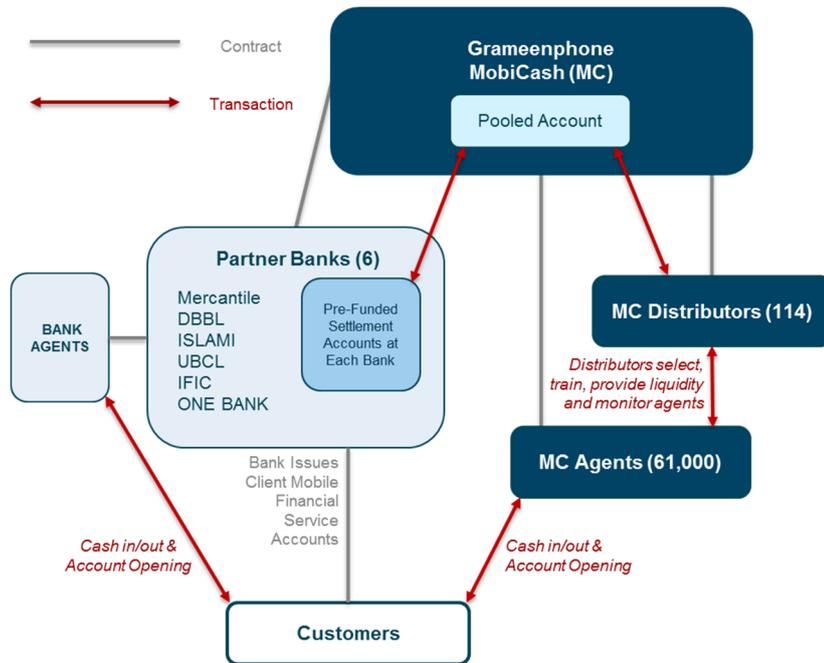


as agents for competitors. Public information campaigns may thus be needed to ensure prohibitions on exclusivity are effective. Large numbers of agents remain exclusive to one provider in practice.⁶²

Transition from exclusive arrangements to a non-exclusive market may thus take time and effort, including on the part of the regulators. A the country has one, may be well suited to pursue monitoring and enforcement due to its core competition authority, if business of active monitoring of retail markets, use of mystery shopping and complaints hotlines.

Models for active agent network sharing are arising. Bangladesh, Nigeria and Peru have each seen the development of shared agent networks where agents act seamlessly receiving cash-in and providing cash-out for many different providers of mobile financial services (Figure 16).

Figure 16. MobiCash shared agent network in Bangladesh



Source: Noor, W. and Shrader, L., CGAP, 24 February 2015, MobiCash shared agent network – Bangladesh⁶³

3.4 Telecommunication network access issues

Mobile financial services are provided over the mobile telecommunication network, whether using GSM technology or Internet Protocol over a 3G or 4G network. MNOs control the networks so other providers of mobile financial services must rely on the MNOs for access to these networks and customer devices. Such providers are thus both competitors and customers of the MNOs.

This potential conflict of interest in the MNOs exposes competing providers to the risk that MNOs restrict access to the communications channels. This is a serious risk because mobile networks are already a concentrated market, with only a few of them in each country. MNOs that are dominant in the mobile telecommunication market and aspire to grow (or protect market position) in mobile financial services may have both the ability and the incentive to exclude competitors from, or increase their costs in, the mobile financial services market. As with the harm to consumers from dominant providers operating exclusive agent networks (see section 3.3.2), the harm from MNOs excluding competitors from the market or increasing their costs includes weaker innovation, a narrower range of available services, and higher prices.

⁶² See for example, CGAP, www.cgap.org/blog/mobile-money-agents-tanzania-how-busy-how-exclusive

⁶³ www.slideshare.net/CGAP/mobicash-shared-agent-network-bangladesh

3.4.1 Communications technology delivery channels

There is a range of communication channels available for provision of and access to mobile financial services. The desirability of a given technology in a given market depends on its compatibility with available handsets, user experience, security, cost, and ease of deployment.⁶⁴ Today, mobile money is chiefly accessed through the human interface of the agent in the street and the technical interface of the phone handset. The most commonly used access technologies are:

- Unstructured supplementary service data (USSD)
- SIM application toolkit (STK)
- Internet

Unstructured supplementary service data (USSD)

