that were going into CDOs (collateralized debt obligations) bewilder me. I didn't understand what they were doing or how they actually got the types of returns out of the mezzanines and the various tranches of the CDO that they did. And I figured if I didn't understand it and I had access to a couple hundred PhDs, how the rest of the world is going to understand it sort of bewildered me.[3]

In addition to their inherent complexity, every derivative deal is different and tailored to the parties involved. As a result, when an investor wants to sell, it is oftentimes difficult, if not impossible, to find a buyer at a reasonable price with the same needs and interests as the original party participants. Finally, derivatives are risky because they are based on a combination of leveraging, namely borrowing money to invest, and a lack of full disclosure about the nature of the investment. The leveraging aspect meant that the investor must bear the full financial brunt of any loss brought about by a soured transaction and pay off the lender from whom he or she borrowed to leverage the transaction. The lack of full disclosure about the

---

1 "A bank in every pocket?", *The Economist* 385:8555 (17 November 2007) 18.

2 "The power of mobile money", *The Economist* 392:8650 (24 September 2009) 1.

3 Andrew Ross Sorkin, *Too Big to Fail* (New York: Penguin Group, 2009).

riskiness of the investment meant that the investor was oftentimes put in this situation.

(ii) The Case of Mobile Phone-Based Transactions

Although the absolute value of any one maximum holding of an e-money transfer from a mobile device may be small, the cumulative effect of a precipitous loss of aggregate holdings could be significant, particularly in the context of countries that do not ensure against such losses through any type of deposit-insurance scheme. For example, the current allowable maximum that any one M-PESA registered customer based in Kenya can hold on his or her mobile wallet stands at US$750. While this may be a relatively low figure by U.S. standards, this figure should be viewed within the context of a country which maintains a gross national income per capita of US$770, and a country ranking 180 out of 213 in the current list of world development indicators, putting it squarely within the low-income country category of US$995 or less.[4] This increased risk factor of a cumulative effect of a precipitous loss of value of aggregate mobile wallet holdings is due not only to the complexity of some MMT transactions, particularly within a cross-border context, but may also be attributed to the speed at which these transactions are likely to take place. For example, looking closely at the number of steps and actors involved in a peer-to-peer, MNO-led model in which an in-network consumer sends money to an out-of-network consumer, USAID/Booz Allen Hamilton's Mobile Financial Services Risk Matrix (discussed below) identifies nine potential transaction steps — any one of which, if compromised, could bring the transaction to a halt.[5]

Few consumer-protection guidelines outline clearly the nature and types of risks involved in mobile financial transactions and the liabilities consumers bear resulting from these risks. One such risk relates to the legal disposition of the trust account associated with some MFS, particularly in the event of bank insolvency. The value of the float comprising the trust account is derived from the small amounts of money individuals load into their accounts, typically through the agent network. This float is the money on deposit held against customers' mobile money accounts and should be ring-fenced from the custodial bank's other assets in the event of bankruptcy and shareholder claims. However, there is little by way of legal guidance on how the trust account contents should and can be protected by capital reserves and/or Federal Deposit Insurance Corporation-like insurance, how bank dissolution would be handled in a bankruptcy court, or how such proceedings might vary in countries following the French civil law tradition compared to those following British common law.[6] This lack of legal clarity leaves many actors within the mobile-money transfer ecosystem exposed.

---

4 The World Bank, "World Development Indicators" (27 September 2010), online: The World Bank <http://data.worldbank.org/data-catalog/world-development-indicators>.

5 "Mobile Financial Services Risk Matrix" (23 July 2010) at 71, online: BIZCLIR <http://bizclir.com/galleries/publications/Mobile%20Financial%20Services%20Risk%20Matrix%20July%202010.pdf> [Matrix].

