REPORT – DRAFT

Competition inquiry into USSD service provision in Kenya

Confidential RedactedVersion

Competition Authority of Kenya
Financial Sector Deepening, Kenya

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A. EXECUTIVE SUMMARY

A.1 Introduction and key terms

The Competition Authority of Kenya (CAK) is carrying out a market inquiry into the pricing and conditions of USSD access offered by mobile network operators (MNOs) in Kenya. The objective of the market inquiry is to determine whether the provision of USSD services leads to constraints in competition in financial services and related markets and identify other concerns relating to consumer protection.

In this market inquiry, we use "mobile financial services" as an over-arching term for the use of mobile telecommunications technology to conduct a variety of financial transactions, whether or not traditional banking services are involved. "Mobile money" is generally considered to be a form of electronic money that enables a user to conduct financial transactions through a mobile phone and includes "mobile money transfer" (MMT) and "mobile payment." MMT is simply the transfer of mobile money between two account holders over a mobile telecommunications service. "Mobile payment" is a form of MMT where mobile money is transferred in exchange for a good or service (as a person-to-person, a person-to-business or a business-to-person payment). A mobile payment is often an alternative to using a debit or credit card or a cheque to make the payment. "Mobile wallets" are the means by which a balance is recorded and against which mobile money transactions are debited or credited.

There is a range of communication channels available for provision of and access to mobile financial services. In Kenya, the most common channels are STK and USSD. STK-based interfaces have a set of commands stored on the user's SIM card and the menu for accessing the commands is embedded in the normal phone user interface and accessible on the phone's menu.[1] USSD is a standard for transmitting information over a GSM network. The interface is typically not as smooth as STK and presents the risk of sessions being dropped, which can raise the costs to the customer, harm consumer trust, and inconvenience the customer.[2] However, USSD technology works on the majority of mobile handsets which makes it attractive for deployment in low-income regions.[3] Delivery of services over USSD does not require programming changes in or access to a handset's SIM card, which allows for non-MNOs to more easily provide mobile financial services and creates the potential for greater interoperability across MNOs.[4]

For non-MNOs to provide mobile financial services via USSD on an MNO's network, they require a designated short code. These codes may either be assigned by the MNO or the telecom regulator, depending on the jurisdiction. In Kenya, USSD short codes are assigned to MNOs who may in turn provide secondary assignments to non-MNOs.

There are three primary legal and regulatory frameworks that impact the provision of mobile financial services and are relevant to this market inquiry: competition (regulated by CAK),

[1] USAID (2010). 'FS Series #9: Enabling mobile money interventions: primer, diagnostic checklist, and model scopes of work'. Prepared by Chemonics International Inc. for the United States Agency for International Development (USAID) Financial Sector Knowledge Sharing Project. Available here,

[2] Hanouch, M. and Chen, G. (February 2015), 'Promoting competition in mobile payments: The role of USSD,' CGAP Brief.

[3] Hanouch and Chen (2015), cited above.

[4] USAID, 2010.

telecommunications (regulated by the Communications Authority (CA)) and financial services (regulated by the Central Bank of Kenya (CBK)).

A.2 Defining markets and assessing dominance

We consider four relevant markets. In some cases, such as the retail money transfer and payment market, we consider different market segments, including customer segments and narrower market segments, in terms of particular characteristics which are competitively significant. These segments may or may not constitute discrete markets.

Under both the competition and telecommunications legal and regulatory frameworks, a person or undertaking has a dominant position if it (emphasis added):

(a) produces, supplies, distributes or otherwise ***controls not less than one-half of the total goods*** of any description which are produced, supplied or distributed in Kenya or any substantial part thereof; or

(b) provides or otherwise ***controls not less than one-half of the services*** which are rendered in Kenya or any substantial part thereof.

A.2.1 Market #1: Retail mobile telecommunications services provided by MNOs and MVNOs

The MNOs and MVNOs in Kenya provide various traditional retail mobile telecommunications services such as voice telephony, data and SMS. Customers subscribe to a particular network through purchasing a SIM card for that network. In some cases, customers may hold SIM cards from multiple networks in what is termed 'multi-simming' which allows them to take advantage of the offerings of different networks.

In this market, Safaricom has a market share of almost 70% based on the number of subscribers. The market shares in terms of revenues can be derived from CA data is between 80% and 90% for Safaricom over the period 2010-2014. At least two other sources contain similar revenue market share estimates. Safaricom's share of the number of minutes of telephone call traffic has been hovering between 70% and 80% for the last few years. Altogether, Safaricom's market share exceeds 50% in the relevant market, regardless of how it is measured and has consistently been above this threshold for a number of years. Accordingly, its market share exceeds the market share threshold test for dominance.

A.2.2 Market #2: The wholesale provision of USSD and STK access by MNOs and MVNOs to mobile financial services providers

MNOs and MVNOs provide wholesale access to USSD and STK for the provision of mobile financial services. We consider this access to USSD and STK to be wholesale services because it enables third parties (banks and mobile financial services providers) to connect to their customers (end-users). In the wholesale market, which we are concerned about here, the customers are banks and other mobile financial services providers. These wholesale customers enter into agreements with and in some cases pay the MNO or MVNO to provide them with a position on an STK menu or for an MNO or MVNO to assign them a USSD code and provide USSD access.

The retail customers to whom the MNOs' wholesale USSD and STK customers provide their downstream mobile financial services (discussed in Markets #3 and #4) are the same retail

customers to whom the MNOs provide their mobile telecommunications services (Market #1). These retail customers rely on the MNOs' USSD and STK services (Market #2) for their use of the downstream mobile financial services (Markets #3 and #4). Thus the MNOs' market shares in retail mobile telecommunications (Market #1) are a useful reference point for the MNOs' market shares in the wholesale USSD and STK market (Market #2). It is reasonable therefore to conclude that Safaricom likely has a market share of the wholesale USSD and STK market (Market #2) of at least 80% to 90%. To the extent that Safaricom's market share in mobile money is even greater than this, so also is it likely that its market share in the USSD and STK wholesale market would be greater. The evidence strongly suggests that Safaricom's market share overwhelmingly exceeds the market share threshold test for dominance, which means that Safaricom is dominant in this market.[5]

A.2.3 Market #3: Retail money transfer and payment services

Mobile money services are one segment of a larger retail money transfer and payment services market. There are strong arguments – particularly given the convenience of mobile money and the cost for lower income customers – that the mobile money services market segment, including banks offering mobile-centric bank accounts, such as MCo-op Cash and Equitel My Money, is a relevant market in itself for some customers. Ultimately, whether one defines a broad relevant market for retail money transfer and mobile payment services or a narrower relevant market segment for mobile money likely does not significantly affect the analysis in this study of competition in USSD access.

Safaricom's M-Pesa product is considerably more popular than any retail transfer service provided by traditional banks. When it comes to the mobile segment of the retail money transfer and payment services, Safaricom has a market share in excess of 70% of all mobile money subscribers, and has more than 60% of agents. In terms of usage and revenues, it is highly probable that Safaricom's share of the market segment in mobile money is (like mobile telecommunications services) far greater than the number of subscribers (and here also agents).

Safaricom's near 100% of deposits and active subscribers mentioned above does not take into account customer deposits to bank accounts to and from which customers can transfer funds using transfer and payment services. This means that Safaricom's market share is likely to decline to some degree over time especially as a result of rivalry from mobile-centric banking services, such as Equitel My Money and MCo-op Cash. Regardless, it is clear that, overall, Safaricom is also overwhelmingly dominant in the mobile money services market segment (including providers of mobile-centric bank accounts), which is downstream from the USSD and STK market.

A.2.4 Market #4: Consumer savings and loans

Safaricom has expanded beyond providing money transfer and payment services to providing savings and loan products (M-Shwari and KCB M-Pesa), in partnership with banks (CBA and KCB), using mobile channels. These M-Pesa "add-on" services may in fact be complementary to traditional bank accounts to some degree. Similar to the market described above for money transfer and payments, the degree of substitutability between savings and loans offered by

[5] In fact, Safaricom's market position would meet the test for'Super-dominance', a term which has been used in the EU (Whish, 2003).

traditional banks and those offered by mobile providers (together with their partner banks) depends on the nature of the product.

Markets for savings and loan products are rapidly evolving in Kenya, and delineating specific customer segments who may be able to use savings and loans from banks and mobile money services providers is therefore complex. Again, whether one defines a broad relevant market for savings and loan services or a narrower relevant market segment for mobile savings and loan services likely does not significantly affect the analysis in this study of competition in USSD access.

Safaricom has a considerable market share in this market, offered via its mobile network, in respect of the M-Shwari and KCB M-Pesa products. We do not need to conclude on whether Safaricom is dominant in markets for savings and loans in Kenya. Mobile savings and loan services providers are downstream from USSD and STK access, which are inputs to mobile savings and loan services. While dominance in a downstream market can be relevant in assessing market behaviour in the upstream market in question, its relevance primarily relates to the possible occurrence and harm of margin squeezes, yet even a margin squeeze may exist despite lack of dominance in the downstream market.

A.3 Competition problems and market conduct

A.3.1 Theories of harm considered in this inquiry

Three theories of harm that relate to possible abuse of a dominant position are examined in this market inquiry. Each of these would constitute a violation of Kenya's Competition Act. These are:

(1) *Excessive pricing by a dominant firm* (which would fall under Section 24(1)(a) of the Competition Act);

(2) *Price discrimination by a dominant firm* (which would fall under Section 24(1)(c) of the Competition Act); and

(3) *Exclusionary abuse of dominance* (which would fall under Section 24(1)(a) of the Competition Act and may fall under Section 24(1)(c) if exclusion is achieved through discriminatory pricing).