Most large scale mobile financial services in developing countries rely on USSD as their primary mechanism for connectivity with customers.⁶⁵ USSD is a standard for transmitting information over a GSM network. It functions on the vast majority of basic and feature phones, and smartphones.⁶⁶ Delivery of services over USSD does not require programming changes in or access to a handset SIM card. This allows non-MNOs and non-MVNOs to provide mobile financial services, and makes interoperability across different MNOs easier.⁶⁷

However, USSD does not offer the same security capabilities as STK or mobile Internet (described below).⁶⁸ The customer experience is also typically not as smooth as STK, with USSD having a higher risk of dropped sessions. Where customers are charged for usage, this can undermine trust and raise costs.⁶⁹ USSD is typically cheaper than SMS because it provides a session-based connection that is real-time and significantly faster and cheaper than SMS for two-way transactions.⁷⁰ To provide mobile financial services via USSD on an MNO network, the provider requires a designated short code. The customer dials this (e.g., '*100#') and is then presented with a menu of options and communicates back and forth according to his or her selections.⁷¹

USSD codes may either be assigned by the MNO or the telecom regulator, depending on the jurisdiction. In Tanzania and Uganda, they are assigned by the regulator while in Kenya, USSD short codes are assigned to MNOs that may in turn provide secondary assignments to non-MNOs. However, where operators provide such secondary assignments they expose the mobile money providers further to the market power of the MNO, with risks of delay and other impediments.

SIM application toolkit (STK)

STK-based interfaces comprise a set of commands programmed onto the user's SIM card. The menu for accessing the commands is embedded in the normal phone user interface, accessible on the phone menu. The programmed SIM determine how the SIM should interact with the outside world.⁷² This makes it more secure than USSD and SMS (even though it operates over those technologies).⁷³ To use STK, a provider of mobile financial services needs access to programme the SIM card. Mobile financial service providers that are not MNOs or MVNOs (which control such access) typically do not

⁶⁴ Hanouch, M. and Chen, G.: www.cgap.org/publications/promoting-competition-mobile-payments-role-ussd

⁶⁵ Hanouch, M. www.cgap.org/blog/what-ussd-why-does-it-matter-mobile-financial-services. Also see GSMA, 2014.

⁶⁶ Hanouch and Chen (2015), cited above.

⁶⁷ USAID, 2010.

⁶⁸ Hanouch and Chen (2015), cited above.

⁶⁹ Hanouch and Chen (2015), cited above.

⁷⁰ Sanganagouda, 2011.

⁷¹ Camner, G., Pulver, C. and Sjöblom, E. (2012). 'What makes a successful mobile money implementation? Learnings from M-Pesa in Kenya and Tanzania'. GSMA.

⁷² USAID (2010). http://pdf.usaid.gov/pdf_docs/PNADW294.pdf

⁷³ Singh, G. et al 'Mobile Payments Infrastructure Access and Its Regulation: USSD.' CGAP Working Paper (May 2014).

have access.⁷⁴ STK functions on basic and feature phones, and smartphones, making it attractive for deployment in low-income regions.

Internet

Mobile financial services are also available through an Internet connection. The versatility of the Internet makes it highly attractive for such services. It also allows services to be ‘network agnostic’, i.e., the service provider need not have any affiliation with the MNO. For example, in Uganda, UTL and MTN have developed mobile money applications that will work on their competitors’ mobile networks.⁷⁵ Access through the Internet should reduce many of the competition problems arising from MNO market power through control of USSD and STK on the GSM networks, as discussed in section 3.4.3.

Other technologies

Other possible technologies include SMS, interactive voice response (IVR), where the system interacts with the customer through the use of voice and signalling tones input on the keypad, and near field communications (NFC). These are far less used in developing countries for mobile financial services and so are less relevant to financial inclusion.

3.4.2 Anticompetitive practices

Mobile telecommunication networks are a ‘bottleneck resource’ in that they cannot be cost-effectively duplicated. A MNO may have two potentially conflicting incentives:

- to increase wholesale demand for its upstream telecommunication network services through encouraging value-added use by third parties, such as mobile money providers; and
- to protect its position from actual and potential rivals in the downstream retail mobile money market.

However, there is a feedback loop from the retail mobile money market into the retail mobile telecommunication market. Where an MNO operates a dominant mobile money business, it has a strong incentive to channel demand to its own transfer and payment services. By maintaining and strengthening its position in the mobile money market, the firm also strengthens its position in the mobile telecommunication market because the subscribers need the latter to obtain the former.

