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The "Evolution" of Regulation in Uganda's Mobile Money Sector[1]

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Abstract
Uganda's mobile money sector has grown rapidly since its introduction in 2009. As at the last quarter of 2015, there were 21.1 million registered mobile money users in the country, representing a penetration of about 54%. As well as providing a convenient, cheap and safe means of money transfer, mobile money has spurred increased financial inclusion, which grew from 28% in 2009 to 54% in 2013. The rapid growth has happened under conditions of "light touch" regulation of the sector, which allows the first mover to reap the rewards of investments made, but raises potential competition issues. The mobile money sector, much like the telecommunications sector, is characterised by network externalities, lock-in effects and high barriers to entry that can give rise to a concentrated sector with a single dominant player. This article considers the effect of light touch regulation on the competitive dynamics in the mobile money market in Uganda and contrasts this with the experience in Tanzania, where regulation evolved from a light touch style to a more comprehensive framework as the sector grew.

Keywords
mobile money, regulation, competition policy

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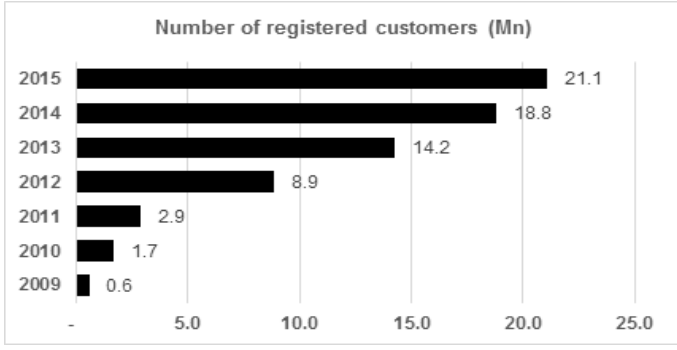
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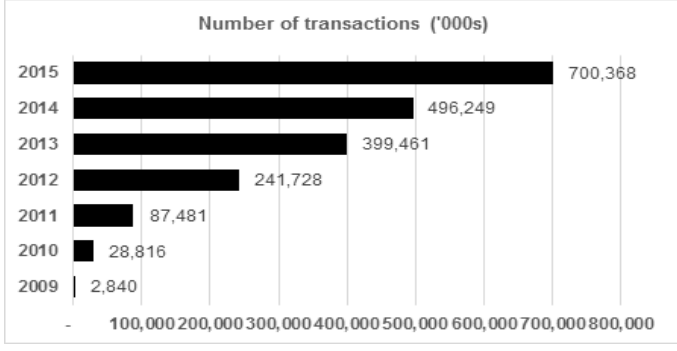
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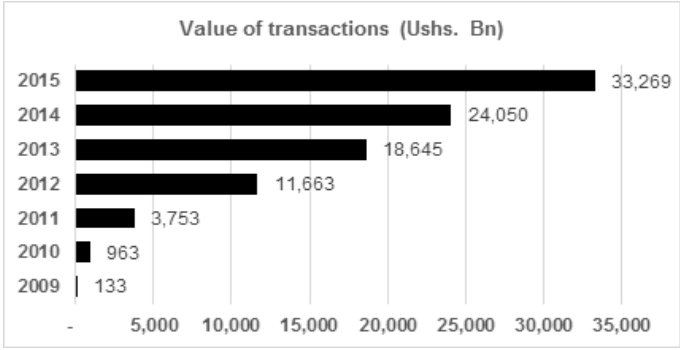
1. Background and introduction

Mobile money has been a fast-growing phenomenon in the East Africa region and Uganda is no exception. The number of registered mobile money subscribers in Uganda grew from about 600,000 in 2009, when mobile money was introduced, to over 21 million at the end of 2015, and the numbers and value of mobile money transactions also showed strong growth (Figure 1). This success has been partly attributed to the relatively light touch regulation governing the mobile money sector in Uganda, one of the four factors in the success of mobile money identified by Evans and Pirchio (2015) for take-off and explosive growth, along with poor infrastructure, the simultaneous growth of mobile money users and agents, and acceptance. These features are common to the eight countries (including Uganda) where mobile money has succeeded, out of the 22 countries studied by those authors. In this context, light touch regulation refers to minimal limitations on who can operate a mobile money scheme and allows for mobile network operator (MNO)-led mobile money, rather than bank-led schemes which have generally not succeeded. The regulatory provisions include light know your customer (KYC) requirements and minimal restrictions on who can act as an agent (Bourreau & Valletti, 2015).

Figure 1: Growth in mobile money customers, and in number and value of transactions







Source: BoU (2015); UCC (2013, 2014, 2015 and 2016)

One of the consequences of this rapid growth may be the emergence of a dominant firm, as there are strong first mover advantages, high barriers to entry and network externalities in mobile money markets, as there are in telecommunications. Indeed, in the "MNO-led model", one of the mobile telecommunications companies will likely gain this position in mobile money services. Light touch regulation may allow high rewards for the investment the company makes in building a platform for users, where it is unconstrained in earning returns and can bolster its position in mobile telecommunications. Its rivals may be unable to catch up in the absence of interoperability between mobile money platforms.

Competition theory has shown that lack of competition may lead to high prices and reduced incentive to innovate (Banda, Robb, Roberts & Vilakazi, 2015). Dominant players may also have the incentive to abuse their dominance by taking part in anti-competitive conduct, such as margin squeeze, in order to foreclose possible entrants in downstream markets and guard abnormal profit (Mazer & Rowan, 2016). In such instances, existing regulation needs to be able to address any possible anti-competitive behaviour and encourage competition.