A.3.2 Market conduct in the Kenyan market

A.3.2.1 Excessive pricing

There is a lack of clarity about what prices Safaricom charges to different parties for prepay and postpay USSD services, and possibly even the basis of charging per session, or per hop in the case of postpay. This is largely due to lack of detailed information provided to the inquiry by Safaricom and to a lesser degree other parties.

Safaricom's USSD prices appear to be unfairly high when compared to fixed monthly usage fees in countries with more competitive mobile markets, where the per session fee is zero. The information provided to the inquiry indicates that Safaricom's charges to a mobile financial services provider for USSD access services are considerably higher than Airtel's and Orange's charges. The fact that Safaricom has, even during the course of this inquiry, lowered charges

for some parties further supports an inference that at least the higher historic prices were unfair and, to the extent they are still charged, remain so today.

Although it can only be determined with certainty through a cost accounting or benchmarking exercise, the information obtained in the inquiry suggests that Safaricom's USSD pricing (at between Ksh 2 per session for certain banks and Ksh 10 per session for other non-MNO mobile money services providers) are multiple times the incremental costs of providing the service. Indeed, unless and until alternative information is supplied by Safaricom and properly tested through commonly accepted regulatory cost accounting methodologies, it is reasonable to work on the basis that the cost of a USSD message is likely a fraction (probably a small fraction) of a Kenyan shilling. In relation to costs, then, the prices seem to be unfairly high.

A.3.2.2 Price discrimination

The prices of USSD services vary depending on the customer. In the case of different banks and other financial service providers, Safaricom clearly applies dissimilar conditions:

- CBA, for which the M-Shwari product is accessible through STK, incurs no separate STK charge;
- KCB, for which its KCB M-Pesa product is accessible through USSD,[6] incurs no separate USSD charge;
- Equity Bank's Eazzy 247 product, which is accessible through USSD, incurs Ksh 4 charges per USSD session;
- Other banks accessible through USSD appear to incur prepay charges at either Ksh 2 per session from June 2015 or Ksh 5 per session or more in the case of postpay (depending on the number of hops); and
- Non-MNO mobile money services providers (e.g., Mobikash and Tangaza) incur higher prepay charges than banks and, to shield customers from the charge, opt to pay on a postpay basis.

M-Shwari and KCB M-Pesa provide important examples of where Safaricom has provided access to its network on different terms as part of [CONFIDENTIAL]. There are no usage based charges for USSD services used when interacting with the KCB M-Pesa platform, i.e., they are zero. However, there is not enough information before the inquiry to conclude whether the different arrangements offered to KCB M-Pesa and CBA's M-Shwari and to other banks and parties amount to discriminatory pricing under Kenyan law.

Although additional information would be needed to settle on a confident finding of discriminatory pricing amounting to abuse of dominance under Kenyan law, the information available to this market inquiry does suggest a recognisable pattern of market conduct.

A.3.2.3 Exclusionary abuse of dominance

We considered two potential forms of exclusionary market conduct:

- problems in the supply of USSD access, whether through outright refusal or supply at a low quality of service; and

[6] After this report was completed, KCB M-Pesa also became available on the Safaricom STK menu

- pricing practices that impose a margin squeeze.

The inquiry uncovered evidence only of the latter.

As USSD is effectively an input for the provision of mobile financial services, a common concern is whether the MNOs are raising the costs of their competitors in this market. An MNO may charge its mobile money competitor (including rival mobile centric banking services, such as Equitel MyMoney or MCo-op Cash) a wholesale price for USSD services (an input into the mobile money services market segment, Market #3) that, when compared to the retail price for money transfers and payments, does not leave enough margin to make the supply of such downstream retail services commercially viable. This is known as a 'margin squeeze' and may be part of a strategy of raising rivals' costs. We assessed the impact of USSD charges on a stream of typical transactions that might be carried out by an M-Pesa user in order to see the impact on margins of adding the USSD charge. In our analysis, we used a number of conservative assumptions. Yet our analysis of Safaricom's retail prices for a reasonable mix of transactions based on actual usage behaviour, average Safaricom airtime commissions and evidence of airtime top-up behaviour, together with Safaricom's agent commissions, suggests that Safaricom's USSD charges raises rivals' costs significantly. Even if we do not have enough evidence to conclusively show a margin squeeze, the signs do suggest that Safaricom's USSD charges are exclusionary. These effects are all the more exclusionary when considered together with Safaricom's approach to interoperability (discussed below).

Safaricom has not provided enough information to the inquiry to support any justification for any of its pricing practices. It is thus impossible at this time to identify any objective justification. However, given the economic impact on rivals' ability to provide a competitive downstream service using Safaricom's USSD services at the prices it charges, Safaricom should explain and supply evidence that justifies them.

In summarizing the analysis of Safaricom's conduct with regard to USSD pricing and terms of access we consider its *ability* to exclude, the *incentive* to do so, and the *effects* of its conduct on competition.

The ability of Safaricom to impose prices and terms on other parties appears clear. Safaricom's position in the mobile telecommunications services market and in the mobile money services market segment is that of an overwhelmingly dominant operator. Safaricom's market share is much greater in terms of revenues and volumes rather than merely registered subscribers. From the retail customer's perspective, there are no satisfactory alternatives to M-Pesa, a situation which is partly produced and greatly reinforced by the absence of account-to-account interoperability. As a result, from the perspective of the wholesale customer who seeks to reach those retail customers, again, there is no satisfactory alternative to using Safaricom's STK or USSD channel. In these circumstances, Safaricom is able to impose prices and terms on other parties that reduces or excludes their ability to compete on commercially viable terms in mobile money.

Safaricom has established the key network for mobile telecommunications and money transfer and payments. In addition to having an incentive to maintain and extend its market position in mobile money services (which in turn maintains Safaricom's position in the mobile telecommunications market), Safaricom further has an incentive to use its market positions in mobile telecommunications and mobile money services to build a strong market position in mobile banking services.

The high levels of concentration and the network effects at work mean that the competitive dynamics are about bargaining over how services are offered and over the pricing to capture the value that has been created. In this context, an MNO has a strong incentive to impose arrangements which ensure that other firms act in effect as its agents, channelling demand to the services it supplies over its network. It has a strong benefit from making its mobile money service the one through which the majority of transfers and payments will pass. In addition, as newer, related services with potential large returns become possible, an MNO has an incentive to leverage its existing infrastructure and services to secure a share in such newer services, and potentially to limit the competition they will face. Altogether, this both secures growing revenues for the service and in turn subscribers for its mobile telecommunications services. While Safaricom has innovated and offered services that are attractive and useful for consumers, its incentive goes beyond this, extending to protecting it from the ability of rivals to compete, and securing itself a central position in a related market.

The information before this inquiry suggests that Safaricom has succeeded in the mobile money services market segment (Market #3) not just by competing on the merits, i.e., by providing a superior product. The network effects, which appear to have been engineered and then exaggerated through pricing practices amounting to abuse of dominance, make this market very difficult, if not impossible, for a rival to penetrate. Thus, Safaricom's conduct appears to have surpassed competition on the merits and been actively exclusionary.

While not refusing USSD access, the USSD rate charged by Safaricom in respect of mobile wallet transactions at the very least raises the costs of its mobile money rivals, if not eliminating their margins altogether. In some cases, unfairly high USSD charges are placing Safaricom's bank mobile money rivals in a full margin squeeze.

A.3.2.4 Intensification of network effects and impact on mobile savings and loans

Above we discussed excessive pricing, discriminatory pricing and exclusionary margin squeeze pricing, respectively, in the USSD market (Market #2) and the impact in the mobile money services market segment (Market #3). These may be viewed as part of a larger picture that takes in Safaricom's approach to account-to-account interoperability with mobile wallet providers and banks, its pricing of transfers between bank accounts and M-Pesa, and its positioning in the arrangements with M-Shwari and KCB M-Pesa.

The lack of interoperability between M-Pesa and other mobile wallets is a major factor in the competitive dynamic of the mobile money services market segment. The price and non-price barriers to transfers, which arise from the lack of interoperability between mobile wallets, drive and entrench network effects whereby the value of an MMT service depends on the number of consumers using that service. Where a provider becomes dominant, such network effects reinforce and protect its dominance.

In contrast with mobile wallets, Safaricom does allow interoperability between bank accounts and M-Pesa. Still, in addition to raising its banking rivals' costs by imposing a margin squeeze in respect of USSD services, tariff-mediated network effects appear to be present in Safaricom's comparatively high prices for receiving money into M-Pesa accounts from the banks.

Furthermore, in some cases Safaricom allows account-to-account transfers without a usage based charge. Where it does so, this appears to favour banking products in which Safaricom itself has a direct interest. In particular, there are no charges for transfers between M-Pesa wallets and M-Shwari or KCB M-Pesa accounts, businesses in which [CONFIDENTIAL].

Conversely, Safaricom also further secures M-Pesa's centrality in the market by ensuring that M-Shwari and KCB M-Pesa loan accounts are only accessible through M-Pesa. The arrangements prevent even direct transfers between M-Shwari accounts (but not KCB M-Pesa accounts) without first going through M-Pesa mobile wallets.[7]

While Safaricom's M-Shwari and KCB M-Pesa partnerships rely on CBA and KCB respectively for the banking activities and the banks assume the credit risk on the loans extended, Safaricom supplies the data used for the credit scoring algorithm. This information on Safaricom's customers is not available for customers to scrutinize themselves and is not available on an open-access basis. This may mean that rival savings and loan providers may be significantly disadvantaged when competing with the M-Shwari and KCB M-Pesa products. It appears, then, that Safaricom has participated with CBA and KCB in establishing a new market in services for which there is clearly demand, but is able to limit competition from developing while profiting from a share in their revenues.