MNOs can use their market power over communications channels to leverage network effects to prevent competitors gaining traction in the downstream mobile money market. Strategies include refusing to provide USSD to competitors, offering prices which squeeze the competitors’ margins to make their business commercially unviable, and discriminating in pricing and other terms.⁷⁶

The harm can extend right into all areas of the mobile financial services market. For instance, if banks seek to offer their services across mobile networks in competition rather than partnership with the MNO, the development of mobile savings and lending services may be impeded.

Refusal to supply

In some cases, MNOs simply refuse to supply competing mobile money providers, or delay supply based on justifications such as lack of capacity or technical readiness.

In Zambia, for example, MTN was fined by the competition authority for restricting access to USSD of Zoona, a major payments competitor. In Zimbabwe, Econet is being investigated by the Competition and Tariff Commission (CTC) for potential breaches of the Competition Act. The banks complain that, after a period of refusal to supply USSD access, the access that Econet did eventually set for customers

⁷⁴ Hanouch and Chen (2015), cited above.

⁷⁵ Najjemba, I., <http://pctechmag.com/2015/11/mobile-money-transforming-lives-one-transaction-at-a-time/>

⁷⁶ See Rey, P. and J. Tirole. (2007). ‘A Primer on Foreclosure’ in M. Armstrong and R. Porter (eds). *Handbook of Industrial Organisation III*.

accessing bank services is at a higher price than Econoet charges customers who are connected to its mobile money service EcoCash.

A mobile money provider that is not able to obtain access to the network channels required directly from the MNO might seek to use an aggregator that can provide it with access to several MNOs, possibly on better terms because the MNO may not initially be aware that the mobile money provider is behind the aggregator. However, this strategy may not succeed where the MNO learns that the aggregator is making network access available to the competing mobile money provider. In some cases, MNOs have even threatened the aggregator with cutting off network access if it finds the aggregator is supplying a competing mobile money provider.⁷⁷

Excessive and discriminatory pricing

Charges for use of the telecommunication network for mobile financial services vary. In the case of USSD, the most commonly used channel, the MNO may charge the mobile money provider and the customer nothing for a USSD session, which is more likely if the financial service is provided under a partnership between the MNO and the provider. Other times, the MNO will charge the customer, in which case the charge (although paid by the customer) is typically negotiated between the MNO and the mobile money provider. On other occasions, the MNO may charge the customer nothing but charge the mobile financial service provider a negotiated price. Sometimes that provider will pass the charge through to the customer, but other times it will simply absorb it in order not to discourage the customer from using the service.

Increasingly, MNOs are partnering with financial institutions to provide a broader array of mobile financial services. Different commercial models are used, though a common model is to share the revenue generated by the service. In such cases, the MNO may have an incentive to provide better pricing and other conditions of access to their network services than competitors of the partners. This might include removing usage based charges, for instance.⁷⁸ Such zero-rated pricing may provide a competitive advantage over other providers of similar financial services where the provider or end-users have to pay based on usage.

The MNO may discriminate in favour of partner providers of mobile financial services as well as aggregators that bring it larger volumes of business than it will itself generate. In many countries, in both competition laws and competition provisions of telecommunication laws, such discriminatory practices may be unlawful if they distort or harm competition.

As a result, some mobile money providers have abandoned efforts to use the dominant MNO USSD services and have instead established themselves as MVNOs. In Kenya, Equity Bank reportedly launched Equitel, an MVNO operating over the Airtel network, chiefly in order to provide mobile financial services without the high costs imposed by dependence on Safaricom USSD prices.⁷⁹

Margin squeeze

An MNO may not only discriminate in pricing, but may even impose a margin squeeze. A 'margin squeeze' occurs when an MNO charges a rival mobile money provider a wholesale price for its network service (typically USSD) that does not leave the rival enough of a margin between the wholesale

⁷⁷ For example, in *EzeeMoney v MTN*, the Commercial Court in Uganda found that MTN had threatened Yo! Uganda Ltd. because it was supplying MTN USSD connection to mobile money provider EzeeMoney. In November 2015, MTN was fined UGX 2.3 billion (USD 662,000) for anti-competitive conduct. The Commercial Court found that MTN had breached section 53(1) of the Uganda Communications Commission (UCC) Act 2013 which prohibits an operator from "(engaging) in any 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 communication services". See Kiyonga, D. (2015). MTN fined Shs 2.3bn for sabotaging competition. *The Observer*: <http://www.observer.ug/business/38-business/41015-mtn-fined-shs-2-3bn-for-sabotaging-competition>

⁷⁸ M-Shwari and KCB M-Pesa in Kenya operate without usage-based charges for Safaricom STK and USSD.