6 This is the subject of a forthcoming paper by the author.

(iii) The Tendency to Create "Too Big to Fail" Institutions

The sophisticated nature of derivatives-based financial transactions, the cash and technology required for such transactions, and the human resources needed to initiate, undertake, and in some cases unwind derivatives-based transactions tended to concentrate such transactions in a few large banks and other financial institutions, such as insurance agencies. Derivatives held by U.S. commercial banks increased by $2.6 trillion in the third quarter of 2005, to $98.8 trillion.[7] As of the end of 2005, holdings of derivatives continued to be concentrated in the largest banks, with five commercial banks accounting for 96 percent of the total notional amount of derivatives in the U.S. commercial banking system.[8] These included banks within the networks of J.P. Morgan Chase, Bank of America, Citibank, Wachovia, and HSBC Bank USA. Such concentration was, of course, not limited just to banks because insurance companies also took on huge concentrations of derivatives-based transactions, a process made all the more easy with the final repeal in 1999 of the *Glass-Steagall Act*, legislation which was intended to keep in place a solid firewall between banking and commerce activities. The following excerpt appeared in Time magazine on September 16, 2008, one day after the unprecedented government bailout of the American Insurance Group (AIG):

> After establishing a supposed hard line against bailouts over the weekend with Lehman Brothers, the U.S. government abruptly abandoned it Tuesday and announced an $85 billion Federal Reserve loan to insurance giant AIG. The explanation: AIG was deemed too huge (its assets top $1 trillion), too global and too interconnected to fail.[9]

Similarly, the tendency for MNO-led models to concentrate transaction activities in the hands of one or only a few large telecommunications institutions is not only a function of the "first mover" establishing market dominance but also of the telecom industry players' already well-established and expansive mobile phone user networks. Moreover, MNOs tend to concentrate trust accounts in one, or a few, large commercial banks, leading to a concentration risk of the account. In both the case of derivatives- and mobile financial-services-based transactions, there is a tendency to create few and large institutions by virtue of the nature of the transactions, and those undertaking the transactions, which increases the inherent risks of the transactions themselves. This can lead to systemic risk within the broader economic context in which the mobile financial services take place if the risk concentration is high. A recent article describes the current magnitude of M-PESA transactions in relation to the overall size of the Kenyan economy:

> Figures reported by Safaricom as of January 2010 include U.S. $320 million per month in person-to-person transfers. On an annualized basis, this is equivalent to roughly 10 percent of Kenyan gross domestic product. There are 27 companies using M-PESA for bulk distribution of payments. Since

---

7 "OCC Reports Derivatives Volume Approaches $100 trillion" (21 December 2005), online: Office of the Comptroller of the Currency <http://www.occ.treas.gov/news-issuances/news-releases/2005/nr-occ-2005-125.html> [OCC].

8 *Ibid.*

9 Justin Fix, "Why the Government Wouldn't Let AIG Fail", *Time Magazine* (16 September 2008).

> the launch of the bill pay function in 2009, there are 75 companies using M-PESA to collect payments from their customers. The biggest user is the electric utility company, which now has roughly 20 percent of their one million customers paying through M-PESA".[10]

In the Kenyan context, Safaricom, through its fast-growing M-PESA service, dominates the telecom and MMT service sectors and serves as the transactional channel through which a significant portion of Kenyan GDP's associated financial and economic funding flows. Should M-PESA's growth continue on its current trajectory, it will only continue to expand its role in relation to Kenya's overall GDP. However, it is also possible that a precipitous decline in Safaricom's contribution to Kenya's transactional flows — for instance, through the unravelling or forced unwinding of large numbers of illegitimate mobile telephony-based transactions — could have the opposite effect on economic growth and stability. Moreover, to the extent that M-PESA has captured the global imagination as a successful MNO-led model, its hypothetical fall could lead to a negative domino effect of many MNO-led models from a psychological perspective, or a literal domino effect if several MNOs' business strategies and operations are intertwined.