Uganda's mobile money sector development provides the basis for a case study in which to assess the challenges of regulation, as the extension of mobile money is characterised by the presence of a strong market leader and limited regulation. This article explains the structure and regulatory framework of mobile money in Uganda; then assesses the interaction of regulation and competition, identifying key competition bottlenecks, which could be addressed by regulation; before analysing them in the specific case of Uganda. The article concludes by considering what regulatory approaches might lead to more competitive outcomes in the sector.

Mobile money market structure

Mobile money was introduced by MTN Uganda, in March 2009, as a customer retention strategy, following intensifying competition from a new entrant, Warid Telecom, which used aggressive on- and off-net discounting to build a customer base (sector participant, personal interview, 19 January 2016). Currently, four mobile network operators (MNOs) are providing mobile money solutions: MTN Uganda through MTN Mobile Money, Airtel Uganda through Airtel Money, Africell Uganda/Orange Uganda through Africell Uganda Money, and Uganda Telecom through M-Sente. A number of non-MNO mobile payments providers, such as MCash, EzeeMoney, and Smart Money, have also entered the mobile money space (BoU, 2015).

Airtel Uganda was the second MNO to introduce mobile money in June 2009, a few months after MTN Uganda. M-Sente was launched in March 2010. Warid Pesa began operations in December 2011 and Orange Money[2] was launched in the first half of 2012 (Ggombe, 2014). Airtel Uganda later merged with Warid Telecom in 2013. In terms of mobile money subscriber numbers, MTN Uganda has maintained the largest share of 58.4% in 2015, followed by Airtel Money with 27.2% (Table 1). However, MTN Uganda's leading position is likely to be much stronger if one considers the amount and volume of transactions, with figures showing MTN Uganda as having a share in terms of usage of 72% (Figure 2). This is because as many as 40% of subscribers have two or more SIM cards, but mainly use one of them (FII, 2014). Customers often subscribe to services they will not use, if that subscription is free, particularly for new technologies. The market shares in Table 1 thus underestimate MTN Uganda's market share and dominance.

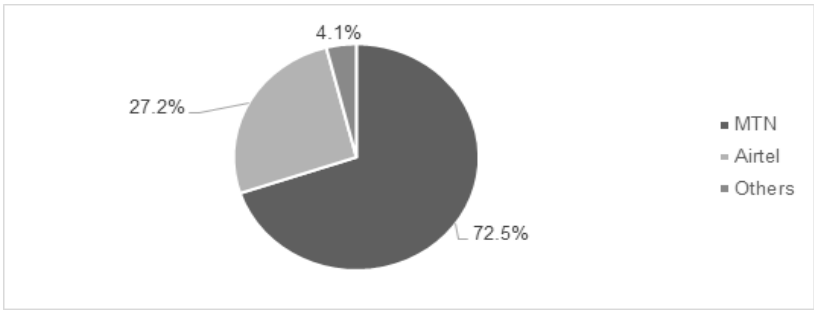
Table 1: Statistics for mobile operators with mobile money services in March 2015

Mobile network/ mobile money service	Mobile subscribers (millions)	Mobile money subscribers (millions)	Market share %
MTN Uganda/MTN Mobile Money	10.4	7.3	58.4
Airtel Uganda (Warid)/Airtel Money	7.5	3.4	27.2
Uganda Telecom/M-Sente	9.8	1.3	10.4
Africell Uganda (Orange) Uganda/ Africell Uganda Money	0.6	0.5	4
Total	20.5	12.5	100

Source: Okwii (2015a)

2 Orange Money was acquired by Africell Uganda and is now known as Africell Uganda Money.

Figure 2: Utilisation of mobile money services by service provider in 2013 (%)



Source: EPRC (2013)
Note: This is based on a survey which asked respondents about their usage.

In order to provide mobile money services, providers are required to partner with a commercial bank[3] (UCC, personal interview, 19 January 2016). The banks hold an escrow account on behalf of the MNO, mirroring the mobile money deposits held. MTN Uganda initially partnered with Stanbic bank; Airtel Uganda with Citibank and Standard Chartered; Orange Uganda with Standard Chartered; and Uganda Telecom with DFCU and PostBank (Okwii, 2014). Today, individual MNOs partner with several banks to effect mobile banking and payments. MTN Uganda, for example, is partnered with eleven financial institutions (MTN Uganda, 2015). The banks have not themselves been active mobile money providers in Uganda. This may change with the introduction of agent banking, which became lawful in early 2016 (Muhumuza, 2016).

Aggregators also play an important role in the mobile money sector. When mobile money services were first introduced, the providers realised that platforms with particular functionality and capacity were required to run the services efficiently (McGrath & Lonie, 2013). The basic platforms used for GSM services did not have sufficient capacity or the ability to manage additional mobile money requirements. Functionalities required by mobile money platforms include customer activities such as cash-in and cash-out, purchase of airtime, transfer of money, bulk payments, bulk transfers and bill payment; agent activities, and business reports and MNO activities (McGrath & Lonie, 2013). In Uganda, as in many countries, aggregator companies play this role by developing, running and maintaining the necessary platforms to run these mobile money services. These companies develop innovative products and platforms to ease e-commerce and mobile money payments or transfers. Some

3 As discussed in more detail in the section on the regulatory landscape below, the mobile money sector is currently regulated via a set of Mobile Money Guidelines published by the Central Bank of Uganda.

of these include Yo! Uganda Ltd, Beyonic, EzeeMoney, Remit, Payway and Jpesa (Okwii, 2015b).

History and evolution of service offering

Uganda's mobile money market remains primarily a person-to-person transfer and payments market. The range of services has, however, expanded to include the remote purchase of airtime, bill payments for utilities, solar power products, school fees, university fees, taxes, parking, insurance premiums, national lottery, pay-TV services payments, bulk payment of salaries, international remittances, and savings.

