PRACTITIONER'S INSIGHT

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M-Pesa – a success story of digital financial inclusion

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M-Pesa started in 2007 as an electronic money transfer product that enables users to store value on their mobile phones. It is based on a platform of electronic units of money that can be used for multiple purposes including transfers to other users, payments for goods and services, and conversion to and from cash.

M-Pesa was first developed as bank product in partnership between Safaricom, a telecommunication (telco) company and the Commercial Bank of Africa. In subsequent years, it has further evolved into a platform for a wide range of financial services such as virtual savings accounts in commercial banks. Harnessing the power of big data, M-Pesa now also operates as a channel of credit supply by commercial banks, microfinance institutions and cooperatives (SACCOs). In addition to domestic financial services, M-Pesa allows users to send and receive cross-border remittances using their mobile phones.

M-Pesa and similar digital financial services represent a significant improvement in the national payments technology, reducing transaction costs and lowering the barriers to entry into the formal financial system. Financial institutions in Kenya have embraced M-Pesa as a platform to manage micro accounts, build customer deposits, and broaden their customer network. As a consequence, Kenya has emerged as a leader in financial inclusion in Sub-Saharan Africa. In 2016 over 75% of the adult population in Kenya has access to formal financial services, up from 26.7% a decade ago.

This policy brief provides an insider's view of the regulatory pathway that enabled Kenya's digital financial services sector to thrive and develop.

It presents the outlines of a "test and learn" approach by the Kenyan supervisory authorities that proved essential in balancing the needs for financial sector development and ensuring customer protection and financial stability. Lessons from the Kenyan case are relevant for all policymakers that seek to catalyze and consolidate a mobile phone-based banking revolution in their respective jurisdictions.

Background: Financial exclusion in Kenya

Kenya is a low-income country with a small and bank-dominated financial sector. The entry point to the financial system for retail customers in such a typical developing country is through the banking system. Most customers typically demand only basic services such as paying for goods and services, or basic money transfer. Starting in the 1980s, the government promoted non-bank financial institutions (NBFI) to reach low-income households, but prudential regulatory requirements were not stringent enough. The governmental NBFI policy failed within 5 years of its formulation as NBFI either were absorbed by big banks or collapsed, destroying the savings of many poor Kenyans.

Large banks in Kenya reacted to the NBFI crisis by erecting barriers to entry as a screening device for positive net worth bank customers. Such barriers included minimum balance requirements, high ledger fees to maintain an account, and restrictions on the number of withdrawals from a savings account. Such requirements shut out many potential customers. In the 1990s, as the rural economy went through a severe recession, banks started closing loss-making branches in rural areas and poor urban and peri-urban centres. By the turn of the millennium, financial exclusion and the prevalence of informal financial services were quite evident.

In the early 2000s, the microfinance model was introduced in Kenya. However, the legal framework for microfinance operations, the Microfinance Act, took a long time to enact. In response, microfinance companies obtained full bank licenses in order to start operating. They started to remove entrance barriers, there were no minimum balances required, reduced ledger fees and developed a novel technology to manage so-called micro-accounts targeting small savers.

The government that came to power in 2003 developed Economic Recovery for Wealth and Employment Creation, a five-year policy blueprint and later was succeeded by Vision 2030, these two were ambitious blueprints for economic recovery, wealth and employment creation. These policy blueprints emphasized the need for a better regulatory environment, more competition in the financial sector, and better financial access for inclusive growth. Moreover, the blueprint envisions Kenya's emergence as a financial hub in the Eastern African region. Several pieces of legislation were required to push the financial sector to the next level: the Microfinance Act, the national payments system act, a communication bill with mobile network operators' regulations, the company law and the insurance law for bank insurance products and also amendments to the existing law to cope with the dynamics of market development, the most important were the deposit insurance mechanism and information sharing in the deposit taking institutions.

At this juncture two policy options to increase financial access were on the table. First was the microfinance model. The legal framework for microfinance had been approved by the parliament, but guidelines also had to be approved by parliament, since they were considered legal instruments, and this was taking too long . The second option was to encourage the expansion of the branch network of existing banks to rural areas and poor peri-urban locations.

The first assessment of financial inclusion in Kenya from 2006 shows that less than 27% of adult Kenyans had access to formal financial services. A considerable share of the population relied on informal services, but approximately 40% of Kenyans were completely excluded from the financial market.