U.S. taxpayers bailed out AIG on the basis of the government's argument that, if left exposed, the insurance giant's complex financial arrangements and ties would lead to a financial domino effect that could unravel the global financial system beyond repair. Whether or not this would have happened cannot be known. However, what is known is that the interconnectedness of a large institution's underlying investments with other major economy actors, compounded by its sheer size relative to the other financial actors within the economies in which it functions, and the speed at which investments aided by technology interconnect a large market player's own strategy with those of other actors' all combined, can unravel a large financial ecosystem and even have a chilling effect on the global economy.

(c) The Potential for Rapid and High Rates of Return and Growth

Soon after Allen Greenspan took over as the Chairman of the Federal Reserve in 1987, the number of derivatives outstanding began rising sharply. International Swaps and Derivatives Association reports indicated that interest rate and currency derivatives outstanding grew from $865 billion in 1987 to $213 trillion in 2005 before reaching a peak of $426 trillion in 2009.[11] The Office of the Comptroller of the Currency (OCC) reported in 2005 that U.S. commercial bank holdings of derivatives stood at $98.8 trillion, with interest rate swaps comprising the bulk of that amount.[12] From 1996 to 2004, hedge funds grew fourfold, from approximately $200 billion to more than $800 billion in capital. A derivatives and hedge fund manager trading extensively during this period reported that the fees on hedge funds were highly lucrative, with management fees of 2 percent and 20 percent

---

10 Ignacio Mas & Dan Radcliffe, "Mobile Payments go Viral: M-PESA in Kenya" (2010) [unpublished, archived at The World Bank].

11 International Swaps and Derivatives Association, Inc., "ISDA Market Survey" (2010), online: ISDA <http://www.isda.org/statistics/pdf/ISDA-Market-Survey-annual-data.pdf>.

12 OCC, *supra*, n. 7.

payouts on profit within the range of normal.[13]

The increase in both the usage of mobile phones and, more recently, mobile phone-based financial transactions, also show stunning rates of growth and expansion in some parts of the developing world. According to recent estimates, Kenya's Safaricom M-PESA service reached 9 million customers in less than three years, which corresponds to 23 percent of the Kenyan population and 40 percent of the adult Kenyan population.[14] To its credit, Safaricom and Kenya's key national bank regulators and central bank advisors continue to work together to develop and implement a risk-based regulatory approach to managing such high and unprecedented growth, but such visible collaboration may not characterize the development of most national MFS systems.

(d) The Lack of Robust Supervision of Inherently Risky Financial Transactions

When discussing either derivatives- or MFS-based transactions, it is important to note that the risks are not necessarily inherent to the instruments of transaction or transmission. Rather, any risks resulting from these types of transactions usually result both from the inappropriate use of the instrument and the lack of oversight of its usage. In the case of derivatives, the instruments in and of themselves did not lead to the recent sub-prime mortgage financial crisis, or to the events leading up to its preceding "Black October" market crash in 1987 or the Orange County crisis in 1995. Instead, it was the way in which some of the derivatives were structured and utilized, and more so the way in which both the structuring and utilization processes were left unsupervised, that led to the rapid unravelling of an entire network of global financial transactions.

Similarly, undertaking financial transactions that utilize a mobile phone is not necessarily an inherently risky enterprise. In fact, tremendous efficiencies are being gained through such transactions. For example, through the USAID-supported Microenterprise Access to Banking Services (MABS) program in the Philippines, more than 100 rural banks and approximately 1,000 branches manage more than 1.4 million micro deposit accounts and collectively have disbursed over 2.5 million loans totalling nearly $700 million to more than 775,000 clients.[15] Moreover, the correspondent banking model employed in Brazil and Colombia continues to provide access to an ever-expanding network of otherwise unbanked rural clients. Risks in these types of transactions should be identifiable and identified, and reasonable responses to these risks should be identified and ready to be implemented by appropriate actors in the financial ecosystem, including mobile network operators, regulatory authorities, and the consumers of the products and services themselves.