Further study of the competition issues raised in the mobile savings and loans market segment is beyond the scope of this inquiry, but it does appear to be warranted, including to verify the degree to which other banks actually might gain such interoperability and access to customer data but have declined to take it up.

A.4 Conclusions and recommendations

A.4.1 Scope of conclusions and recommendations

This market inquiry examines the pricing and conditions of wholesale USSD access offered by MNOs to third-party mobile financial services providers in Kenya. However, we believe our evaluation would be incomplete if we did not also consider remedies that address the larger ecosystem. Accordingly, we have considered at a high level some potential remedies for addressing competition issues in related markets that would potentially improve competition in the wholesale market for USSD access, or at least mitigate the harmful effects of the lack of such competition.

Similarly, we have focused our consideration of consumer protection to those concerns that arise directly out of the use of USSD for mobile financial services. A broader look at consumer protection in mobile financial services, which encompasses telecommunications, banking and payment services, is a wide subject, beyond the scope of this inquiry, and could potentially be the subject of one or more future inquiries.

Finally, we note that at present there are data outstanding which would likely impact on the confidence of the conclusions. The conclusions and recommendations are thus **provisional**.

A.4.2 Potential constraints on competition

A.4.2.1 Access to USSD

In this inquiry we evaluated whether wholesale access to USSD (i.e., excluding price and quality of service barriers to access) by mobile financial services providers was a constraint on competition in downstream markets. USSD short codes are only assigned by CA to MNOs or

[7] See Cook, T. and C. McKay. (2015). 'How M-Shwari Works: The Story So Far'. *Access to finance forum*. No. 10. CGAP and FSD Kenya. Available here.

MVNOs. Content Service Providers must then receive a secondary assignment of a USSD code from an MNO or an MVNO.None of the non-MNO mobile financial services providers nor the aggregator that we interviewed viewed access to USSD as a concern: USSD is available to them without great difficulty. Further, none identified the two-step assignment of USSD short codes, either in terms of pricing or process, as a barrier to access. Other studies have reached different conclusions on this issue.

A.4.2.2 Quality of USSD sessions

Concerns have been raised by some parties about the quality of USSD sessions, specifically the number of sessions being dropped.

However, the inquiry did not find evidence of a disparity between the quality of USSD sessions for third parties and for an MNO's own services. This is, again, a provisional finding because very little quantitative data was provided, or even appears to be available, to allow such a comparison. Also, it appears as though a significant proportion of dropped sessions may be unrelated to network quality or the conduct of the MNOs. Thus even if quality of service complaints arose, it would be difficult to know whether they are discriminatory or merely poor quality.

A.4.2.3 Pricing of USSD

The information available in this inquiry suggests that Safaricom appears to be engaging in conduct that constrains competition at several levels:

- First, Safaricom appears to be raising the costs of bank and non-MNO mobile money services providers through unfairly high USSD charges and price discrimination. By doing so, Safaricom impedes its financial services rivals' ability to compete with M-Pesa in the mobile money services market segment. This appears to be an unlawful abuse of dominance.
- Secondly, Safaricom's strategy for account-to-account interoperability embeds M-Pesa further. Refusing account-to-account interoperability with other mobile wallets while allowing it with bank accounts (albeit still on pricing terms that draw usage to M-Pesa) intensifies network effects that protect M-Pesa from competition.

The combined impact of these makes M-Pesa a 'must-have' product and, since it is only available on a Safaricom SIM card, Safaricom secures its position as a 'must-have' network. Together, these make M-Pesa impregnable to competition on the merits of the services themselves.

- Thirdly, M-Pesa's market power in the mobile money services market segment appears to be having an impact also in the adjacent mobile savings and loan market segment. Safaricom is able to offer advantages to lending products in which it has an interest, including interoperability of accounts without usage charges, co-branding and privileged access to Safaricom's customer data for these products. Safaricom appears to be limiting a key input to the mobile savings and loan market segment, possibly constraining competition in this market to a duopoly of banks whose revenues it shares. Indeed, Safaricom's stake in these ventures may amount in effect to a tendency towards monopoly in the mobile savings and loan market.

A statutory investigation into USSD pricing, in which further data would be obtained, would allow a fuller verification of the degree to which, and manner by which, Safaricom is engaging

in abuse of dominance, as well as an opportunity for Safaricom to make representations in its defence. Further inquiries and investigations of interoperability and the mobile savings and loans market would be necessary to verify the degree to which Safaricom's conduct is indeed constraining competition.

A.4.3 Recommendations for addressing competition constraints

In light of the high levels of dominance, competition problems and market conduct identified in this inquiry, we consider here the most important regulatory steps that should be explored with a view to improving competition in the sector and improve consumer welfare.

A.4.3.1 Reviewing markets

Despite Safaricom's extraordinary level of dominance, it has never been designated as dominant in a relevant market either by CA or CAK. This naturally hampers the ability to address structural problems in the market through *ex ante* regulation as well as market conduct that harms competition through both agencies' *ex post* regulatory powers. Regardless of the historical reasons for this, a competition review of relevant markets in telecommunications and in mobile financial services and the interaction between them is long overdue. It is crucially important for CAK and CA to coordinate on analysis of these markets and identification of dominance, so that these agencies, as well as with CBK, can develop suitable policies and regulatory interventions.

A.4.3.2 Addressing abuse of dominance

Both the Competition Act and the IC Act prohibit abuse of a dominant position and provide significant powers to investigate potential abuses of dominance. These frameworks, either alone or in combination, have sufficient tools to investigate a potential abuse of dominance and impose remedies, including for excessive pricing, discriminatory pricing and exclusionary pricing.

Both the competition and telecommunications frameworks include broad regulatory powers to remedy abuses of dominance. If used in a coordinated fashion, the remedies allowed are likely sufficiently broad and open ended to encompass application by CAK or CA of any of the *ex post* remedies for violations discussed below.

Various amendments to these frameworks would help make them more effective. For instance, the penalties under the competition framework are particularly weak. Both frameworks would benefit from improving the harmonised definition of dominance away from bright line percentage market share tests towards more substantive economic tests.

Similarly, bringing CBK into regulatory coordination on competition matters is also crucial because it has powers over licensing and regulating of financial services. While a fully concurrent competition mandate for CBK may be duplicative and even counterproductive, it will be important that CBK have responsibility for ensuring that financial sector regulation promotes competition, and that CBK will cooperate and coordinate with CAK and other relevant agencies towards this end.

A.4.3.3 Price regulation

The evidence indicates that Safaricom, a dominant firm, has priced USSD services *excessively*, considerably above costs, and significantly above prices for similar services charged elsewhere in Africa. It has also done so in a *discriminatory* manner. The outcome of this is that Safaricom's conduct, together with charges for sending funds into a Safaricom account, is having an *exclusionary* effect on rivals.

A.4.3.3.1 Short term pricing objectives

A key immediate objective must be to bring the prices down to levels where the harmful impact on competition is removed. Given the likely very low cost of carrying USSD messages, this might be achieved by reaching prices that, while still significantly above Safaricom's costs, are below price sensitivity of the customers – the banks and other mobile financial services providers and the end-users where they bear them directly. Based on input provided by stakeholders, a price less than Ksh 1 per session (or equivalent per hop) would be a reasonable goal for short term implementation pending fuller regulatory intervention.

In the absence of rapidly introduced voluntary changes to USSD pricing for mobile financial services along the lines indicated above, we recommend that CAK move quickly to initiate a statutory investigation into abuse of dominance in USSD pricing and related practices in the mobile financial sector. Such an investigation could reach a firm finding on what would be a reasonable price above which Safaricom is regarded as engaging in excessive pricing. In addition to imposing any penalties, the determination of excessive pricing should have the effect of setting a ceiling on pricing.

A.4.3.3.2 Price regulation over the longer term

Price regulation can take a number of forms, including requiring cost accounting, 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. Safaricom has an extreme level of dominance in the market, and developing an *ex ante* price regulation for the USSD service would ordinarily appear appropriate.

However, before embarking on a huge resource consuming cost accounting process for USSD, it will be worth assessing whether even if USSD prices are significantly above their cost, the lack of customer price sensitivity below the Ksh 1 level might solve the main concern in the short term.

Timing factors should also take into account the development of the smartphone market in Kenya. Declining prices and increasing penetration of smartphones, together with availability of mobile applications over the Internet that are more attractive than legacy STK and USSD systems, should eventually remove the dependency on USSD as a bottleneck, and thus its potency as an exclusionary mechanism. An extensive cost accounting may simply not be necessary if the problem is largely solved through pricing at less than Ksh 1 per session until such market developments change the ecosystem.

A.4.3.4 Accounting and other forms of separation

Accounting, functional and structural separation typically address the risk that a vertical firm favours its own downstream operation over its competitors. Combined with non-discrimination

obligations, it can be a remedy to reduce risk of a margin squeeze, which is a problem we have identified. It is unlikely that any form of separation will address the main concerns of discriminatory pricing identified in this inquiry. These concerns relate primarily to discriminating between USSD charges applied to non-MNO mobile money services providers and USSD charges applied to banks – rather than a vertically integrated operator discriminating between implied charges for self-provision and actual charges applied to third parties.

CA has explicit powers to impose *accounting separation*. It could require accounting separation for Safaricom's M-Pesa services from the rest of Safaricom's operations, or for all MNOs and MVNOs or only those that are dominant. By enabling proper accounting of USSD services, accounting separation could be useful to verify that USSD access prices charged to third parties for the downstream service are not exclusionary or excessive. However, accounting separation is unlikely to assist with detecting or discouraging discriminating between self-provision and provision to third parties.