The development of mobile payments services has followed the pattern of mobile money. By 2015, the majority of utility payments were carried out using MTN Uganda mobile money services, which facilitate an average of 71.4% of all utility payments monthly (MTN Uganda, 2015). The mobile money providers have now also partnered with banks to enable withdrawals at ATMs. However, person-to-person transfers are still by far the most important service, accounting for 90% of MTN Uganda's mobile money revenue in 2015 (MTN Uganda, personal interview, 21 January 2016).

Mobile savings and loans were launched in late 2016, some four years after Kenya and two years after Tanzania. In August 2016, MTN Uganda launched micro-savings and microloan services, MoKash, in partnership with Commercial Bank of Africa (CBA) (Ochwo, 2016). The product allows MTN Uganda mobile money customers to start a savings account from as little as UGX50 (approximately USD0.01) and earn interest of between 2% and 5%, depending on the amount saved (Ochwo, 2016). The interest on the saving is accrued and paid quarterly and the customer can schedule to deposit into the savings account automatically on a daily, weekly, or monthly basis (Dignited, 2016). Airtel Uganda and Uganda Telecom have also been working on developing savings and loan products.

The MoKash platform allows customers to apply for short-term loans of between UGX3000 and UGX1 million (approximately USD1 and USD300), depending on the customer's credit limit, which is determined with reference to a customer's usage of other MTN Uganda services (voice, data and mobile money). Customers do not need to open a bank account to access the MoKash service but can simply register for the services over the mobile money platform. Activation and transactions between MoKash and MTN Mobile Money are free for both savings and loans, but loans attract an interest rate of 9% for a period of 30 days. Thereafter, a penalty of a further 9% may be lodged against a defaulter (Dignited, 2016).

Uganda does not permit outgoing cross-border mobile remittances, largely due to regulatory barriers relating to foreign exchange controls. Mobile remittance products for the East African Community have been developed in Uganda and applications

have been submitted to the Bank of Uganda (BoU) for approval. However, due to lack of explicit regulation to provide for compliance and enforcement measures for mobile money products generally and a lack of capacity and procedures to evaluate product innovations, the products were not yet available at the time of this study (BoU, 2015). The BoU submitted a proposed amendment to the Foreign Exchange Act of 2004 to address these gaps. In the interim, the BoU was evaluating applications to launch new products on a case by case basis (BoU, 2015). Following the signing of a memorandum between MTN Uganda and Safaricom in December 2015, inward mobile money transfers (MMT) could be made from Kenya through Safaricom to an MTN account in Uganda (Chao-Blasto, 2015).

With the continued integration of the East African community, the introduction of "one area" roaming and products that allow for cross-border transactions are increasing in importance. Tanzania, Rwanda and Kenya have launched cross-border remittance services. In Tanzania, Tigo provides for international transfers between Tigo Pesa accounts in Tanzania and Tigo Cash accounts in Rwanda (Roberts, Blechman & Odhiambo, 2016). Similarly, in March 2015, Vodacom launched international transfers between M-Pesa accounts in Tanzania and M-Pesa accounts offered by Safaricom in Kenya. In August 2015, Tigo partnered with WorldRemit to allow its subscribers to send and receive remittances internationally.

Regulatory framework

The mobile money industry in Uganda is overseen by two regulatory authorities, the BoU and the Uganda Communications Commission (UCC). Only one regulation specifically targets the mobile money sector in Uganda, namely the Mobile Money Guidelines issued by the BoU in 2013. Its legal status is ambiguous, although it is generally treated as if it is binding. A National Payments System Act has been drafted, which would govern mobile financial services, amongst other matters, but it is yet to go through parliamentary approval processes (BoU, personal interview, 20 January 2016). The BoU has authorised mobile money services by issuing "no-objection" letters to the commercial banks, who partner with the MNOs, and requires the bank to hold the balances recorded in the mobile wallet in an escrow account.

Mobile banking services (with savings and loans) require separate approval. The individual mobile money subscriber now, in effect, opens a bank account with the partner bank. Effectively, the BoU regulates the MNO indirectly through the partner bank, having the ultimate power to withdraw the bank's license in cases of irregular conduct by the mobile money provider. This indirect mechanism of regulating mobile money services applies in the absence of a more comprehensive regulatory framework that might license the mobile money provider directly. It arose as technology evolved more quickly than the regulatory regime, which then had to play catch-up. The mobile money guidelines were effectively introduced as an interim measure to govern the industry.

Mobile money services are usually provided by MNOs, which puts some aspects of their activities and services under the purview of UCC, although the UCC has not played an active regulatory role in relation to mobile money services. The UCC is mandated by the Communications Act, No. 1 of 2013 to undertake a number of functions in relation to licensing, tariff regulation, competition, spectrum management and economic regulation. There is no competition regulation regime in Uganda. However, the Communications Act gives the UCC authority to regulate an extensive range of competition issues in the telecommunication sector. One of the UCC's functions is "to promote competition, including the protection of operators from acts and practices of other operators that are damaging to competition, and to facilitate the entry into markets of new and modern systems and services" (Parliament of Uganda, sect. 5(1)(n)). Section 53(1) of the Communications Act prohibits "activities, which have, or are intended or are likely to have, the effect of unfairly preventing, restricting or distorting competition in relation to any business activity relating to communications services" and section 53(2) prohibits abuse of a dominant position, including abuse "which unfairly excludes or limits competition between the operator and any other party." An abuse of dominance also includes "entering into an agreement or engaging in any concerted practice with any other party, which unfairly prevents, restricts or distorts competition", as well as anti-competitive mergers and acquisitions (sect. 53(2)(b) and (c)). The UCC has the power to investigate breaches of fair competition and may issue stop orders, impose fines up to 10% of an operator's annual turnover, and declare anticompetitive agreements or contracts null and void. These are strong enforcement powers by any measure, although they have not been used in relation to mobile money services.