---

13 David Chapman, "Derivatives Disaster, Hedge Fund Monsters?" (11 November 2005), online, SafeHaven <http://www.safehaven.com/article/4099/derivatives-disaster-hedge-fund-monsters>.

14 Mas & Radcliffe, *supra*, n. 10.

15 See *Microenterprise Access to Banking Services*, online: MABS Program Philippines <http://www.rbapmabs.org>.

3. MOBILE MONEY RISK ENVIRONMENT: CURRENT GLOBAL CHALLENGES

Of all the real and perceived risks associated with mobile financial services, mobile money transfers (and specifically cross-border transactions) are viewed with the most concern due to their ability to transfer funds quickly, oftentimes undetected, across several national borders and regions. As such, cross-border transactions are highlighted below as higher-level current global challenges.

(a) Global Regulatory Challenges Resulting from Converged Banking and Telecommunications Industries in a Cross-Border Context

In many emerging markets, the rapid adoption of mobile payments has led to the unanticipated utility of prepaid airtime as an alternative currency that can informally cross geographic borders. Consider the following example: A customer buys a scratch card with a code to "top up" his current mobile phone airtime balance. Rather than using the card, however, he decides to text the number to his friend who resides across the border. As long as his friend is willing and able to find someone else who is willing and able to purchase the code — someone with regular business back on the first customer's side of the border, for example — he can cash out. The cash-out partner can even take advantage of fluctuations in currency value, thus acting like a mini-arbitrageur. This is only one example of how people can turn airtime into a trans-boundary remittance standing completely outside of the formal financial system.[16]

Moreover, the MNO-led model continues to dominate the mobile money-transfer market, with clearing and settlement functions often agnostic to the participation of mainstream financial institutions or central banks.[17] The MNO-led model does not interface with or through the formal banking system to facilitate cross-border payment and settlement systems, as would be the case with ACH-based correspondent banking transactions. As a result, many mobile-led transactions remain less transparent and do not benefit from the potential gains and efficiencies of transnational payment channel systems, such as the U.S. Federal Reserve's FedGlobal ACH Payments System, or the Continuous Linked Settlement (CLS) or Real Time Gross Settlement (RTGS) systems, all of which facilitate a reduction in float and creation of clear transaction trails.[18]

(b) National Central Bank Capacity to Supervise and Monitor for Compliance

The risks inherent in all retail payments systems are also present in the mobile phone banking arena, including money laundering, privacy and security, consumer

16 Thanks to Bill Maurer for this insightful example.

17 Cynthia Merritt, "Mobile Money Transfer Services: The Next Phase in the Evolution in Person-to-Person Payments" (August 2010), online: Federal Reserve Bank of Atlanta <http://www.frbatlanta.org/ documents/rprf/rprf_resources/wp_0810.pdf>.

18 See Yoon S. Park, "The Inefficiencies of Cross-Border Payments: How Current Forces Are Shaping the Future" (2006)(discussing cross-border payment systems), online: Visa <http://www.financialtech-mag.com/_docum/105_Documento.pdf>.

protection, fraud, and credit and liquidity risks.[19] A "checklist approach" to ascertaining the suitability of adopting MMT services is inadequate. For example, asking "if there is a national interbank switch" should be followed by asking if the switch is government owned, in which case supporting such an arrangement would be facilitating potentially lucrative rent-seeking behaviour. Moreover, the political events and uprisings in Cairo and other parts of the Middle East starting in the Spring of 2011 provide an instructive case study on what can happen if a government has both the access and inclination to shut down mobile phone and Internet activity, thus bringing a banking system which relies on this technology to a grinding halt. In addition, the convergence of banks increasingly relying on cloud-based or Internet back-office systems alongside increased mobile phone banking will require that both service level agreements lay out legal guidelines in the event of service failure, and that backup systems are in place to keep a mobile phone and cloud-based banking system in operation in the event of government or other interference. Finally, asking "if there is regulation governing the use of e-money and consumer protection regulation" should be followed by asking "what evidence exists that these regulations are enforceable on a sustained basis?" Adding these dimensions to questions related to capacity to undertake broader MFS, and more specific MMT services gets at whether or not appropriate firewalls are in place that will allow regulators to undertake credible oversight, and whether the political will and capacity exist for them to do the same.