Another remedy that is applied with significant frequency internationally is *functional separation*. This is a more intrusive remedy than accounting separation. Functional separation requires the vertically integrated firm to separate particular business lines. Different degrees of separation may be employed depending on the need to police and remove the disincentive towards discriminatory conduct.

However, it would be important to avoid disproportionate remedies. For instance, full business separation or distinct legal entities may be very intrusive given the small scale of the actual USSD business (notwithstanding its strategic importance).

A.4.3.5 Interoperability

Interoperability of mobile financial services "enables users to make electronic payment transactions with any other user in a convenient, affordable, fast, seamless and secure way via a single transaction account."[8] Interoperability could have a significant impact on the constraints on competition we have identified. By "interoperability," we mean account-to-account interoperability, sometimes called platform interoperability. This enables "transfers between customer accounts at different mobile money schemes and between accounts at mobile money schemes and accounts at banks."[9] Currently M-Pesa and other mobile wallets are not interoperable.

Account-to-account interoperability has the potential to reduce the network effects that contribute to market power in the markets for mobile financial services. As a result, barriers to end-users enjoying mobile money services of alternatives to M-Pesa will be reduced, and so the harmful impact of Safaricom's current USSD pricing practices will be significantly reduced.

Interoperability can be implemented in various ways, with each option involving different costs, negotiation complexities, and risksWe will not comment further here on the merits or demerits of the various potential models, save to say that a high priority should be placed on

[8] Aylward, C. et al. (September 2015), 'Review of Interoperability and Regulations of Mobile Money, EPAR Request No. 313,' Evans School Policy Analysis and Research (EPAR), Evans School of public Policy and Governance, University of Washington at 2, (citing ITU Focus Group on Digital Financial Services (2015), Output Document, International Telecommunications Union.)

[9] Clark, D and Gunnar C. (February 2014), 'A2A Interoperability, Making Mobile Money Schemes Interoperate,' GSMA at 4, available here.

simplicity of negotiation, speed of implementation, and the core regulatory policy concern, which is to address an extreme imbalance in the market.

A.4.3.6 Consumer protection

In this inquiry we limited our examination to those consumer protection concerns that arise specifically out of the use of USSD as an access channel for mobile financial services. The principal consumer protection concern that we encountered was a lack of transparency in charges to the consumer for USSD sessions for mobile financial services.

Research suggests that many customers remain confused about charges that apply to transfers to other mobile wallets and payments to utilities and businesses,[10] let alone when they are bearing a USSD charge for the use of the telecommunications network. When accessing third-party mobile financial services providers, a customer is often unaware of which charging model is applicable or the amount of any charges to customer. Some providers will inform the customer of the charge after the transaction and others do not. It is plausible that consumers would be sensitive to pricing at the levels currently prevailing in the market, and thus that price transparency would be an important element in bringing competitive pressure to bear.

A.4.3.7 Coordinating regulatory authorities

Developing mechanisms for coordination among regulators is crucial. Each of CA, CBK and CAK have important roles in addressing the competition problems facing Kenya's mobile money market. CA and CAK have direct statutory authority to tackle several of the issues. Competition is not a statutory priority for CBK, though its ability to regulate matters such as interoperability make it crucial for competition issues.

In addition to possible *ex post* enforcement, USSD pricing may be addressed through regulation by CA and interoperability by CBK. Rather than alternatives, the *ex post* and *ex ante* measures can be understood as complementary. The evaluations undertaken by CAK through competition investigations can provide important indications of the main competition constraints and bottlenecks which are the rationale for regulation by the other two agencies. The problems uncovered in this inquiry, provisional though its conclusions may be, will only be fully addressable through a strong will for the three authorities to work together to agree on the problem and coordinate its solution.

B. INTRODUCTION

B.1 Background to the inquiry

The Competition Authority of Kenya (CAK) is carrying out a market inquiry into the pricing and conditions of USSD access offered by mobile network operators (MNOs) in Kenya. The objective of the market inquiry is to determine whether the provision of USSD services leads to constraints in competition in financial services and related markets and identify other concerns relating to consumer protection. Accordingly, this inquiry considers whether the pricing and access conditions for USSD are competitive and, if there are indications of uncompetitive pricing and access (and related anticompetitive conduct), identifies interventions

[10] See Mazer, Rafe and Rowan, P. (2015), referred to in footnote 252.

to ensure more competitive outcomes are realized. It also considers whether measures are necessary to otherwise enhance consumer protection.

Under the Contract for Competition Enquiry into USSD Service Provision in Kenya, FFS/Policy/031/2015, entered into on or about 1 April 2015, we have been engaged by The FSD Trust Kenya to advise and assist CAK in conducting this market inquiry.

CAK's authority to conduct a market inquiry is derived from the Competition Act, No. 12, of 2010, as amended through 2014 (the Competition Act). CAK is mandated to carry out inquiries into matters relating to competition and protection of consumers, study the effects of government policies and legislation and regulatory authorities on competition and consumer welfare, and investigate impediments to competition.[11]

B.2 The nature and place of a market inquiry

A market inquiry under the Competition Act is not an "investigation" by CAK, which is a distinct process under Competition Act. Investigations are specifically directed at conduct that may constitute contraventions relating to restrictive trade practices or abuse of dominance, and involve greater information gathering powers than in a market inquiry.[12]

Rather, a market inquiry will result in a report in which CAK may "[i]n appropriate cases […] identify sectors where factors relating to unwarranted concentrations of economic power subsist and give advice regarding measures which may ameliorate such situations."[13] Thus, although a market inquiry will not make binding determinations about infringement of a prohibition under the Competition Act, or enact specific remedies, it may identify potential infringements of a prohibition under the Competition Act and other potential constraints on competition, recommend that an investigation be undertaken, and explore potential remedies for consideration.

This market inquiry is, then, the first in a potential series of steps that might include an investigation by CAK to identify violations of the Competition Act and apply remedies under that Act. This study might also be a source for other regulatory authorities with important roles

[11] Section 9(1) of the Competition Act enumerates CAK's functions and includes the following abilities which are essential carrying out a thorough market inquiry: […] (g) carry out inquiries, studies and research into matters relating to competition and the protection of the interests of consumers; (h) study government policies, procedures and programmes, legislation and proposals for legislation so as to assess their effects on competition and consumer welfare and publicise the results of such studies; (i) investigate impediments to competition, including entry into and exit from markets, in the economy as a whole or in particular sectors and publicise the results of such investigations; (j) investigate policies, procedures and programmes of regulatory authorities so as to assess their effects on competition and consumer welfare and publicise the results of such studies; […] (m) liaise with regulatory bodies and other public bodies in all matters relating to competition and consumer welfare; (n) advise the government on matters relating to competition and consumer welfare.

Section 18(4) similarly states: At the request of a regulatory body, or at its own instance, [CAK] may conduct an inquiry into any matter affecting competition or consumer welfare and provide a report within a reasonable period.

[12] See section 31(1) of the Competition Act. Also, in an investigation, CAK may compel production of information, documents, records and testimony, conduct searches, seize information and take evidence of witnesses (sections 31(4), 32-33). Under section 36 of the Competition Act, after concluding an investigation where CAK determines that an undertaking has infringed a prohibition under the Competition Act, CAK may restrain the undertaking from engaging in that conduct, take action against the undertaking to reverse the infringement, impose penalties or grant other appropriate relief. Section 37 of the Competition Act allows CAK to grant interim relief to prevent serious, irreparable damage from potential infringement or on public interest grounds.

[13] More fully, section 18(3) of the Competition Act provides: "In appropriate cases, after conclusion of an inquiry or a sectoral study, [CAK] shall in its report to the Minister identify sectors where factors relating to unwarranted concentrations of economic power subsist and give advice regarding measures which may ameliorate such situations."

in the mobile financial services sector, including in particular the Communications Authority of Kenya (CA) and the Central Bank of Kenya (CBK). As will be seen in our discussion of the legal and regulatory framework (Section E) and potential interventions (Section H.3) that would address competition problems that appear to be prevalent, all three of these agencies have important roles, making coordination among them and strong leadership crucial.

This market inquiry is not only the first in a potential series of steps: it is also provisional. Despite submitting detailed information requests to MNOs, banks and non-MNO mobile money services providers, and follow-up calls and emails to the same, the data provided was insufficient to reach definitive conclusions. The reasons for suboptimal sharing of information by stakeholders thus likely vary among:

- the effort required to gather and organise the information necessary to carry out a market inquiry into a subject matter with the degree of complexity involved here;
- concerns about confidential treatment of the information (CAK's confidentiality arrangements require first submitting information before assurance as to confidential treatment is assured); and
- an interest in not exposing information that may support reasoning and conclusions regarding anticompetitive behaviour.

In Appendix D we set out the information requested but not provided that was the most material to our analysis and the potential implications on our findings.

In the absence of sufficient cooperation from stakeholders (or further steps by CAK to require their cooperation that hinders its statutory process), it would be appropriate for an investigation (with its fuller information and evidence gathering powers) to be undertaken to reach definitive conclusions where regulatory compliance proceedings are to be brought to address alleged violations. We recommend in Section H that if the apparently unlawful pricing practices are not addressed quickly through voluntary means, CAK should initiate an investigation.

B.3 Overview of this study

In Section C, we provide some context for this market inquiry by describing the various types of mobile financial services in the market and the role of telecommunications as a platform for financial services. We then describe the USSD channel, which is the main focus of this study.