It is in this context that M-Pesa was introduced to the market, catalyzing dramatic change in financial development and inclusion in Kenya and these results ca be seen from 2009.

The profile of financial inclusion

Ten years of data points tracking financial inclusion reveals some interesting results for financial inclusion in Kenya. First, the proportion of the adult population included in both formal and other formal financial services increased from 26.4% in 2006 to 75.3% in 2016. Those preferring the informal financial services have declined from 35.2% in 2006 to 7.2% in 2016. Second, the effect of M-Pesa can be assessed from 2009, as the proportion of financial inclusion rose from 26.4% in 2006 to 40.5% in 2009 and those excluded declined from 39.3% to 33%.

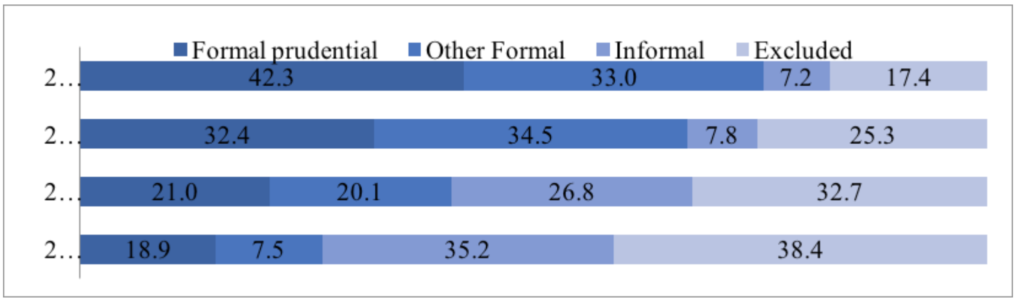
The introduction of M-Pesa in 2007 has catalyzed a profound transformation in Kenya's financial system. Financial inclusion has increased dramatically over the last decade, as a series of household surveys shows. In 2006, only 18.9% of the population had access to formal financial services such as banks, insurance service providers, microfinance banks and deposit-taking cooperatives (SACCOs). A further 7.5% of adult Kenyans used formal but not prudentially supervised services such as the Postbank, credit-only microfinance institutions and SACCOs, and the National Social Security Fund. By 2016, access to such services had widened to reach 42.3% and 33% of Kenyans, respectively.

s the remainder of this policy brief shows, the evolution of M-Pesa from mere payment service to access point for a wide range of formal financial services has been essential in increasing financial inclusion. Today, Kenyans are able to access their bank accounts, save money, buy insurance, and take out credit using their mobile phones.

Table 1: Financial inclusion profile in Kenya 2006-2016 (Percentage of the adult population)
Source: FinAccess Surveys 2006, 2016

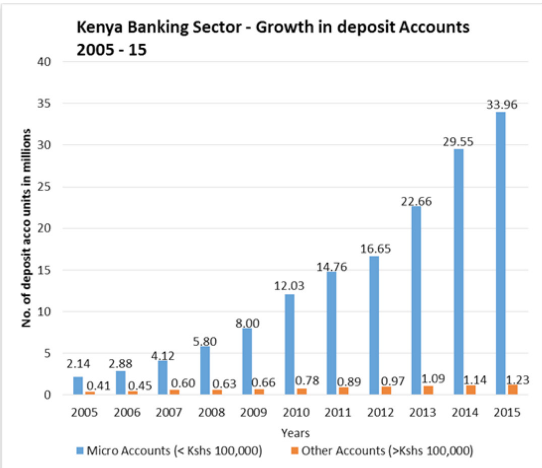
Financial Access Category	Total %	Urban %	Rural %	Male %	Female %
2006					
Formal	18.9	32.0	18.9	23.8	5.9
Other Formal	7.5	22.8	8.5	9.2	14.3
Informal	35.2	3.5	39.2	29.5	40.5
Excluded	38.4	41.6	37.4	37.5	39.3
2016					
Formal	42.3	59.9	32.1	50.4	34.6
Other Formal	33.0	26.4	36.9	29.3	36.6
Informal	7.2	4.1	9.0	4.1	10.2
Excluded	17.4	9.5	22.0	16.2	18.6

Figure 1: The evolution of Kenya's financial inclusion 2006-2016
Source: Kenya FinAccess Household Survey 2016