(c) The Need for Clear Legal and Governance Structure in MMT Service Institutions

The risks inherent in MMT service provision will depend on the extent to which the underlying service provider's legal and governance structure has been clearly established from the onset. Consider the case in which an MNO acquires a bank through majority shareholder purchase; would this new "blended model" institution be subject to banking regulation and supervision? If not, how are the governance lines to be drawn up in such an arrangement? In the U.S. banking system, the *Glass-Steagall Act* effectively isolated commercial banking as a separate and highly regulated financial sector. This legislation assured that financial markets were clearly segmented and that the business of banking was focused primarily on offering deposits and loans. In 1999, Congress passed the *Graham-Leach-Bliley Act*, which effectively repealed Glass-Steagall, in part due to pressure from the OCC that granted increased product powers to national banks, and following on the heels of a merger between the largest bank in the U.S. and one of the world's largest insurance companies (CitiBank and Travelers, respectively). This deregulation, coupled with excessive risk-taking on the part of bankers with investment ties to a highly leveraged housing market and over-reliance on credit scoring over good judgment, led into the sub-prime mortgage crisis that plays itself out to this day. Blended models can blur the lines between a bank's core business model and that of a non-bank actor (such as an MNO), creating a regulatory oversight vacuum that cannot be filled if the appropriate authorities have, in effect, abdicated their responsibilities in the interest of creating more efficient or more profit-enhancing business

19 Merritt, *supra*, n. 17.

models.

Guidelines for MMT service transactions will also need to define clearly where the legal boundaries lie along each transaction flow so that liability can be attributed at various points. For example, if an agent network is not legally bound by contract to an MNO or bank, can an agent be held liable for a failed or incomplete transaction after a customer has paid fully for airtime that he or she believes has been placed on the mobile phone? If not, is the playing field between regulated and non-regulated agent networks level? Many derivatives-based transactions lacked this level of legal attribution of liability and accountability for various actions along the transaction flow, which made it difficult to cast a legal net over all stages of the leveraged transactions. This, in turn, made it difficult to unravel complex transactions related to soured derivatives deals.

4. THE USAID-BAH MOBILE FINANCIAL SERVICES RISK MATRIX

In September 2009, leaders from the G-20 committed publicly to improving access to financial services for the poor and directed the establishment of a G-20 Financial Inclusion Experts Group (FIEG) to meet the goal of supporting the safe and sound spread of new modes of financial service delivery capable of reaching the poor. The United States Agency for International Development (USAID) began its contribution to this process by partnering for over one year with industry experts from Booz Allen Hamilton, Global System Mobile Association, Consultative Group to Assist the Poor (GCAP), the U.S. Treasury and Federal Reserve Board, and regulatory development partners to undertake a detailed analysis of the various risks involved in the different known models of mobile financial services, as viewed from each of the key stakeholders involved in these transactions.

The risk-based matrix is USAID's initial contribution to the process of developing MFS industry norms and standards. The tool comprises three sections: (1) the Mobile Financial Services Risk Matrix; (2) transaction-flow mapping of some of the key transactions that identify where these risks occur, namely at critical control points, and how these risks differ depending on the service model under assessment; and (3) a detailed analysis of how various jurisdictions have already responded to these risks, based on analysis proved by CGAP. The analysis is not intended to be all-inclusive or prescriptive, which would not have been possible in light of the rapidly evolving pace of the MFS sector. Rather, it is intended to provide various actors within the MFS ecosystem (particularly regulators) with information they might find useful and relevant to the task of establishing a country-specific legal and regulatory mobile financial services framework. The matrix team utilized a risk-based approach to ensure flexibility and to ensure that policy recommendations made therein can be appropriately tuned to the context in which they are utilized.[20]

---

20 Financial Action Task Force, "Risk-Based Approach: Guidance for Money Services Businesses" (July 2009), online: Financial Action Task Force <http://www.fatf-gafi.org/dataoecd/45/1/43249256.pdf>.