In Section D, we provide background on the Kenyan market including financial inclusion, the telecommunications market and the financial services market, including registered banks, microfinance banks and mobile money services providers. In Section E, to provide the context for analysing competition constraints in the market, we describe the legal and regulatory frameworks for financial services, telecommunications and competition, and their respective institutions, CBK, CA and CAK and their inter-relationship and the important roles they each play and that must be coordinated. Section E sets out the relevant laws on competition in the Competition Act and the Information and Communications Act, as amended through 2015 (the IC Act), including definition of relevant markets, identification of dominant market power and abuse of dominance.

Having described the market and the legal and regulatory framework, we proceed in Section G to consider market problems and conduct. We first identify relevant markets that are pertinent to this inquiry, at the levels of:

- retail mobile telecommunications services;

- wholesale provision of USSD and STK access to mobile financial services providers;
- retail money transfer and payment services; and
- consumer savings and loans.

These are not the only ways in which one might organise a study of markets, and they each have market segments within them. The market analysis shows that there is an extreme level of concentration in the first three markets, with Safaricom having different degrees of dominance.

Section G is in some ways the core of the study. There, we describe structural issues in telecommunications and mobile financial services markets that, due to the capital intensive nature of telecommunications and network effects in both sectors, make them vulnerable to a tendency towards monopolisation. The risk is high that this tendency in each sector creates a positive feedback loop between telecommunications and mobile financial services that creates an impregnable position of substantial market power.

This appears to have occurred in Kenya, but unfortunately appears to have been aggravated by market conduct of Safaricom, the dominant MNO. We analyse, in light of the information available to the inquiry, Safaricom's market conduct in terms of three key theories of harm, in the market for wholesale provision of STK and USSD to mobile financial services providers:

- excessive pricing;
- discriminatory pricing; and
- exclusionary conduct, including in particular margin squeeze.

The available information suggests that indeed Safaricom has engaged in these practices, and that it appears to amount to an abuse of dominance under the Competition Act and the IC Act. The information before the inquiry suggests that the market conduct has had an exclusionary effect and constrained the ability of rivals to compete in the mobile money services market segment.

We also look in Section G at related issues in the mobile financial services markets that arise from the competition problems in the USSD market, including in particular strategies towards account-to-account interoperability with banks and non-MNO mobile money services providers. These appear to be having similar exclusionary effects, as well as extending dominance into the mobile savings and loans market segment.

Section H discusses public policy and regulatory steps that could be taken to reduce the constraints on competition both due to the nature of the market and the actual market conduct that appears to be further limiting competition.

Table 1 below sets out each element of the terms of reference for this assignment and ties it to findings and recommendations included in this report.

Table 1: ToR items addressed in this report

ToR Item	Findings
a. Review the legal and regulatory framework impacting on USSD services, mobile financial services and other specific areas of concern to the inquiry	See Section E, Legal and Regulatory Overview.
b. Carry out a comprehensive audit of USSD pricing and terms across all MNOs (Mobile Network Operators) and the providers of financial services that are currently being offered over USSD channels	Pricing and terms of USSD access for each of Safaricom, Airtel and Orange, to the extent provided to this inquiry, are included in Section G.3.1.1, USSD pricing and terms in Kenya.

ToR Item	Findings
c. Carry out a comprehensive audit of USSD pricing and terms across all MNOs and the providers of financial services they make USSD sessions available to. This will include an assessment of how interconnection fees are set by MNOs when consumers use USSD off-network as well as assessing the presence of fairness of any refusals to supply	Pricing and terms of USSD access for each of Safaricom, Airtel and Orange, to the extent provided to this inquiry, are included in Section G.3.1.1, USSD pricing and terms in Kenya. There are no such interconnection fees for USSD access as consumers cannot use USSD "off-network." Refusal to supply access to USSD is discussed in Section G.3.3.1, Refusal to supply and poor quality of service.
d. Determine how different sized players negotiate the cost of USSD sessions with MNOs and give comparisons when price negotiations are done by aggregators on behalf of smaller players, larger players with more leverage and smaller players directly negotiating with MNOs and assess efficiency considerations in the way prices are set (eg. Two-part tariffs, volume discounts)	Although requested, this information required for this determination was not provided by any of the MNOs. We were able to infer the process of negotiations of USSD access charges from interviews and correspondence with some customers, [CONFIDENTIAL], and in respect of overall changes for the banks (see Section G.3.2.1). However, we have not been able to more generally determine how USSD charges are negotiated.
e. Carry out a comprehensive measurement of USSD pricing and terms that service providers such as banks and content service providers charge to consumers, both in absolute terms and in relation to the charges they pay to the MNOs for USSD sessions	Pricing and terms of USSD access for each of Safaricom, Airtel and Orange, to the extent provided to this inquiry, are included in Section G.3.1.1, USSD pricing and terms in Kenya. This includes a discussion of prepay (where MNO subscribers are charged directly) and postpay (where banks and content service providers are charged) models.
f. Undertake an assessment of market structure and market players' behaviour and its effect on competition in the provision of USSD services by MNOs, using internationally recognised competition assessment methodologies	Four markets are defined and market structure of each is assessed in Section F, Defining Markets and Assessing Dominance.
g. Obtain data on the quality of USSD sessions and specifically, the volume of dropped sessions by MNO, provider and transaction type, and the cost implications of dropped sessions, as well as any conflicts of interest that may arise on the MNOs part with respect to USSD session quality	Although requested, information on quality of USSD sessions was not provided by any MNO. However, based on the information received from other sources and otherwise available, quality of USSD sessions is discussed in Section G.3.3.1, Refusal to supply and poor quality of service.
h. Identify potential consumer protection concerns in the use of USSD to deliver mobile financial services. For instance, if USSD costs are displayed to customers in a clear manner either before or after the service has been accessed, if consumers are sensitive to USSD pricing, the enrolment and opt in/out processes for VAS that ride on USSD channels and if consumers get to actively select or refuse these services when they use mobile financial services, etc.	Potential consumer protection concerns are discussed in Section H.3.6, Consumer protection.
i. Identify regulatory barriers, if any, that may be occasioned by the current regulatory framework and assess them in the light of international experience and the economic literature. This will include an assessment of how USSD service applications, licenses and codes are allocated and regulated	In Section H.3, Recommendations for addressing competition constraints, we identify the most important regulatory steps that should be explored with a view to improving competition in the sector and consumer welfare, including removal of regulatory barriers.
j. Provide a competitive USSD pricing benchmark that gives some measure of unit economic cost by applying appropriate cost based methodologies (such as long run average incremental cost (LRIC) and marginal cost approaches)	See Sections G.3.1.2, Costs of offering USSD, G.3.1.3, Comparative prices for USSD services in other countries and G.3.1.4, Evaluation of USSD prices.
k. Based on the cost analysis, make a recommendation on the optimal pricing of a USSD session after taking into consideration demand characteristics such as volume discounts	See Section H.2.3.2 where we conclude "fair and competitive pricing of USSD would be below Ksh 1 per session, and probably a fraction of that."

ToR Item	Findings
l. Identify candidate public policy actions which have the potential to improve the conditions of competition in the sector and increase consumer welfare, indicating priority actions	See Section H.3, Recommendations for addressing competition constraints.
m. Prepare a report developing evidence-based recommendations to the Authority	See this report.

B.4 A word about the Safaricom success story

At the centre of this study is an MNO with a very impressive story of making rapid inroads into financial inclusion for the poor at a massive scale. Safaricom's accomplishments are extraordinary in many ways. They are widely cited in development circles, telecommunications industry fora and the financial industry as examples of innovation that are not only a success in Kenya but at an African, indeed Global level.

Throughout this inquiry, we have been very conscious of the innovation and risk that Safaricom has undertaken, the huge benefits to Kenyan society this has yielded, and the inspiration it represents to other countries. We are very conscious also that it is crucial to encourage innovation and investment. Leaders do not come every day with genuinely effective solutions to the problems of high levels of poverty and huge need for financial inclusion that face Kenya and other developing countries. We remain very impressed by and respectful of Safaricom's track record in many ways.

Nevertheless, this study finds that, in part, these successes were achieved using strategies that have distorted and lessened competition and appear to amount to abuse of dominance. Even if efficiency or other justifications are posited, this would not mean that the conduct was necessary to realise the efficiencies, nor that the efficiencies outweigh any anticompetitive effects.

As discussed in Section G, telecommunications and mobile money services are markets that are highly vulnerable to tendencies towards concentration that result in a 'winner takes all' scenario. Yet Safaricom's across-the-board victory in the 'competition for the market' that has resulted in it having over 95% of the usage of mobile money services in terms of volume and amount appears not to have been achieved entirely on the merits of its innovations in, and quality and pricing of, its services. To some degree – and only a proper statutory investigation can definitively determine to what extent – its success appears to have been achieved and is now protected through conduct that appears to amount to abuse of dominance.

A key premise of competition law is that dominant firms have a special responsibility not to abuse their market power. Safaricom appears to have done so. Whether it might have succeeded in building a strong market lead by competing solely on the merits without employing excessive, discriminatory and exclusionary pricing practices is difficult to assess based on the information before this inquiry.

We have set out in Section H various measures that could be employed to remedy the apparent abuses of dominance, as well as measures that would help to liberalise the market, in particular introduction of some form of mandatory account-to-account interoperability. The extent to which and speed with which Safaricom itself might take initiatives in these directions without waiting for regulatory proceedings remains to be seen. It will depend largely on how CAK, CA and CBK use this study and coordinate their activities to guide Safaricom to take the sorts of pricing and interoperability steps that would enable effective competition to develop.

C. MOBILE FINANCIAL SERVICES, USSD AND COMPETITION ISSUES

The provision and pricing of access to USSD cannot be considered in isolation from the markets for mobile financial services as USSD has become an essential technological channel for accessing these services in Kenya. In this section we consider the nature of mobile financial services and the use of USSD and other technologies as a means of access. We then provide some background on competition issues that arise in mobile financial services to frame the issues explored in this market inquiry.