The mobile money guidelines also address competition issues, prohibiting exclusivity between banks and MNOs, and between MNOs and their agents. The latter has been the subject of a competition investigation by the Competition Authority of Kenya in that country (Ochieng', 2014).

2. The interplay of regulation and competition in mobile money

Mobile money technology has grown faster than regulation, and policy makers have had to consider a number of regulatory issues, such as which entities are allowed to provide these services, the security of the technology, the possible effect on the stability of the financial system, fraud, competition, provision of access to essential telecommunications infrastructure and promotion of competition, among other things (Macmillan, 2016). Additionally, regulators have had to consider which mobile money issues fall under the financial regulator and which fall under the telecommunications regulator. The general consensus appears to be that there is a need for coordination between the two sector regulators, as well as with the competition and consumer protection regulators, to ensure that the majority of the issues identified above are addressed (Macmillan, 2016).

In simple terms, two regulatory models of mobile money predominate: the bank led model, or the MNO-led model (Hernandez, Bernstein & Zirkle, 2011; Suárez, 2016). The track record suggests that the MNO-led model has been more conducive to the growth of mobile money (Evans & Pirchio, 2015). While the bank-led model has controls to mitigate risks and ensure data security, banks are often slow to innovate and respond to the needs of the market (Hernandez et al., 2011). Regulations under the bank-led model tend to be much stricter and have inhibited mobile money growth.

The MNO-led model has often been more accessible to the poor, due to distribution capabilities of MNOs compared to banks, and less restrictive in terms of regulation. One concern about the model has been the susceptibility to customer or agent fraud, and competition issues that arise where MNOs control the means of delivery of services by their competitors. It is this model, however, that has been largely present in countries that have experienced successful growth of the mobile money sector (Evans & Pirchio, 2015).

While the often light touch regulation that characterises the MNO-led model has facilitated growth of the sector, it raises questions about regulation on competition grounds, given the implications of network effects, barriers to entry and economies of scale. The mobile money sector requires significant levels of capital investment, due to the amount of infrastructure required and is thus characterised by high sunk costs. These costs create high barriers to entry and result in first mover advantages for the first mobile money provider to venture into the sector.

Mobile money is subject to network effects, those which are inherent in the telecommunication sector, and those of mobile money services themselves (Bourreau & Valletti, 2015). Network effects exist where the utility derived from consuming a product increases, as more users consume that product. In telecommunications, for example, the more people that are connected to the network, the more useful it becomes, because more people can communicate with each other (Rohlfs, 1974). In mobile money, the value of a mobile money platform increases, as more people accept and use the platform, because more people can make more transfers and payments to a larger number of recipients. There is a positive externality as a user is added to a network, as this generates a benefit to all the existing users (Katz & Shapiro, 1985). Where networks interoperate seamlessly, without significant additional cost, the combined network effect is shared among the interoperating networks. But where there is no interoperability, or where it is costly to send traffic to or transact across the other network (a substantial difference between on-net and off-net charges), the larger network will have a competitive advantage simply by virtue of its size and can effectively lock-in customers (Farrell & Klemperer, 2007).

Related to network effects is the phenomenon of two-sided markets. Two-sided

markets occur when two different sets of users interact through the same platform and for which the decisions of one user group affects the outcomes faced by the other group (Rysman, 2009). The different user groups derive benefits from being connected using the same platform, as is the case in the mobile money sector (Armstrong, 2006). The mobile money sector is a clear example of a two-sided market, where both agents and subscribers derive benefit from interaction on the same platform. The increase in the number of agents on one side of the market results in the increase of subscribers on the other side of the market. A platform is only successful if it attracts both agents and subscribers simultaneously (Evans & Pirchio, 2015). The platform must grow in such a way as to attract new clients, but maintain the interest of early adopters. Once this growth reaches critical mass, with both agents and subscribers growing simultaneously, the value of the existing users is sufficient to attract new users (Evans & Pirchio, 2015).

Due to network externalities, the incumbent network is more likely to attract consumers, agents and merchants with regards to mobile payments. The incumbent network represents greater opportunity for them for higher volumes of transactions. In addition, to the extent that the sector is also subject to economies of scale, the incumbent network may be able to provide the service at a lower cost than new entrants. The high barriers to entry and network externalities identified above can lead to a concentrated sector, as is the case in Uganda (Table 1 and Figure 2).

The structure of the mobile money sector discussed above may result in competition bottlenecks in certain levels of the value chain. Four main areas of concern can be identified (Sitbon, 2015):

- *Connectivity:* Until greater penetration of smart phones is achieved, there are two main ways in which mobile money services can be provided: through unstructured supplementary service data (USSD) or through short message service (SMS) (Bourreau & Valletti, 2015). These are the means by which a user may send or receive messages concerning money transfer. The infrastructure by which these methods are used is owned by an MNO. Therefore, in order for a non-MNO mobile money provider to provide these services, they require the cooperation of the network provider, which they may not be willing to provide, or may provide at high prices or at poor quality (Mazer & Rowan, 2016).
- *Agent network:* As mentioned earlier, due to the two-sided nature of the sector, agents who facilitate cash in and cash out transactions are essential for the success of the mobile money scheme. Incumbent networks that have invested significantly in the development of agent networks may sign exclusive contracts with such agents, or impose exclusivity through tacit understanding, thus restricting access of entrants to potential customers. Given the significant cost involved in setting up an agent network, it is often not feasible to set up another agent network alongside the existing one.