(a) Policy and Regulatory Considerations

(i) The Economic Development Impact of Supporting MMT Services

As the MFS industry further develops, it is important to focus not only on MMT services adoption but also on the actual usage of these services. With this focus in mind, we may avoid adopting the "scale mantra" that characterized microfinance for years and may have helped create an environment that encouraged over-indebtedness.[21] The emergence of MFS and MMT services raises questions about the role of regulated and non-regulated microfinance institutions (MFIs) in this space; only the licensed MFIs will have the central bank approval to offer mobile financial services directly and the back-office technical and human resource capacity to take on front-office technologies as part of their product lines. As for the non-regulated MFIs, some have suggested that they adopt the role of an agent network, earning commissions by acting on behalf of a commercial bank.[22] Such an arrangement could work in light of many MFIs' rural reach, and nearly all MFIs' comparative advantage in upholding a relationship banking model. However, this model will only succeed if an incentive system exists that benefits both the commercial bank and MFI stakeholders who would be part of such a collaborative construct. Moreover, a successful program will take into account those factors impacting the adoption of MFS that recognize the social and cultural aspects of the use of money outside of the context of just a value transfer.[23]

(ii) Creating a Safe Environment to Encourage Sustained Client Uptake

It may be true that more financial education is needed to increase some target groups' trust in MFS and make them comfortable with m-money, and it may be the case that a better understanding of the technology will help clients develop trust in the system. However, it is worth noting some caution set forth in a recently released Federal Reserve White Paper in which the author asserts that "since the success of any payment system is predicated on ubiquity, convenience and trust, it is necessary to address emerging risk issues in order to maintain public confidence in

---

21 Elisabeth Rhyne, "Microfinance, Scale and Financial Inclusion: The End of the Scale Mantra" *Microfinance Insights* 17 (March/April 2010). Until recently, most donors and non-government organizations supporting the development of microfinance institutions have used "number of loans" as an indicator of success at the levels of both the donor and MFI. For the past several years, the MFI industry has been focusing on promoting the expansion of quality financial products and services that incorporate sound client protection principles over focusing on number of loans alone as an indicator of success.

22 Kabir Kuman, Claudia McKay & Sarah Rotman, "Microfinance and Mobile Banking: The Story So Far" (July 2010), online: CGAP <http://www.cgap.org/p/site/c/template.rc/1.9.45546>.

23 See William Maurer, "Mobile money, money magic, purse limits and pins: tracing monetary pragmatics" [forthcoming in 2010]. The Institute for Money, Technology and Financial Innovation is undertaking innovative research on the role in which money plays within cultures in general, and how the introduction of mobile-led technologies may affect the role of money within various cultures. See online: <http://www.imtfi.uci.edu>.

mobile money."[24] The focus should, therefore, remain on getting an appropriate regulatory framework in place that identifies ways to handle the real and perceived risks associated with mobile money rather than trying to "teach" target groups to trust a particular product or business model.

The intent behind the development of the USAID-BAH risk matrix transaction flows was to aid regulators in the development of such a regulatory framework by helping them to identify the real and perceived risks associated with various stages within the transaction flows of different business models. If the risks in the transactions can be identified, regulators can assign risk values to each stage and establish appropriate responses to these risks. Then, a framework can be built upon an algorithmic scheme that identifies real and perceived risks associated with identified critical control points along various mobile financial services financial flows. Such a tool provides decision makers with information they will need to make informed choices regarding the need to adopt a particular regulatory posture and corresponding supervisory oversight over certain points along the transmission flow.