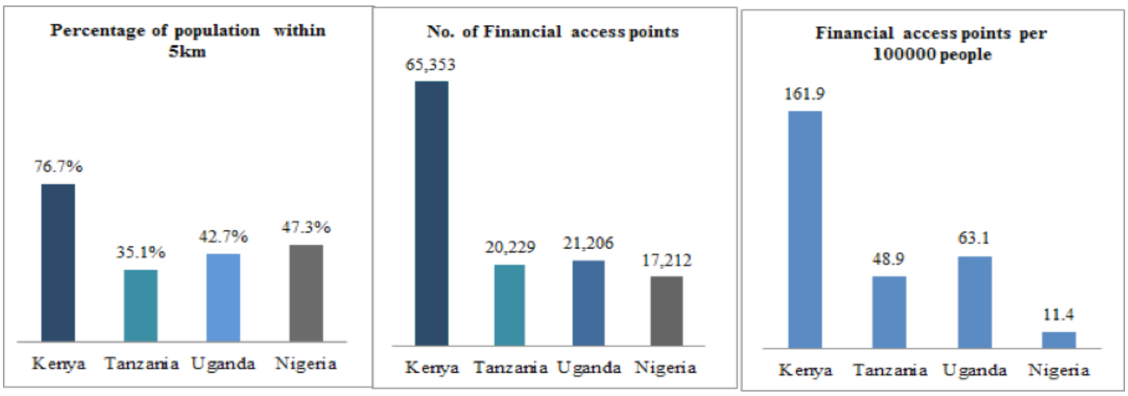
*"Other formal" includes financial services through providers that are licensed but not supervised by financial prudential supervisors, like non-deposit taking coopera-tives and credit-only microfinance institutions.

Figure 2: Growth in Deposit Accounts 2005-2015
Source: Central Bank of Kenya



**The Micro deposit accounts are those that are equal or less to Kshs 100,000 (approx. US$1,000) and are fully covered by the Deposit Insurance.

Figure 3: Financial Inclusion in Regional Comparison
Source: Country Geospatial Surveys, 2013



Insider's perspective: The regulatory approach to mobile services in Kenya

It is tempting to portray the evolution of fintech in Kenya and its regulation as a linear process with a pre-defined set of policies. In reality, the regulatory response has changed over time to cope with market dynamics. Supervisory authorities have catalyzed endogenous demand to improve and adapt the legal and regulatory framework in line with technological and market developments, thus allowing Kenya's financial infrastructure to grow and develop. This inductive process of regulatory adaption can be termed "Test and Learn" approach. The mobile financial sector and its regulation evolved over the following four generations:

First generation: payments and transfers

Market:

M-Pesa as a payments and money transfer platform was developed jointly by Safaricom, a telco company, and the Commercial Bank of Africa. In essence, M-Pesa is a person-to-person (P2P) money transfer system that allows individuals to make payments and send remittances. Prior to M-Pesa, mobile phone customers had engaged in trading pre-paid airtime. M-Pesa thus built on a pre-existing understanding of value transfer via mobile phone among Kenyans that provided an enabling environment for rapid adoption by both agents and customers. Safaricom established a network of agents who form the point of service where customers can convert cash into electronic units of money to load onto their mobile SIM card and vice versa. The network of agents spans the entire country and is much more extensive in coverage than the branch network of banks. As a bank product reliant on a telco-provided transmission system, M-Pesa defies the distinction between bank-led and telco-led financial innovation.

Regulation:

The launch of M-Pesa was facilitated by the pre-existing legal framework. In particular, the Central Bank of Kenya (CBK) Act of 2003 authorizes the Bank to supervise the national payments infrastructure. The 2006 Communications Law recognized electronic units of money, thus providing the legal foundation for telco companies to store monetary value in SIM cards. However, the national payments and settlement bill was yet to be passed into law. In response, the CBK, provided two forward looking propositions and actions. First, a team of legal experts from the Central bank developed a Trust Account invoking the Trust Law. This allowed the M-Pesa product to take off and the trust account became the technological transactions platform. Second, in order to provide a cushion and create confidence in the market, with support from the Bill and Melinda Gates Foundation, contracted Bankable Frontiers who developed National Payments System **draft guidelines** to supervise the market.[3]

The supervisory authorities decided to operate the payments platform as a trust account at the commercial bank, subject to regulation by the CBK and the stipulations of the Trust Law. Once the electronic money was stored in the SIM card, it was simultaneously loaded into the trust account at the Commercial Bank of Africa and this account was under the custody of trustees. In other words, the trust account was not a Safaricom business account. Safaricom could not access the funds and the trust account is not part of Safaricom's balance sheet. So if the case of a Safaricom bankruptcy, the funds would still be protected from any Safaricom creditors. The use of a trust account connects the payments system platform to a commercial bank, thus separating regulatory issues and providing the market with confidence.