⁷⁹ Mas, Ignacio, and John Staley. CGAP, 18 June 2014, *Why Equity Bank Felt It Had to Become a Telco—Reluctantly*, www.cgap.org/blog/why-equity-bank-felt-it-had-become-telco-%E2%80%93reluctantly

price and the retail price in the market for money transfers and payments to make the supply of such downstream retail services commercially viable.⁸⁰

Margin squeeze is commonly recognised as an anticompetitive strategy to raise the MNO's rivals' costs, whether just to give itself or its partners a competitive advantage or to exclude the rivals outright from the market. There are signs of margin squeezes being imposed by several dominant MNOs on their competitors.

Where the practices embed network effects enjoyed by a leading player, they can remove much of the threat from competition 'on the merits', i.e., on the basis of the actual price, quality, variety or innovation of its services.⁸¹

3.4.3 Evolution of network access issues

The ability of a MNO to act anti-competitively in its pricing or provision of telecommunication network services should diminish as smartphone penetration and literacy rises, mobile data services are available, and prices fall and applications are developed. Customers will be able to access mobile money providers directly over the Internet, and providers will be able to connect with them directly rather than acquiring a dedicated link using USSD channels or using STK-based interfaces.

In some countries, smartphone penetration is growing quickly, which is hopeful.⁸² However, basic and feature phones remain far more common than smartphones in lower income developing countries. In 2015, countries with a high percentage of unbanked adults still did not have strong smartphone or mobile broadband penetration, making the Internet unavailable for delivering mobile financial services to drive financial inclusion. Even in 2020, large parts of the population – predominantly the lower income users who are also financially excluded – are expected still to be using basic and feature phones. So long as this is so, USSD and STK will remain the most important platforms for the purposes of financial inclusion, and non-MNO mobile money providers will remain dependent on the MNOs for access.

Even when access via the Internet becomes used ubiquitously by most of the population, competition problems may still arise. A MNO might proactively throttle or deny access to a competing mobile money provider websites or applications, or zero rate access to its own or its partner mobile money websites or applications. How serious these issues will be remains to be seen, and it may be premature to intervene at this stage before such problems surface. Although these may remain important competition concerns, they are unlikely to be as severe as the current constructive refusals to supply, or high and discriminatory pricing of USSD.

3.4.4 Remedies

Addressing anticompetitive behaviour and network access problems requires intervention under the competition law, if there is one, or provisions of the telecommunication law – or both. Telecommunication regulators sometimes express some hesitancy to intervene, uncertain whether they have the legal authority to regulate mobile money related issues. However, this typically arises either out of confusion about the specific problem at hand, or political pressure not to intervene. The provision of wholesale network access, whether STK, USSD or Internet, is a telecommunication service and governed by the given country's telecommunication sector laws. These typically include

⁸⁰ Padilla & O'Donoghue. (2013). *The law and economics of article 102 TFEU*. 2nd edition.

⁸¹ For instance, in Tanzania the market is characterised by significant competition in mobile telecommunications and money services and has lower prices for mobile money services than Kenya, which is dominated by Safaricom.

⁸² India has 185 million smartphone connections (mid-2015), which the GSMA expects to grow by half a billion by 2020. In Kenya, Safaricom reported that in the 2014-5 financial year, the number of its users with smartphones grew by 98 per cent to 3.4 million through provision of low cost smartphones. Safaricom 2015 results: www.safaricom.co.ke/images/Downloads/Resources_Downloads/FY14-15Presentation.pdf

regulatory powers to intervene in questions of dominance, wholesale and retail pricing, and other conditions of service.

USSD channels have rarely been the major focus of a telecommunication regulator. They support value added services that are peripheral to a telecommunication operator core business. However, as mobile money grows in importance, they may actually merit high priority in some cases.⁸³ Exclusion of mobile money competitors can support and embed a vicious circle of network effects in both the mobile money and telecommunication sectors, which risks entrenching dominance deeply.

Some countries' courts and regulators are beginning to react. The Telecommunications Regulatory Authority of India (TRAI) was the first to carry out a full price regulation proceeding in 2013 regarding provision of USSD for mobile money services.⁸⁴ The purpose of the proceeding was expressly "to design a mechanism and determine the terms and conditions under which mobile banking for financial inclusion can be facilitated" and set a price ceiling for USSD sessions.

India has a bank-led model of mobile money, and thus mobile operators have less opportunity to drive mobile money growth. In countries with MNO-led models of mobile money, growth has been far stronger, and in the face of this success regulators have been far more hesitant to intervene. While such instincts reflect the expert narrative, which advocates caution when intervening in mobile money regulation, it does not reflect the common attitude to regulating telecommunication services prices, which in many countries is to control them, particularly when subject to dominant market power.