- *Account interoperability:* Mobile money providers may not interoperate with other providers, or if they do, they may set lower prices for transfers within the same network (on-net) than transfers across different networks (off-net). The network externalities support the incumbent player and make it difficult for entrants to attract users.
- *Applications:* The mobile money platform has the ability to support a number of value-added services. However, mobile money providers may foreclose providers of some of these services and applications, by refusing access to application programming interfaces (APIs) that are necessary to integrate such services with the mobile money platform. MNOs' systems may be non-interoperable, or non-user friendly, except for pre-approved applications by a few chosen firms.

As the sector grows and matures, effective competition is necessary to reduce prices, improve the quality of products and services, as well as increase the diversity of the product offering (Mazer & Rowan, 2016). It is well recognised that regulatory intervention may be necessary to ensure more competitive outcomes in markets with network effects and economies of scale (Viscusi, Vernon & Harrington, 2005). Such interventions can be classified into two categories, *ex ante* regulation or *ex post* regulation. *Ex ante* regulation refers to regulation established in expectation of a possible market failure or abuse of dominance, while *ex post* regulation is enacted after the fact and following an investigation and confirmation of anticompetitive behaviour by firms. While *ex ante* regulation can protect competitive rivalry at the outset, such as by mandating interoperability, it can also reduce incentives to invest in a network, as other smaller rivals can "free ride" to an extent on the investment being made by the first mover (Bourreau & Valletti, 2015).

In the initial stages of a new service, conditions need to allow an incentive to invest, as otherwise the service does not take-off. The question is what regulation should be introduced at the beginning, and at what point greater regulation (including competition enforcement) is required to prevent abuse of the market power, which may be gained by the lead firm as it gains incumbent advantages. It is in balancing the incentives of the lead firm and its rivals, and the interests of firms and consumers, that the regulatory challenges lie (Viscusi et al., 2005).

3. Competition issues in the Ugandan mobile money market

The case study of the evolution of mobile money in Uganda raises a number of issues which we assess here, before analysing the implications for competition enforcement and regulation in more detail in the subsequent section. The competition issues which have emerged in Uganda are largely in line with the four issues identified by Sitbon (2015), as described above. In addition, potential for coordinated pricing appears to be an issue.

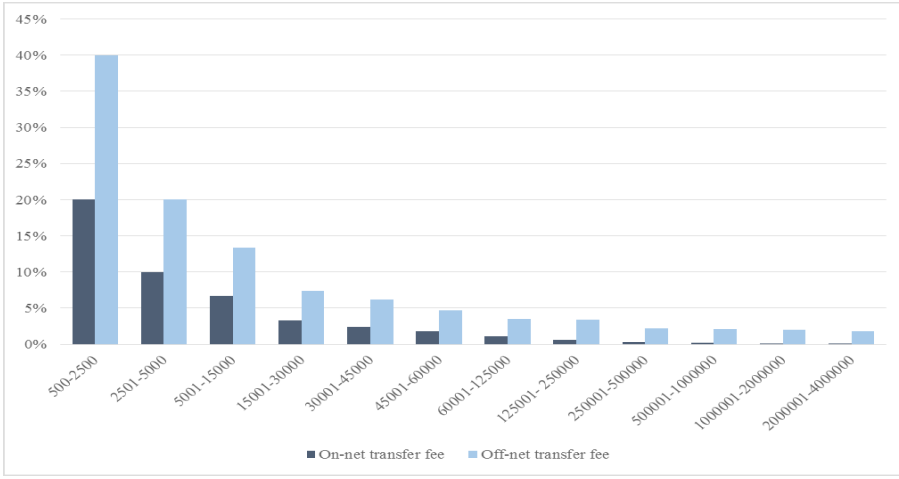
Interoperability and high off-net charges

As of 2016, there is no interoperability between mobile wallets in Uganda, which makes smaller rival networks significantly less attractive than MTN Uganda. The "unregistered"/off-net person receiving the transfer must make a physical withdrawal at the sending mobile money provider's agent. The inconvenience of this generates a barrier to using mobile money providers other than those that have a large number of active subscribers, principally MTN Uganda. This is reflected in the large differences observed between subscriber numbers and usage, reflected in Table 1 and Figure 2 above.

Network effects are reinforced by the absence of mobile number portability in Uganda, which imposes switching costs on consumers and locks them into a particular telecommunications network for telecommunications services, and thus also (in the MNO-led model) mobile money services. The utility of a personal phone number may become even more valuable as mobile financial services evolve to include loans and savings, as has occurred from 2016. Accessing loans depends on a credit rating, based on calculations that take into account transaction data from customers' airtime top-ups and mobile money cash-in deposits, transfers, payments and cash-out withdrawals. The benefit of remaining on one network increases significantly, as eligibility for credit becomes inextricably linked to one's phone number.

The network effects in the absence of interoperability are reflected in pricing by MTN Uganda and Airtel Uganda. Both MTN Uganda and Airtel Uganda's prices for transfers to unregistered users are far higher than the equivalent they charge to transfer to registered users (Figure 3). For the tier UGX30,001-45,000, within which a large number of transfers fall (equivalent to around USD10), both MTN Uganda and Airtel Uganda customers must pay UGX2,800 (or around 6.2% of the upper limit of the transfer value of UGX45,000) to transfer to an unregistered user, compared with UGX1,100 (or around 2.4% of the upper limit of the transfer value of UGX45,000) to a registered user.