Second generation: savings accounts

Market:

More commercial banks started negotiations with Safaricom in order to link their services to M-Pesa. They began offering savings accounts and attracting more individual customers with interest rates on deposits. Thus, M-Pesa evolved from using a common trust account for all users to providing a connection with individual savings accounts. The innovation attracted a large number of target savers, who lock-in their savings for a defined period. The growing depositor base allowed Kenya's commercial and microfinance banks to grow and strengthen their balance sheets. Other telco companies also set up mobile banking platforms, following the M-Pesa model.

Regulation:

In a meeting with the Governor, Bill Gates stated how impressed he was with the fast growth of M-Pesa as a vehicle for financial inclusion. But then he argued this success was not affecting the banking intermediation process and that M-Pesa could make lasting impacts on peoples' lives if they could save in the banking system.

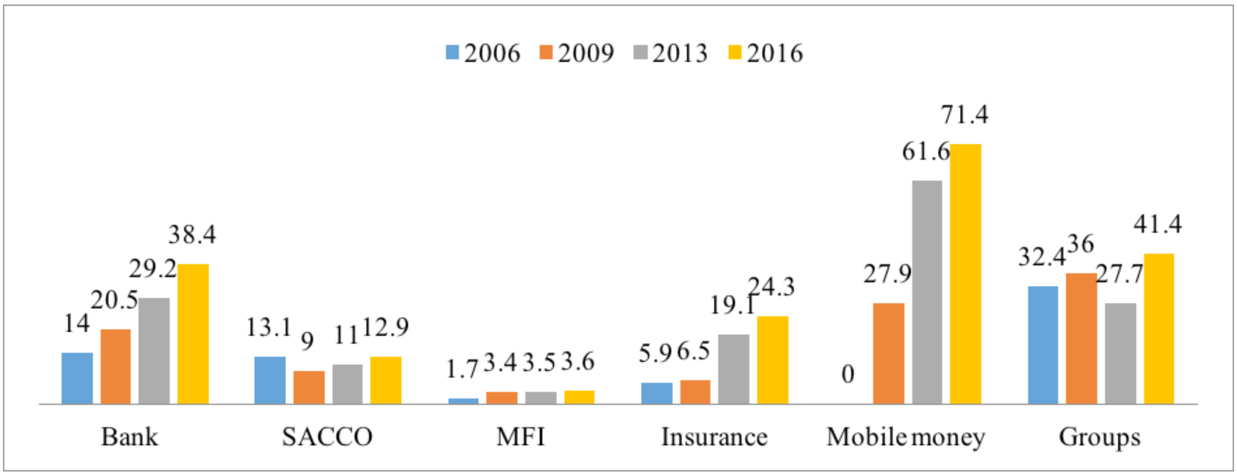
In line with his perspective, the CBK issued regulation that would allow M-Pesa to connect with individual savings

[3] They were draft guidelines because the National Payments and Settlement Act had not been passed by Parliament. But even when the law was passed and the guidelines formally approved and rolled out, the market still prefers the trust account route as the operating platform.

accounts at commercial banks. This move initially encountered resistance from the leading Kenyan banks, especially those who had developed technology to manage micro deposit and savings accounts. They were concerned about a potential exodus en-masse from micro accounts holders to M-Pesa. The CBK assured the banks that integrating with M-Pesa was to their benefit: customers would not need to visit a branch to withdraw and deposit money, thus enabling banks to reduce personnel cost, and they could earn ledger fees independent of office hours. Indeed, the subsequent growth in bank customers using M-Pesa was beneficial both for banks and financial inclusion.

As the following figure shows, Kenyan household have increased their utilization of financial services across a range of providers. In particular, a greater share of the Kenyan adult population now uses banks, mobile money providers, and insurance products. The use of cooperatives (SACCO) informal financial services providers (Groups), and microfinance institutions (MFI) has remained relatively stable.