C.1 Mobile financial services defined

In this market inquiry, we use "mobile financial services" as an over-arching term for the use of mobile telecommunications technology to conduct a variety of financial transactions, whether or not traditional banking services are involved.[14] Within mobile financial services, there are a number of distinct yet sometimes overlapping categories.[15] Mobile financial services providers might offer mobile money services, or mobile banking services, or both.

C.1.1 Mobile money

There is no agreed universal definition of "mobile money" though it is generally considered to be a form of "electronic money" that enables a user to conduct financial transactions through a mobile phone.[16] Electronic money can include electronically recorded value that is stored on a range of devices including chips, prepay cards and computer systems, in addition to mobile phones.[17] Electronic money is in turn one part of the payments system (see Section C.1.1.2 for a brief summary of the payments system).[18]

The following criteria are frequently part of definitions of mobile money[19]:

- it is electronic money issued on receipt of funds in an amount equal to the available monetary value;
- it is electronically recorded on a mobile device;
- its electronic value is redeemable for cash;
- its electronic value may be accepted as a means of payment by parties other than the issuer; and

[14] Please note that we do not use 'mobile financial services' to define the same set of providers that are defined by this term in the FinAccess surveys. In the latter, 'Mobile financial services' providers refers to M-Pesa, Tangaza Pesa, Mobikash, Airtel Money and Orange Money. We use the terms 'mobile money', and 'mobile money transfer and mobile payments' to describe the services that these latter firms provide.

[15] For an overview of the economics of mobile money see Aron, J (2015) ''Leapfrogging': a survey of the nature and economic implications of mobile money'', Centre for the Study of African Economies Working Paper.

[16] Aron, Janine (June 2015). ''Leapfrogging': a Survey of the Nature and Economic Implications of Mobile Money,' at 6.

[17] Alliance for Financial Inclusion. (2012). Guideline Note - Mobile Financial Services: Basic Terminology. Available here.

[18] Aylward, C. et al. (September 2015), 'Review of Interoperability and Regulations of Mobile Money, EPAR Request No. 313,' Evans School Policy Analysis and Research (EPAR), Evans School of public Policy and Governance, University of Washington at 4.

[19] Aron (2015), cited above, at 6.

- its electronic value is backed up by storage of equivalent funds in one or more banks subject to regulatory supervision.

While mobile money usually is denominated in a form that corresponds to currency, mobile "airtime," which can often be purchased on a mobile device and transferred to other mobile subscribers, meets many of the criteria set out above and is also arguably a form of mobile money. "Mobile money services" includes "Mobile money transfer" services (MMT) and "Mobile payment" services, defined next. Mobile money services are distinct from "mobile banking," defined below. Mobile money services providers in Kenya include M-Pesa, Tangaza Pesa, Mobikash, Airtel Money and Orange Money.

C.1.1.1 Mobile money transfer

"Mobile money transfer" (MMT) is simply the transfer of mobile money between two account holders over a mobile telecommunications service.

To complete a transfer of physical currency from one person to another an MMT transferor must first convert physical currency into mobile money (cash-in) through an agent. The transferor then initiates a transfer to a transferee's account through a mobile device. Once the transfer of mobile money is received, the transferee can convert the electronic money back into physical currency (cash-out) through an agent.

MMT is not a banking service, as the accounts of the transferor and transferee (i.e., mobile wallet accounts, as discussed in Section C.1.1.3) are not traditional deposit or loan accounts subject to banking regulation. For example, because MMT service providers cannot offer loans, they are not subject to reserve requirements and other regulatory supervision that applies to banks.

C.1.1.2 Mobile payment

"Mobile payment" is a variation of MMT where mobile money is transferred in exchange for a good or service (as a person-to-person, a person-to-business or a business-to-person payment). A mobile payment is often an alternative to using a debit or credit card or a cheque to make the payment. Because MMT is typically thought of as involving only person-to-person transfers, for purposes of this inquiry we consider mobile payment as distinct from MMT. However, the two services clearly overlap.

In Kenya, mobile payments are part of the "payments system," i.e., the mechanisms by which consumers and businesses pay each other for goods and services and send and receive money remittances. In Kenya, the main components of the payments system include:[20]

1. The Kenya Electronic Payment and Settlement System (KEPSS), a real time gross settlement (RTGS) system provided by CBK;
2. The Automated Clearing House which processes, cheques and electronic funds transfers;
3. Payment cards, automated teller machines (ATMs) and point of sale (POS) devices; and
4. Mobile payments.

[20] See Central Bank of Kenya's description of the national payments system, available here.

C.1.1.3 Mobile wallets

"Mobile wallets" are simply the means by which a balance is recorded and against which Mobile money transactions are debited or credited. As more transfers and payments are being made using mobile money services, there is less need for users to cash-in and cash-out and mobile money stays in its electronic form.

From a user's perspective, mobile wallets are conceptually similar to a traditional current or chequing account, from which payments can be made using a debit card or a cheque. However, from the perspective of the service provider, the accounts are only notional. Account holder deposits are pooled and held in one or more trust accounts. These trust accounts themselves are in fact part of the traditional banking system and provide a necessary underpinning service for the functionality of mobile money services.

C.1.2 Mobile banking

"Mobile banking" enables customers to use their mobile devices as a channel for utilizing a bundle of banking services, including deposits, withdrawals, loans, account transfers, bill payments, and balance inquiries. Unlike mobile money services, mobile banking requires a connection to a traditional personal or business bank account. While loans may be offered together with the bank account, stand-alone digital credit services (such as Sawaloans, offered in partnership with Mobikash) are not included in what we refer to as mobile banking.

From a user's perspective, mobile banking is not always so different from mobile money services. The most basic mobile banking services are simple money transfers that utilize a bank account. If the user did not have a bank account to transfer or receive electronic funds, a similar transaction could be achieved through MMT using a mobile wallet. However, unlike mobile money services, mobile banking enables users to hold deposit accounts that accrue interest, take out loans, and benefit from other traditional banking services.[21]

From a service provider's perspective mobile banking is entirely distinct from mobile money services. Mobile banking requires a banking license and is subject to banking regulation, including reserve requirements and other regulatory supervision. Unlike mobile wallets, deposits from each mobile bank user must be held in discrete accounts, not pooled with other deposits in a trust account.

For traditional bank accounts, mobile banking services are 'additive' in that they provide a new delivery channel for existing bank customers to conduct transactions. In this way, mobile banking primarily concerns the ability of banks offering traditional bank accounts to provide value-added services to clients who are already banked.

C.1.2.1 "Add-on" mobile banking services, such as M-Shwari and KCB M-Pesa

An important development in Kenya is where mobile customers already engaged in mobile money services are then offered banking services such as a short term loan or a deposit account, marketed as an add-on to a mobile money service. Even while the interface remains the same

[21] In Kenya, the return on funds held by the mobile money provider are used for charitable purposes. In some markets, such as in Tanzania, mobile money service providers distribute interest that has accrued on underlying trust accounts held in banks to their subscribers in proportion to mobile money account balances. This makes mobile money accounts more like *de facto* savings accounts. However, the mobile money accounts themselves are not deposit accounts and do not accrue any interest. In Ghana, 80% of the interest on mobile money funds must by regulation be paid to the users.

through their mobile phone, a bank account must be established for the customer with a licensed bank. Such "add-on" mobile banking services include M-Shwari and KCB M-Pesa, add-ons to the M-Pesa service.

C.1.2.2 "Mobile-centric" banking services

There are also mobile banking services offered by traditional banks that are mobile-centric, rather than merely offering mobile as an additional channel to access a traditional bank account. Examples of such mobile-centric banking services are MCo-op Cash (offered by Co-operative Bank) and Equitel My Money. Key features of such services are that accounts may be opened via mobile phones and / or at agents, and customers may transact via mobile phones and / or at agents. These services, provide the MMT and payment functionality offered by M-Pesa. They may even refer to their accounts as "mobile wallets," which is the case for at least MCo-op Cash. In addition to offering mobile money functionality, mobile-centric bank accounts offer the "add-on" mobile banking savings and loan services offered by M-Shwari and KCB M-Pesa.

C.2 Evolution of mobile financial services

C.2.1 Introduction

Historically, a minority of the population in developing countries have held bank accounts. Essentially, this is because bank services were expensive to provide as they required a brick and mortar branch network, supplemented by an ATM network. In addition, there were substantial costs with extending credit including in collecting and reviewing the information in order to do an assessment of credit risk. These costs of providing accounts and the concomitant bank charges meant it did not make economic sense for banks to market services to low income customers or for those customers to acquire bank accounts.

The ICT revolution resulted in widespread access to mobile devices. By the end of 2014, half of the world's population had at least one mobile subscription, totalling over 3.6 billion unique subscribers.[22] Widely available mobile devices paved the way for mobile money services which provide a money storage, transfer and payment alternative for the unbanked.

Mobile money was first introduced in the Philippines in 2001, though it took around five years before other developing countries introduced similar schemes and nearly a decade before adoption was widespread.[23] Today there are 263 live deployments of mobile money schemes and 101 planned deployments worldwide.[24] At the end of 2014 mobile money was available in

[22] GSMA Intelligence (2015), 'The Mobile Economy 2015,' GSMA at 2, available here.

[23] Aylward, C. et al. (September 2015), 'Review of Interoperability and Regulations of Mobile Money, EPAR Request No. 313,' Evans School Policy Analysis and Research (EPAR), Evans School of public Policy and Governance, University of Washington at 4.

[24] GSMA Mobile Money Deployment Tracker as of 27 January 2016, available here.