A modification of this model is to adopt an approach that is similar to that used within the food processing industry, namely the Hazard Analysis and Critical Control Point, or HACCP, analytical framework. The HACCP principles are used to analyze operations against a predefined set of critical control points along a production line to determine the final safety level of, for example, a food product making its way along the food processing assembly line.[25] Once the critical control points have been identified for a specific transaction, MFS models can be analyzed against a pre-established set of industry-accepted standards to determine the safety and robustness of the system. However, while the HACCP system works well within a food processing context, it cannot work within a MFS context until a set of industry-accepted norms and standards are established. The USAID-BAH matrix has taken the first step in conducting a hazard analysis relative to representative MFS business models and has proposed a set of potential critical control points for these models.

(iii) Defining Appropriate Roles for External Support of Mobile Financial Services Infrastructure Development

Within the international economic development community, some support external actors entering the marketplace to create competitive pressure, accelerate MNO market penetration, and increase the use of m-money. Alongside this view, it should be noted that there is a natural tendency for MNOs to take on monopolistic or oligopolistic characteristics in the m-banking ecosystem because they are the actors most willing and able to take on the risks as "first movers" in this market. This initially benign market behaviour carries with it the possible risk that some MNOs will likely have significant market share in their business sectors, and even within their local economies. However, is it the proper role of external actors to

24 See Merritt, *supra*, n. 17.

25 Kenneth E. Stevenson & Dane T. Bernard, *HACCP: A Systematic Approach to Food Safety — A Comprehensive Manual for Developing and Implementing a Hazard Analysis and Critical Control Point Plan* (Washington, D.C.: The Food Processors Institute, 1999).

create the competition, in this case through subsidies or other forms of assistance that the first mover did not enjoy? Moreover, to the extent that the MNO-led model obviates the involvement of the financial institution in payment delivery, clearing, and settlement, broad-based support of the MNO-led model might lead to the unintended consequence of encouraging a "leap frogging" over the development of a robust and regulated banking sector, just as the introduction of mobile telephony led to a similar leap frogging over landline phone usage.

A more suitable role for external actors might be to continue working to develop risk-based regulatory MFS and more specific MMT service frameworks and other risk-mitigation tools that are country-context relevant, including working towards developing MMT services standards against which these regulations can be evaluated and maintained. The U.K. Remittances Task Force is a good example of this type of collaboration. The U.K. Department for International Development (DFID) took the lead to start a working group composed of industry participants and public-sector actors to deal with issues related to remittances. The Task Force was responsible for several breakthroughs in the remittance sphere, including the self-regulated Remittances Customer Charter. Finally, the Basel Committee on Banking Supervision's 2003 "Risk Management Principles for Electronic Banking" and the Committee on Payments and Settlement Systems'(CPSS) "Core Principles for Systemically Important Payments Systems," provide a sound foundation upon which to develop updated global e-money norms and standards around which risk-based frameworks and guidelines can be developed.[26]

(iv) Establishing Client Protection Principles and Regulation for MMT Services

Each actor within the MFS ecosystem has a vested interest in working to establish clear client-protection principles that will protect end-users. This is a particularly important challenge within the context of most international economic development programs' target illiterate populations. However, while many microfinance support entities have made great strides in developing client-protection principles to guide MFIs and their clients,[27] developing legally binding client-protection principles for technology-based financial products and services, such as mobile phone banking, poses unique challenges. For example, Risk 1.4 in the USAID-BAH risk matrix raises the issue of a "customer [being] charged unauthorized fees by agents." This particular risk may prove problematic for regulators to monitor and enforce, considering that the abuse is more likely to take place at the agent level rather than at the corporate level over which authorities could exert any direct and legal control.[28] At a minimum, customers' funds should be safe at rest, in transit, and at a point of dispute due to error or theft. Trust funds should be protected by

---

26 Basel Committee on Banking Supervision, "Risk Management Principles for Electronic Banking" (July 2003), online: Bank for International Settlements <http://www.bis.org/publ/bcbs98.pdf>.