Figure 4: Utilization of financial services across the providers 2006-2016
Source FinAccess Survey 2016



Third generation: mobile microcredit

Market:

The use of mobile financial services allows banks and telco companies to gather transactions and savings data from customers. This in turn allows financial intermediaries to evaluate customer behavior in order to generate individual credit scores and customize the price of credit. Previously, the lack of collateral acted as a major obstacle to credit access for many would-be borrowers. Leveraging big data as a substitute for collateral allows banks to undertake sophisticated risk assessment and extend credit to a much greater share of the population.
The most notable mobile-centric product for both savings and loan products, M-Shwari, was launched by CBA in November 2012. After 40 months of operation, by January 2016, M-Shwari has over 14m customers. M-Shwari, KCB-Pesa and similar products have attracted 18% of Kenya's adult population. Total deposits stand at over $80m. The average savings is just $5.3 per month, average loan size is $31 and the average loan repayment period is 26 days. M-Pesa has thus emerged as the central platform for digital credit assessment and the distribution of micro-credit.

Regulation:

In cooperation with the Communications Commission of Kenya, now Communication Authority (CA), the CBK issued a series of guidelines designed to mitigate financial risks. This included measures to address liquidity risk, that is the risk that a counterparty would not settle an obligation for full value when due. This was mitigated by ensuring that Safaricom employs stringent vetting criteria for counterparties based on their financial soundness. Steps were taken to mitigate operational risk, which includes hardware or software problems, human error, or malicious attack that would cause the system to break down or malfunction giving rise to financial exposures and possible losses. Because Safaricom is part of the Vodafone group, an international and reputable multinational in the provision of mobile technology, the M-Pesa product continues to benefit from research and development of Vodafone. Operational issues are regulated by the CA. The CBK continues to receive reports on operational issues on a monthly basis.
Settlement Risk arises when the flow of funds between transacting parties that fails is delayed because a settlement medium would not co-ordinate delivery and payment. The mitigation measure is that agents of Safaricom are required to settle through the trust account at the Commercial Bank of Africa. Since M-Pesa is a high volume low value retail payment system, settlement in a sound commercial bank was deemed adequate. In authorizing the M-Pesa service, and bearing in mind

settlement risks, the CBK placed maximum limits on transaction. Later and gradually these limits were revised upwards as confidence was boosted and the payments platform was diversified to other banks.

Fourth generation: remittances

Market:

In recent years M-Pesa has expanded from domestic money transfer into cross-border remittance services. This development is especially beneficial for customers that rely on international remittances. Mobile-based remittance services have started replacing the informal Hawala money transfer system that was prevalent in Kenya before. This transformation carries important implications for financial sector formality and adherence to anti-moneylaundering and terrorist financing (AML/CFT) standards.

Regulation:

In 2011 the Financial Action Task Force places Kenya in the "dark grey" list of countries with inadequate AML/CFT regulation. At a Financial Action Task Force (FATF) Plenary in Paris, the CBK Governor spoke out in defence of Kenya's financial system. The Governor argued that M-Pesa platform had allowed informal transactions to move to formality and that they could be easy to monitor. From the Governor's perspective, M-Pesa was fighting informality of financial market transactions, and informality was the greatest danger for the AML/CFT regime in Kenya. This point was appreciated by the Plenary. It resonates with recent moves by the FATF to advance the financial inclusion agenda in order to improve AML/CFT compliance. From the outset and even before authorization, Safaricom was advised on the requirements of AML/CFT. As a response, Safaricom engaged in risk mitigation using legal instruments, training its agents, monitoring the system for suspicious transactions, and enforcement. In addition, Safaricom observed the AML/CFT policy requirements of Vodafone. Like other institutions in Kenya, Safaricom would await the enactment of the AML bill, the terrorism financing law as well as the establishment of the Financial Intelligence Unit (or Financial Reporting Centre as Kenyan Law later defined it), where all reports on suspicious transactions would be reported.
In addition to AML/CFT concerns, cross-border remittances entail foreign exchange risk. This refers to the risk that one party to a foreign exchange transaction may not receive the foreign currency it paid for. In reviewing Safaricom's proposal, the CBK advised the firm on the requirements a cross-border remittance service must meet in line with the provisions of the Central Bank of Kenya Act. The Bank further requested Safaricom, other telco companies and partner banks to improve know-your-customer procedures and monitoring capacity. Kenya was removed from the FATF dark grey list in 2014.