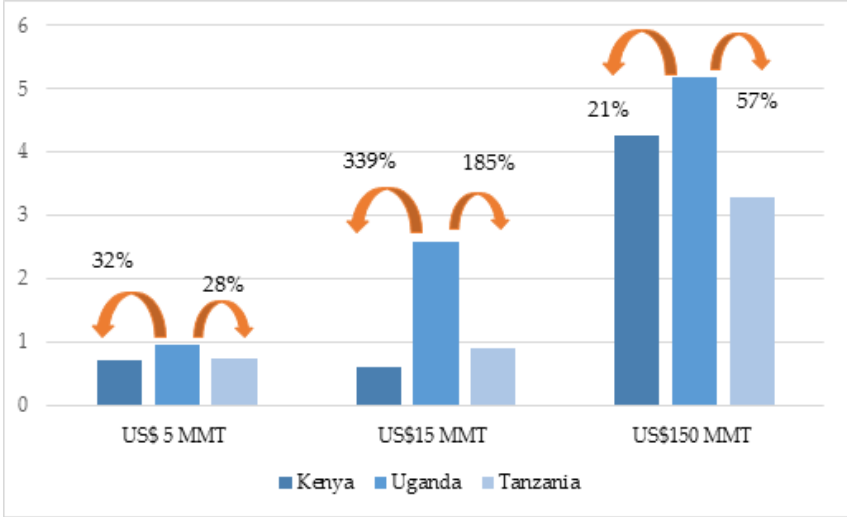
Figure 3: On-net and off-net prices for mobile money transfers, MTN Uganda and Airtel Uganda (as % of transaction value at upper limit of tiers)



Source: MTN Uganda (n.d.)

Uganda's charges for transfers to off-net or unregistered users are significantly higher than in Kenya and Tanzania (Figure 4).

Figure 4: Comparison of off-net mobile money transfer charges in 2015 for Uganda, Tanzania and Kenya, USD (largest operators in each country)



Source: MTN Uganda, Vodacom Tanzania and Safaricom Kenya websites, 2015

Access to telecommunications network services

For other organisations, such as banks, to provide mobile money services to their existing customers, they need to be able to provide access over mobile telecommunications networks. For those customers who have smart phones, this can be done via an app such as for Internet banking. However, whereas in Uganda smartphone penetration is very low, the main way in which access can be provided is via USSD. This means that the MNOs can undermine other actual or potential rivals, via their control over USSD access.

MNOs may engage in a constructive refusal to provide access by, for example, putting in place a strict and lengthy application process for such access by non-MNOs. In at least one case, MTN was fined UGX2.3 billion (USD662,000) by a Commercial Court for anti-competitive conduct against a downstream rival, EzeeMoney (*EzeeMoney (U) Limited v. MTN Uganda Limited*, 2015). When EzeeMoney entered the mobile payments market, it contracted MTN Uganda for the provision of digital transmission, as well as 30 fixed telephone lines. EzeeMoney also contracted Yo! to provide aggregation services. According to the Court's findings, MTN Uganda subsequently cancelled its contract with EzeeMoney, citing the fact that EzeeMoney was a direct competitor to its own mobile money business. MTN Uganda then coerced Yo! to cancel its contract with EzeeMoney, or risk access to MTN Uganda's services. The Court also found that MTN Uganda compelled its agents to deny EzeeMoney services and cut off EzeeMoney's GSM point of sale (PoS) device.

The effect of MTN Uganda's refusal to provide both USSD services and access to phone lines to EzeeMoney was found to be a 79% drop in the number of transactions by EzeeMoney. EzeeMoney also needed about nine months to restore its systems, following MTN Uganda's breach of contract. The terminals that had been configured to use MTN Uganda SIM cards had to be reconfigured at significant expense to EzeeMoney. MTN Uganda's actions appear to have succeeded in foreclosing EzeeMoney out of the mobile money business, forcing the company to develop a new mode of operation.

Agent exclusivity

There were no prohibitions on agent exclusivity when mobile money was launched in Uganda. Though it is not clear whether this was an explicit regulatory decision, or simply the result of a lack of regulation, it meant in practice that MTN Uganda could roll out an extensive agent network that exclusively provided MTN Uganda mobile money services. The exclusivity was obviously beneficial to MTN Uganda and improved the business case for investing in recruiting and training mobile money agents.

Agent exclusivity was removed in 2013 with the release of the BoU's mobile money guidelines. It took several months for exclusivity to be removed in practice and

for agents to feel safe providing services for rival mobile money providers (sector participant, personal interview, 19 January 2016). In the case brought by EzeeMoney against MTN Uganda (referenced above), one of EzeeMoney's complaints was that MTN Uganda staff physically attacked agents with EzeeMoney branding (*EzeeMoney (U) Limited v. MTN Uganda Limited*, 2015). While agent exclusivity has now been prohibited in Uganda, agents may still choose to work only with a single provider, as is the case with MTN Uganda's master agents. MTN Uganda's larger network makes this a profitable option.

Coordinated conduct

While MTN Uganda is the largest mobile money provider by a substantial margin, the second placed Airtel Uganda is significant, especially in terms of subscribers. The retail prices for on-net and off-net prices of these two players are notably very similar (Table 2 and Table 3), unlike those of the smaller players UTL and Africell Uganda. Similar prices may result from vigorous competition, but may also reflect some form of coordination or mutual understanding. Prices for the smaller players UTL and Africell Uganda are different and appear to be competitive. Africell Uganda does not, in fact, charge any fees for transfers to registered users.

Table 2: Mobile money tariffs per tier for sending money to registered users per service provider in Uganda shillings (UGX)[4]

Tiers	MTN Uganda	Airtel Uganda	UTL	Africell Uganda
500 – 2,500	500	500	450	0
2,501 - 5,000	500	500	1,000	0
5,001 – 15,000	1,000	1,000	1,000	0
15,001 - 30,000	1,000	1,000	1,000	0
30,001 – 45,000	1,100	1,100	1,000	0
45,001 – 60,000	1,100	1,100	1,000	0
60,001 – 125,000	1,400	1,400	1,000	0
125,001 – 250,000	1,400	1,400	1,000	0
250,001 – 500,000	1,400	1,400	1,000	0
500,001 – 1,000,000	2,200	2,200	2,300	0
100,0001 – 2,000,000	2,200	2,200	2,300	0
2,000,001 – 4,000,000	2,200	2,200	2,300	Not provided

Source: Operator websites

4 Tariffs are as at 17 February 2016 and were obtained from the MTN Uganda, Airtel Uganda, UTL and Africell Uganda websites.