27 See *e.g., The Smart Campaign*, online: The Smart Campaign <http://www.smartcampaign.org>.

28 Matrix, *supra*, n. 5 at 10.

deposit insurance and reserves held in the banking system.[29] The absolute number of fees and other charges should be defined, limited in number, and transparent. Agent solvency or other guarantee schemes should be in place to protect funds during a period in which they are outside of the banking system. Finally, currency risk should be locked in at the front end of transactions.[30]

5. SUMMARY AND RECOMMENDATIONS

The introduction of mobile financial services, and more specifically mobile money transfer services into the development arena presents unique opportunities and challenges. Our success will, to a great extent, depend upon the very philosophies we bring into this discussion regarding risk. The recent subprime mortgage-based global financial crisis provides valuable lessons to the players in the mobile phone banking and payments system, particularly related to the need for an appropriate risk-based regulatory framework to guide non-traditional financial payment transaction process.

While mobile network operators are not subject to national banking regulation and supervision, they do undertake activities that at least mimic banking functions that would warrant such oversight. And while MNOs are one of several actors interacting within a MFS ecosystem, in many countries they are the largest and most significant actor in terms of their role in channelling transactional flows within the national economy. As such, service providers of this size and level of market importance should be monitored as if they are an actual component of the financial and banking system. Moreover, acknowledging the bailout that resulted from the fear of the systemic risk that could have been brought on by the collapse of AIG, any one actor in the MMT services ecosystem in particular should not be permitted to grow "too big to fail" so as to pose a systemic risk to the entire system, both at a national level, and perhaps even beyond.

At a minimum, national regulators should establish guidelines for a service provider that are similar in function to those used to identify and rehabilitate problem banks, to enact resolution management and address accounting issues in problem banks, and to address problems in large and multi-charter banking companies.[31] In addition, utilizing an algorithmic approach similar to the HACCP tool is

---

29 The success of an explicit deposit-insurance system associated with mobile financial services, including the design and execution of a fund underpinning such a system, is highly dependent upon the soundness of the financial and supervisory environment in which such a system and fund must function. This is a topic of an upcoming paper by the author. See Asli Demirgüç-Kunt & Edward J. Kane, "Deposit Insurance Around the Globe: Where Does It Work?" (discussing the need to assess and remedy weaknesses in both informational and supervisory environments prior to adopting explicit deposit insurance), online: The World Bank <http://siteresources.worldbank.org/DEC/Resources/84797-1114437274304/JEP-revision_Dec01.pdf>.

30 The author thanks Gail Hillebrand and Cynthia Merritt for their insights regarding this section.

31 For a useful template, see "An Examiner's Guide to Problem Bank Identification, Rehabilitation, and Resolution" (January 2001), online: Office of the Comptroller of the Currency <http://www.occ.gov/static/publications/prbbnkgd.pdf>.

a useful starting point in the process of developing a risk-based MFS regulatory operational framework. However, this approach can only succeed if there are established standards against which to assess the performance of operations at various critical control points along transaction flows. This could in turn reflect the development of a consensus at the international level on a process and system for certifying institutional compliance against those standards. Client protection principles and legally enforceable frameworks should form the basis of any national MFS program, starting with an insurance scheme to protect the MMT trust account that will augment an otherwise structurally sound financial and supervisory foundation. Finally, service providers should look to models such as those used in Kenya and the Philippines, in which the service provider interacts proactively with regulators and where regulators openly engage with other partners to develop a risk-based and pragmatic approach to regulating the growth of a sustainable MFS sector. This approach resulted in the risk-based matrix described in this paper, which now continues to inform the further development of several nations' mobile financial services sector and regulatory posture.