In sum, M-Pesa developed from a simple mobile transfer platform to a decisive instrument of financial sector development and financial inclusion in Kenya. Regulators had to assess the necessary risk mitigation measures that correspond to each generation of M-Pesa's evolution without impeding the further growth and development of the mobile banking platform. This is the essence of the "Test and Learn" approach adopted by the CBK. Rather than steering sector development in a top-down fashion, regulators have catalyzed endogenous demand for further improvement and adaptation of the legal and regulatory framework. The success story of M-Pesa serves as inspiration for regulatory efforts at promoting digital financial inclusion in other jurisdictions.

Conclusion: M-Pesa is a platform for financial inclusion in Kenya

M-Pesa has now evolved into a digital financial services revolution and played a role in financial inclusion.

- M-Pesa started as an electronic money transfer product that enabled users to store value on their mobile phone or mobile account in the form of electronic currency. The currency could be used for multiple purposes including transfers to other users, payments for goods and services, and conversion to and from cash. The payments technology has now developed to become efficient, transparent and effective and has covered other markets and sectors like insurance, capital markets and even targeted social protection programs.
- M-Pesa supported the development of a technological platform for financial services that has lowered transactions costs and made the banking system and financial services more accessible. The financial inclusion surveys show its remarkable success in Kenya: by 2016 about 75% of the population were able to access financial services. In addition, this success also created an endogenous demand for regulatory reforms to cope with the innovations, as well as a demand to complete the financial infrastructure in the country.
- Kenya's four stages of virtuous frontier innovative process enhanced financial inclusion. A much larger share of the population is now within 5km of a financial access touch point; there are close to 162 financial access touch points per 100,000 of the population. An

impressive result compared to 63, 49 and 11.4 touch points per 100,000 of the population in Uganda, Tanzania and Nigeria, respectively.

- Kenyan banks invested heavily on this technological platform, developing capacity to grow and to serve their market niches – strong banks can weather shocks and roll out competitive products. Between 2007 and 2016, branch networks of Kenyan banks have expanded from about 575 to 1443 branches. The rural branches have even expanded faster from about 170 in 2007 to 660 in 2016, and the microfinance have also equally increased. In addition, 11 Kenyan banks have expanded to Eastern Africa region, with over 310 branch outlets. We can thus conclude that M-Pesa has supported the emergence of strong banks by providing a technological platform not only to manage micro accounts but also transactions in general. The customer base has also increased from about 4.72 million deposit accounts for all banks in Kenya in 2007 to over 35 million accounts in 2015. This has provided banks with a large deposit base and capacity for growth.

Financial inclusion opened a floodgate for potentially game-changing opportunities. It provided a transactions platform for unbanked and banked in Kenya that has supported a evolution and revolution in national retail payments. It has been observed that transactions per day under this platform are now close to 4.5% of annualised GDP on average per day. These developments have supported banks as a platform to manage micro accounts, the development of virtual savings accounts and an evolution of credit supply in this virtual ecosystem. This platform has also supported micro insurance, investments in securities market, and in addition has supported government targeted social protection program and expansion of regional payments system. But more importantly, due to its amenability and efficiency in monitoring it has supported and enforcement AML/CFT regime in Kenya. Finally, the DFS emanating from M-Pesa platform development has helped to create a better environment for forward-looking monetary policy to replace years of financial repression and reactive policies.

Finally, in Africa it is rare to find a product like M-Pesa that transcends across market segments and seem to coordinate all markets. In Kenya, you can use your M-Pesa account to pay for a meal in a five-star hotel, shop at a high-end mall, pay for goods to a rural shopkeeper and pay for a cup of tea in a road-side kiosk.

Policy recommendations

- **Provide an enabling legal and regulatory environment for the market-driven development of innovative financial services, rather than engaging in the design of such services.**
- **Foster partnerships between telco companies, financial intermediaries and other stakeholders in order to generate endogenous demand for further sector development.**
- **Adjust regulatory requirements to different stages of development and tailor them to according to the risk profile of individual financial services.**
- **As the digital financial services sector develops, shift regulatory priorities from growth and investment to ensuring interoperability and fostering competition for the sake of greater financial inclusion.**
- **Explore the role of government as a catalyst for sector development, for example by utilizing mobile money system in social protection schemes.**
- **Ensure close cooperation between relevant regulatory agencies in order to develop a coherent supervisory framework and prevent regulatory arbitrage.**

About the author

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