Table 3: Mobile money tariffs per tier for sending money to unregistered users per service provider in Uganda shillings (UGX)[5]

Tiers	MTN Uganda	Airtel Uganda	UTL	Africell Uganda
500 – 2,500	1,000	1,000	450	880
2,501 - 5,000	1,000	1,000	1,000	880
5,001 – 15,000	2,000	2,000	1,000	1,900
15,001 - 30,000	2,200	2,200	1,000	1,900
30,001 – 45,000	2,800	2,800	1,000	2,800
45,001 – 60,000	2,800	2,800	1,000	2,800
60,001 – 125,000	4,400	4,400	1,000	4,200
125,001 – 250,000	8,400	8,400	1,000	7,700
250,001 – 500,000	11,000	11,000	1,000	11,000
500,001 – 1,000,000	21,000	21,000	2,300	21,000
100,0001 – 2,000,000	40,000	40,000	2,300	38,000
2,000,001 – 4,000,000	70,500	70,500	2,300	Not provided

Source: Operator websites

4. Evolution of regulation and the impact on competition

Mobile money in Uganda initially evolved in a regulatory grey area, with no clear rules and no single regulator. The regulatory framework had to play catch-up to rapid developments in the sector, as is common in new and disruptive sectors, such as mobile money. The interesting questions are, what effect this had on the structure of the market and, in turn, on current and future competition and the implications for regulation.

The growth of mobile money benefited from initial regulatory light touch, particularly in areas such as agent exclusivity (Sitbon, 2015). The ability to roll out an exclusive agent network strengthened MTN Uganda's business case for launching the service and making the investments required, including conducting public awareness and education campaigns to encourage consumers to try the service. Though competitors who followed benefited from MTN Uganda's investment in public awareness and education, which encouraged adoption of the service, they still had to invest in replicating an agent network. Until 2013, they could not approach the most attractive agents, such as the established retailers in a given area, who had largely already signed up with MTN Uganda. Airtel Uganda seems to be the only competitor who had the resources to roll out a competing network on any significant scale. As shown in the discussion above, these two firms remain the largest networks (in terms of voice and mobile money subscribers) and entrench their advantage through differential on-net and off-net transaction fees, which reinforces network effects.

5 Tariffs are as at 17 February 2016 and were obtained from the MTN Uganda, Airtel Uganda, UTL and Africell Uganda websites.

The initial regulatory light touch thus encouraged the introduction and growth of the new sector in Uganda. As the system grew and was adopted more broadly, a consequence of this regulatory approach was the dominance of the first mover (MTN Uganda) and second entrant (Airtel Uganda). Both these operators have built relatively large networks and can thus sustain revenue from their mobile money businesses, by encouraging existing users to remain and transact more on their networks, rather than to compete fiercely against each other for market share. Their similar pricing patterns suggest a lack of significant price competition between the two. In addition to the inherent network effects on smaller rivals and follower firms, MTN Uganda has also been found to have directly engaged in exclusionary conduct against EzeeMoney. The conduct with regard to USSD codes illustrates how the position in mobile telecommunications can be exerted to undermine rivals seeking to use telecommunications, to mount a competitive challenge in mobile money services.

Continued light touch regulation may result in an entrenched concentrated market structure, with a dominant leader in the form of MTN Uganda and a smaller follower in Airtel Uganda. This has the risk of stifling innovation by other potential rivals offering new and improved services and undermining competition in mobile money as a whole. At the same time, the incentive to invest in developing new services depends on being able to appropriate the returns. This means that MTN Uganda, and to a lesser extent Airtel Uganda, are rewarded under the current structure for investments they make. As mobile money services mature, the concerns about undermining competition from other providers increase, as the innovation and service developments come from a diverse range of providers. These providers include businesses meeting the needs of different user groups, such as those providing micro-finance to smaller farmers and aggregators looking to provider payments solutions (Blechman, 2016). The Ugandan authorities have already taken a step towards reducing barriers to smaller rivals with the removal of agent exclusivity in the Mobile Money Guidelines of 2013. Similarly, mandating interoperability would level the playing field with regard to the smaller MNOs, as long as it is accompanied by measures preventing excessive off-net differentials.

Strong regulatory measures to open up access and to encourage services competition over the established networks include regulation of the pricing of and access to USSD. Some have suggested that functional separation of mobile money services from mobile telecommunications may also be helpful. An additional challenge that remains is the lack of a credible competition enforcement regime within Uganda. The UCC has powers to investigate and fine firms for anticompetitive behaviour, but they have not used these powers to date. The UCC has commissioned and conducted a number of studies on the key markets in the telecommunication industry, including a competition study of the provision of mobile platform access to USSD (Cartesian, 2015). This assessment found that MNOs that supply access to USSD codes have the ability and incentive to limit competitive entry in retail markets for value added

services provided over USSD channels, price access to USSD excessively and provide poor quality service with compensation (Cartesian, 2015). A basis for UCC regulatory intervention has thus been set, although no regulations have been introduced as yet. This and the UCC's non-intervention in the EzeeMoney case led to questions about how the regulator will exercise its *ex ante* and *ex post* powers.