61% of the world's developing countries, with Sub-Saharan Africa accounting for half of all mobile money service launches in that year. [25]

Mobile money services initially grew through use by unbanked subscribers who had traditionally used 'informal money transfers', meaning direct, informal cash transfers through mini-bus taxi services, and travelling relatives or friends. Mobile money attracted global attention because of its ability to bring people from the cash-based, 'unbanked' economy into modern systems of 'book-entry money' in a process commonly referred to in the industry as 'banking the unbanked.'[26]

Today, the relationship between traditional banking and mobile wallets has become more complex. Banked customers are increasingly using mobile wallets to transfer mobile money to unbanked subscribers, and to facilitate transactions between banked persons and businesses. Banked customers often transfer money to mobile wallets to allow them to cash-out through mobile money agents as a more convenient alternative to using ATMs or bank branches for withdrawals. In addition, the rise of lower cost mobile banking, along with regulatory decisions made to allow 'agency' or 'branchless' banking, has made banking an affordable option for those who were previously unbanked.

C.2.2 The multiple roles of MNOs

As mobile financial services are delivered through mobile devices, it is not surprising that, in jurisdictions where they are allowed to do so, MNOs have led the provision of mobile money services. Much of the overall growth of mobile financial services has come through MNOs adding these mobile financial services and the related support, such as a network of cash-in and cash-out agents. In Sub-Saharan Africa, over half of all MNOs had launched a mobile money service by the end of 2014.[27]

Typically, MNO subscribers that elect to further subscribe to mobile money service are given mobile wallets where their funds are notionally kept as mobile money and they can perform transactions without having to visit a financial institution or establish a personal bank account. Most MNO providers of these services will only allow transactions between individuals on their own mobile networks, although, in some cases, users have the ability to send funds to customers on another network.[28] While MNOs often claim to have their own networks of specialized agents, these agents may simply be existing retailers who add on the provision of a cash-in and cash-out service for MNO subscribers. In addition, individual agents often serve as agents for multiple MNOs.

[25] GSMA (2014), 'State of the industry: Mobile financial services for the unbanked,' at 14, available here.

[26] Klein, M. & Mayer, C. *Mobile banking and financial inclusion: the regulatory lessons.* World Bank Policy Research Working Paper No. 5664 (May 2011).

[27] GSMA (2014) at 18.

[28] For example, in Tanzania, as of February 2016, all four MNOs providing mobile wallets have achieved voluntary, bilateral interoperability, allowing subscribers of each MNO to transfer mobile money to accounts of subscribers held through the other MNOs at no additional charge.

MNOs are by no means the only providers of mobile financial services, which includes banks and non-MNO mobile money services providers. Because MNOs control mobile networks, they often serve as a platform for these other mobile financial services providers. Through a variety of financial arrangements, these third parties may negotiate access to subscribers of MNOs to provide mobile financial services through the MNOs' network which are delivered through mobile devices.[29] The technology underlying this access is discussed in Section C.3.

MNOs in Kenya have also been entering into partnerships with traditional banks to allow their subscribers access to mobile banking (that is, traditional deposit accounts and loans) through their mobile wallet services. MNOs can identify their users and they have perhaps the largest privately held database of individuals who are regular users of a service (telecommunications) which is also an interface over which transactions can be made. This "Know Your Customer" or "KYC" is a critical regulatory requirement for banking. In addition, the information base that MNOs have on their subscribers allows for cheaper credit assessment.[30] Together the telecommunications technology and the database place MNOs in a very good position to enter into mobile banking.

In effect, there is an evolution from MNOs providing mobile money services, to a joint provision of services (through partnerships between MNOs and banks), and then potentially to a bundled service (of telecommunications and banking) being provided by a single entity with multiple licences. The separate licences required to provide banking and telecommunications services mean that in practice a bank may also become an MNO (as Equity Bank has done in Kenya by obtaining an MVNO licence) and an MNO can enter into banking, (as Econet has done in Zimbabwe through its acquisition of Steward Bank).[31]

C.2.3 The interaction of telecommunications and financial services

To understand the interactions between telecommunications and financial services in the markets for mobile financial services it is important to understand that in developing countries almost all those with a bank account have a mobile telephone, while most of those who have a mobile phone do not have a bank account (see Figure 2). For the MNOs this means they can offer new services (mobile wallets or mobile banking) to a large existing telecommunications subscriber base, while banks are essentially offering an additional service (mobile banking) to a small existing banking subscriber base. As a result of this dynamic, the number of bank accounts have increased substantially. In Kenya, MNOs, and Safaricom in particular, have effectively sponsored the acquisition of bank accounts by large numbers of their subscribers.[32]

[29] Mobile financial services provided on mobile devices through mobile internet, e.g., through smartphone applications, do not need to negotiate such access.

[30] As we discuss, this depends on the strength of information on telecommunications use and payments for credit behaviour.

[31] Tausha, I., G. Robb, T. Vilakazi (2015) 'Competition and regulatory issues in emerging mobile payments markets: a case study of Zimbabwe', paper presented at 1st Annual Competition and Economic Regulation (ACER) Conference, Victoria Falls, Zimbabwe.

[32] Cook, T. and C. McKay. (2015). 'How M-Shwari Works: The Story So Far'. *Access to finance forum*. No. 10. '' CGAP and FSD Kenya. Available here.

Although money flows between bank accounts and mobile wallets, mobile wallets are a net receiver. [33] Transfers from banks to mobile wallets allow customers to execute mobile payments to unbanked people directly from their bank accounts. They also allow bank customers to transfer money from bank accounts to their own mobile money accounts to proceed to a cash-out.[34] MNOs have identified an opportunity here.[35]

The offering of mobile financial services by MNOs, including mobile banking through partnerships with banks, and the diversification of banks into mobile wallets, places traditional banks in direct competition with MNOs. Unlike in the banking sector which has dozens of competing banks, mobile telecommunications is typically a highly concentrated market due to scarcity of spectrum and high network costs. In Kenya, to extend banking services MNOs must partner with a single licensed bank and there are a number of banks which they can approach. The established banks with a large number of account holders face a challenge in extending mobile banking services to attract new customers not presently served through a lower cost offering without cannibalizing their existing customer base. And, the established banks have a network of branches and ATMs from which they cannot readily divest. The competitive interaction between mobile money services and banking products offered *by* MNOs (through **MNO-led** models) and banks providing mobile banking services *using* MNO networks (**bank-led** or financial institution led models) is a dynamic process that is evolving over time.

Another way of thinking about these developments is from the consumer perspective, where the consumer simply chooses bundles of services. How are these provided and who gets the value? The consumer does not necessarily know when they are crossing into a service which requires a banking licence as they may simply be choosing an option from a menu. Moreover, the consumer's history of mobile wallet use can be valuable information for the provider in deciding to offer them a loan. The provider here is the MNO and the bank, and the funds from the loan may well be transferred to the mobile wallet (without a transfer charge) to be used for MMT or other transactions or cashed out at the MNO's agent (with the related charges applying). The revenue from the transaction is split between the MNO and the bank depending on the agreement between them and on the related services which are used (such as the cashing-out).

C.3 Delivery channels for mobile financial services

There is a range of communication channels available for provision of and access to mobile financial services. The most common are:

- SIM (subscriber identity module) Application Toolkit (STK) (described below);
- Unstructured Supplementary Service Data (USSD) (described below);
- Short Messaging Service (SMS), a plain text based interface;

[33] Pasti, F. (November 2015), 'A2A interoperability: What is happening between banks and mobile money providers?,' GSMA – Mobile for Development – Mobile Money blog post, available here.

[34] Pasti, F. (November 2015), 'A2A interoperability: What is happening between banks and mobile money providers?,' GSMA – Mobile for Development – Mobile Money blog post, available here.

[35] Hernandez, Bernstein and Zirkle, 2011. *The Regulatory Landscape for Mobile Banking*. GSR11 Working Paper. Available here.

- Interactive voice response (IVR), a technology allows a computer to interact with humans through the use of voice and dual-tone multi-frequency (DTMF) signalling tones input via keypad; and
- Smartphone and feature-phone mobile internet applications.

The various technologies differ in terms of the client or user interface for transacting, as well as in the infrastructure (typically controlled by MNOs) that is required to facilitate transactions. Smartphone mobile applications require the user to have a smartphone. They are delivered via the internet, and although internet access can be provided by an MNO it can also be provided through other sources, such as Wi-Fi. "Feature-phone" applications similarly require internet access but use less expensive devices (feature-phones) with smaller screens and do not require high internet access speeds. The other technologies listed can be delivered to 2G handsets and can only be delivered through a particular MNO's network.

MNOs and providers of mobile financial services consider various factors including reach (compatibility with handsets), user experience, security, cost, and ease of deployment in determining and developing the appropriate technical interface to use in a given market.[36] Globally, USSD remains the most widely offered technical interface followed by mobile phone applications, followed by STK and finally IVR.[37]

In Kenya, the primary interface for mobile financial services provided by MNOs is STK, which, for example, is used along with encrypted SMS for the provision of M-Pesa. However, with some exceptions, USSD technology is typically used by non-MNO mobile financial services providers (e.g., banks) to gain access to MNO subscribers. The discussion below focuses on these two technologies as the most relevant in the Kenyan market.

C.3.1 STK

STK-based interfaces have a set of commands stored on the user's SIM card and the menu for accessing the commands is embedded in the normal phone user interface and accessible on the phone's menu (see Box 1 below for examples of the kinds of transactions that can be undertaken via STK).[38] To access the STK menu, the customer accesses the SIM application menu embedded on this or her device. This offers a high level of security relative to other technologies. STK operates through the use of an existing communications channel, such as USSD or SMS.[39]

For STK-based systems, the set of commands available to the customer is programmed into the SIM card and defines how the SIM should interact with the 'outside world.'[40] A provider of

[36] Hanouch, M. and Chen, G. (February 2015), 'Promoting competition in mobile payments: The role of USSD,' CGAP Brief.