Also in 2013, the Peru Supervisory Agency for Private Investment in Telecommunications (Osiptel) issued Standards Relating to Access by Electronic Money Issuers to Telecommunications Services.⁸⁵ These specifically address non-discriminatory pricing and terms of access to telecommunication network services for electronic money providers, including a 60-day negotiation period after which Osiptel can be called upon to determine pricing and terms of access.⁸⁶ As discussed in Box 6, the Uganda communications regulator has identified the USSD market as appropriate for regulation. The Competition Authority of Kenya is currently carrying out a market inquiry into the pricing and conditions of access to the USSD channels, in particular for mobile money.⁸⁷

⁸³ Hanouch, M., CGAP, 17 February 2015, *What is USSD & Why Does it Matter for Mobile Financial Services?* www.cgap.org/blog/what-ussd-why-does-it-matter-mobile-financial-services

⁸⁴ The Telecommunication Tariff (Fifty Sixth Amendment) Order, 2013 No. 5 of 2013

⁸⁵ Sitbon, E. (2015) '*Addressing competition bottlenecks in digital financial ecosystems*', *Journal of Payments Strategy & Systems*.

⁸⁶ Supervisory Agency for Private Investment in Telecommunications (Osiptel), *Standards Relating to Access by Electronic Money Issuers to Telecommunications Services 2013*. See <https://www.osiptel.gob.pe/> and www.telecompaper.com/news/peru-issues-mobile-money-regulations--970833

⁸⁷ The Kenya Gazette- Notice No. 3829- 29 May 2015.

Box 6. The Uganda communications and USSD market review

The Uganda Communications Commission (UCC) recently carried out a market review of telecommunications that found the MNOs to have significant market power in the provision of USSD services, and recommended consideration of various regulatory remedies.¹ It found that MNOs that supply access to USSD codes have the ability and incentive to limit competitive entry in the retail USSD market, price access to USSD excessively and provide poor quality service.

The UCC is now considering a number of potential remedies to address competition problems in the USSD market and their impact on mobile financial services. Remedies that were recommended for consideration (subject to a cost-benefit analysis) included:

- requiring MNOs to obtain UCC approval of USSD agreements;
- requiring MNOs to prepare UCC regulated USSD reference offers;
- MNO obligations to meet all reasonable requests for interconnection in a fair, reasonable and non-discriminatory manner;
- account separation;
- charging for USSD on a cost-oriented basis and establishing reference rates (i.e., price caps);
- reporting USSD traffic usage and charges; and
- establishing of a dispute resolution service to resolve billing disagreements between a MNO and the service provider acquiring USSD services from it.

This represents a very typical array of remedies used to regulate wholesale telecommunications. Naturally, selecting which to apply is a question of fitting the remedies to the problem in a proportionate manner. Ultimately, network access problems can and should be addressed by the telecommunication regulator executing its statutory mandate.

¹ Ugandan Communications Commission, Cartesian, 2015, *Mobile Platform Access for USSD-based Applications (MPA-USSD): Market Assessment*. www.ucc.co.ug/data/pubs/115/Market-Definition.html

Price regulation need not necessarily require a full blown cost accounting exercise for USSD services. Price regulation can involve pricing rationally related to cost, prior approval of prices, setting a price cap or fixing prices, in each case depending on information on costs and benchmarks. The key objective in the case of USSD services will typically be to ensure that the pricing is not actively distorting competition in the important mobile financial services markets. Revenue from USSD services is typically a tiny part of MNO revenues, and so the significance of price reduction lies far more in its strategic importance than any direct financial impact. As any direct revenue impact from regulating the price of USSD services is minor, regulators may weigh the benefits of simpler, faster means of intervention (e.g., benchmarking or addressing customer price sensitivity) against the costs of a slower cost-based price setting processes that attempt to be more precise.

Timing factors should also take into account the development of the smartphone market, which as discussed in section 3.4.3 should reduce the connectivity problem. Until then, however, the flow-through impact on the mobile financial services of not acting may in some countries merit eliminating problems arising from USSD pricing. This means in particular that prices should not be permitted to impose a margin squeeze on competing mobile money providers or discourage users from using the service if they (rather than the mobile money provider) are paying the USSD charges. In some cases, it may suffice just to get the USSD price down to a level low enough not to affect consumer choices and not to hurt a competitor's margins.