The light touch regulation approach used in Uganda may have benefited the growth of the sector initially, but it appears that change is required to enable rivals to challenge incumbents and reap rewards from innovation. There are still significant opportunities for financial inclusion in Uganda, particularly in farming communities, where co-operative savings can facilitate access to inputs. The dominance of the incumbents and exclusion of rivals appears to limit the introduction of new and innovative products.

By way of contrast, we comment on the situation in Tanzania, which bore similarities to Uganda in the initial stages of inception. Tanzania's mobile money sector is made up of four players. In terms of number of subscribers, market shares as at September 2015 were more or less evenly distributed: Vodacom (38%), Tigo (33%), Airtel (27%), and Zantel (2%) (Roberts, Blechman & Odhiambo, 2016). However, in terms of revenue estimates, as at January 2016, Vodacom had a market share of between 53-54%, Tigo a share of about 40% and Airtel 10%. As at 2015, the service offering of mobile money providers in Tanzania was more robust, evolving beyond transfer to bill payments, mobile insurance products, merchant payment services, and mobile savings and credit (Roberts, Blechman & Odhiambo, 2016).

The sector is governed by the Bank of Tanzania (BoT), using a flexible and proactive approach. Regulation of the sector, in the beginning, was similar to Uganda, in that the central bank issued letters of no objection to banks partnering with MNOs. This system has since been replaced, following the enactment of the National Payment System Act, 2015 (NPS Act). Mobile money providers must obtain two kinds of licences: a payment licence in order to operate a payment system and an electronic money approval to issue e-money. A third licence can be acquired to enable the issuance of payment cards (Roberts, Blechman & Odhiambo, 2016). In addition to the above Act, the Payment System Licensing and Approval Regulations, 2015 and the Electronic Money Regulations, 2015 (EMR) provide other procedures and conditions for the operation of these licenses. Key requirements of these regulations include legal separation of mobile money services from telecommunications services, and the prohibition of exclusivity of the providers' agent networks.

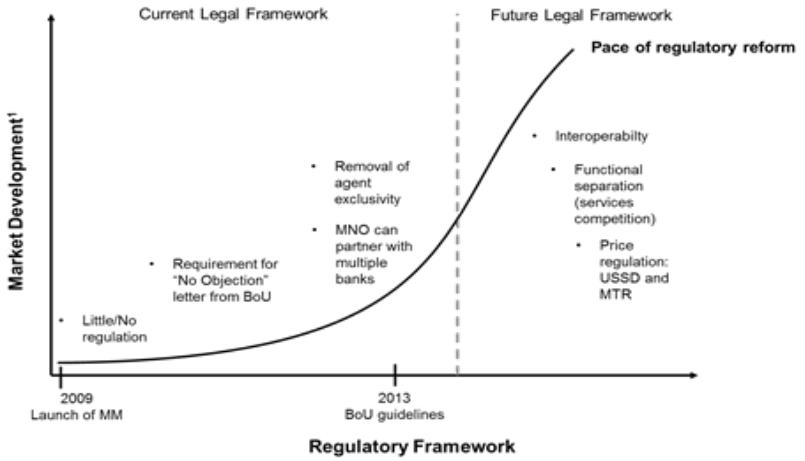
Tanzania's mobile money sector also stands out because all four MMT services have implemented bilateral account interoperability (Roberts, Blechman & Odhiambo, 2016). Following a process of negotiation involving the BoT, the mobile money providers, two of the country's largest banks and a number of non-governmental

organisations (NGOs), the providers agreed on broad parameters for interoperability. Airtel Money and Tigo Pesa were the first to achieve account interoperability in August 2015, followed by EzyPesa in February 2016 and finally by Vodacom M-Pesa.

Tanzania is a success story, comparatively speaking (Roberts, Macmillan & Lloyd, 2016). The sector experienced rapid growth in mobile money transfer, achieved openness of its market and yet maintains rivalry between the different operators, allowing for low prices and rapid innovation and the availability of a variety of services. A key factor of this success has been the flexible and facilitating regulatory framework. The sector regulation at the launch of mobile money was light touch, which facilitated the growth of the sector. However, subsequent regulation encouraged entry by removing agent exclusivity and reduced barriers to entry by facilitating interoperability between the various players.

The current concern is how to facilitate entry of new and disruptive firms, including non-MNO mobile money providers, which could increase competition and innovation, and improve quality of services, in the sector. The slow pace of regulatory evolution in Uganda, which facilitated the development and spread of the service, may actually entrench MTN's incumbency and stifle disruptive competition and innovation. Not only the pace, but also the intention of regulation, will need to change to encourage continued dynamism in the sector, as illustrated in Figure 5 below.

Figure 5: Evolution of mobile money regulatory frameworks



[1]Measured by *inter alia*(i) user acceptance, (ii) number of active users, (iii) volume of transactions, (iv) number of service

Source: Sector participant interview, 22 January 2016

5. Conclusion

Light touch regulation has proved essential for the incentivising the growth of mobile money, as is evident in a number of countries, including Uganda, Tanzania and Kenya. However, due to the nature of the industry, rapid growth can easily result in the creation of a dominant player. High levels of concentration and the existence of a dominant player may reduce the incentive to innovate and to reduce prices. Dominant players also have an incentive to act anti-competitively to foreclose entrants. The evidence suggests that this has occurred in Uganda.

This study found that off-net charges in Uganda are very substantially higher than off-net charges in neighbouring countries Kenya and Tanzania. For a transfer of USD15, charges in Uganda were as much as 339% more than the charges in Kenya and 185% more than the charges in Tanzania. It has also highlighted anti-competitive behaviour, such as excluding rivals, evidenced in the case between MTN and EzeeMoney in Uganda.

In this context, then, regulation that is flexible, responsive and timely could encourage competition and lead to low prices and high levels of innovation, as Tanzania's experience suggests.

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