[37] GSMA, 2014.

[38] USAID (2010). 'FS Series #9: Enabling mobile money interventions: primer, diagnostic checklist, and model scopes of work'. Prepared by Chemonics International Inc. for the United States Agency for International Development (USAID) Financial Sector Knowledge Sharing Project. Available here,

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

[40] USAID (2010), cited above.

mobile financial service utilizing STK must obtain access to the SIM card to program it to provide the services. Because MNOs have control over such access, this is a constraint for non-MNOs.[41]

C.3.2 USSD

USSD is a standard for transmitting information over a GSM network. It does not offer the same security capabilities as STK or mobile internet.[42] Furthermore, the technology is limited in terms of the customer experience. The interface is typically not as smooth as STK and presents the risk of sessions being dropped, which can raise the costs to the customer, harm consumer trust, and inconvenience the customer.[43] However, USSD technology works on the majority of mobile handsets which makes it attractive for deployment in low-income regions.[44] Delivery of services over USSD does not require programming changes in or access to a handset's SIM card, which allows for non-MNOs to more easily provide mobile financial services and creates the potential for greater interoperability across MNOs.[45]

Unlike SMS, which uses a store-and-forward oriented message transaction, USSD provides a session-based connection which is real-time and significantly faster and cheaper than SMS for two-way transactions.[46] In most cases, a USSD session is initiated by dialling the relevant short code or USSD code, for example '*100#,' which when dialled presents the customer with a menu of options. When the user makes a selection on the menu, data is sent to the server and the new menu screen is sent back to the user.[47]

A USSD session, once opened, is a timed session which we understand is a restriction imposed by MNOs for two primary reasons:

- *Security*: Similar to transactions performed over the internet, the session is set to time out in order to protect the client in the instance where they do not 'log out' and as such leave their sensitive information available for others to access.
- *Opportunity costs*: USSD sessions use the same signalling system no. 7 (SS7) network for performing banking transactions as that used to set up, manage, and tear down calls. It is therefore important for the MNO to limit the time period available to the client to make the transaction in order to free up the network for those people wishing to make calls. MNOs may also charge clients for every session they initiate (or in some countries

[41] Hanouch and Chen (2015), cited above.

[42] Hanouch and Chen (2015), cited above.

[43] Hanouch and Chen (2015), cited above.

[44] Hanouch and Chen (2015), cited above.

[45] USAID, 2010.

[46] Sanganagouda, 2011.

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

a rate based on the duration of the session) in order to manage usage by clients. MNOs earn greater revenues from voice calls than from mobile banking interactions.

For non-MNOs to provide mobile financial services via USSD on an MNO's network, they require a designated short code. These codes may either be assigned by the MNO or the telecom regulator, depending on the jurisdiction. In Kenya, USSD short codes are assigned to MNOs who may in turn provide secondary assignments to non-MNOs.

With the exception of M-Pesa in Kenya, the majority of large scale deployments of mobile financial services in developing countries utilize USSD as their primary mechanism for connectivity with customers.[48]

C.3.3 Internet

As smartphone penetration increases and data services become more affordable, the Internet is likely to become an increasingly attractive platform for mobile financial services due to its versatility. When smartphone use becomes very extensive, many of the competition problems arising from market power through control of STK and USSD on the GSM networks (market power is discussed in Section F.2.2 and the associated problems in Section G.3) will recede. At this time, however, all of the stakeholders interviewed in the inquiry were of the mind that smartphone penetration will not reach a level for several years to come, and that STK and USSD will remain the most important platforms probably for more than 5 years.

Box 1: Customer interface for M-Pesa

In Kenya, there are various options available to the customer for sending and receiving money either to another mobile phone user or to interact with your bank account. The steps followed by Safaricom M-Pesa customers are illustrative in this regard.

To send money to another mobile phone user (even if they are not a Safaricom subscriber):

- First, the sender needs to deposit money into their own M-Pesa account.
- Go to the 'Safaricom' menu on the mobile device and select 'M-Pesa'.
- Select 'Send Money'.
- Enter the recipient's phone number and the amount to be sent, and the customer PIN.
- A screen will appear displaying the information which has been entered above (e.g. Send Money to 0721 234567, Ksh 2000). The customer must then confirm that the information is correct. Then the customer presses 'OK'.
- The recipient and the sender will receive an SMS confirming the transaction.

To send money from a bank account to M-Pesa (which is done via USSD short code):

- The customer needs to register for mobile banking or internet banking with their bank to access the short code which enables the customer to move money from the bank account into an M-Pesa account.
- Customer dials USSD number and follows the instructions on the screen which are different for different banks, e.g. Barclays Bank (*224#), Equity Bank (*247#), Co-operative Bank (*667#).

To send money from M-Pesa to a bank account (which is conducted via Paybill):

- Customer opens the M-Pesa menu on their phone.
- Go to 'Lipa na M-Pesa', Paybill option.
- In Paybill – enter the bank business number (available from the bank).
- Enter the customer bank account number.
- Enter the amount to be sent.
- Enter the customer M-Pesa PIN.
- SMS confirmation of the transaction is received on the phone.

[48] Hanouch, M. (2015) 'What is USSD & Why does it Matter for Mobile Financial Services?,' CGAP blog post, available here.

D. MARKET BACKGROUND

In this section we provide an overview of the financial services and telecommunications industries in Kenya, drawing largely on publicly available sector statistics sourced from the Communications Authority of Kenya (CA) and the Central Bank of Kenya (CBK).

D.1 Financial inclusion in Kenya

The penetration of traditional financial services, including bank accounts, is limited in many developing countries, including Kenya. In 2006, only 15% of adults in Kenya used formal, prudentially regulated financial services (such as a bank account) (see Figure 1 below).[49] More than 30% of adults used informal financial services, including through informal groups, employers and unregistered moneylenders. More than 40% of adults were entirely excluded from financial services in 2006.

This created the opportunity for innovative financial service providers, including MNOs and banks targeting the mass market, to extend financial inclusion. By 2015, as a result of these innovations, 71% of adults used mobile money services (including M-Pesa, Airtel Money, Orange Money, Tangaza Pesa and Mobikash)[50] and the penetration of bank accounts (including mobile bank accounts, such as M-Shwari, KCB M-Pesa and MCo-op Cash) had grown to 38% of adults.[51]

Mobile financial services appear to be complementary to traditional banking services. Approximately 50% of people that use a mobile money service also have a bank account, and most bank account users also use a mobile money service.[52] In fact, only 1.1% of adults in Kenya use a formal prudentially regulated financial service (such as a bank account) exclusively.

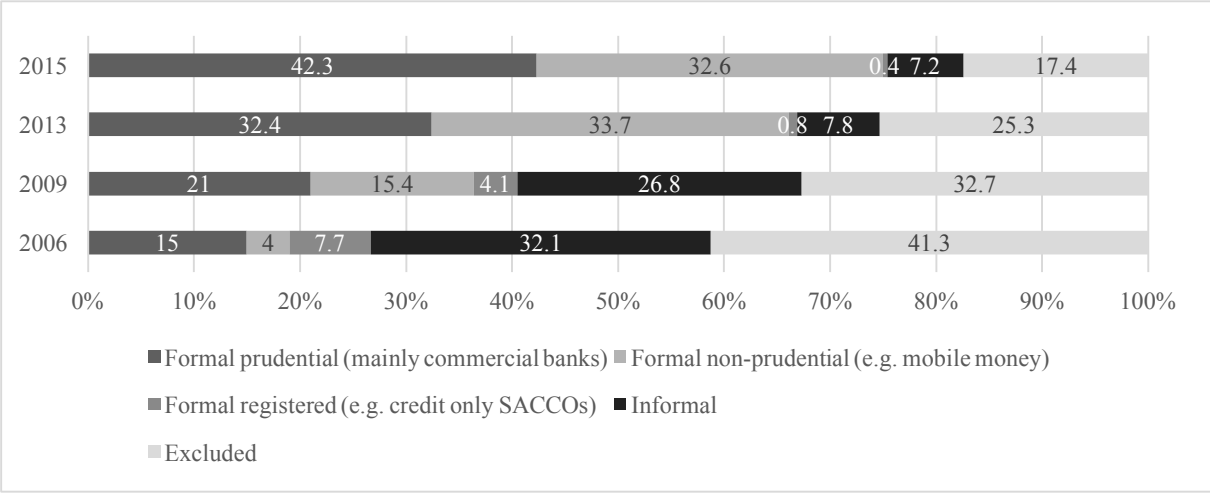
[49] Source: FinAccess. (2016). 'FinAccess Household Survey'. Available here. Note: The FinAccess survey report contains statistics largely for adults aged 18 years and above. Please note that we do not use 'mobile financial services' to define the same set of providers that are defined by this term in the FinAccess surveys. In the latter, 'Mobile financial services' providers refers to M-Pesa, Tangaza Pesa, Mobikash, Airtel Money and Orange Money. We use the terms 'mobile money' to describe the services that these latter firms provide.

[50] Please see footnote 49 regarding our use of the terms mobile money and mobile financial services.

[51] 42.3% of adults had access to formal financial services (see Figure 1), which suggests that 4.3% of adults did not have a bank account but used some other formal financial service that is prudentially regulated, such as insurance, a capital market intermediary, a deposit-taking SACCO or Microfinance Bank. Note that Figure 1 reports the FinAccess 'Access strand', which "…classifies users according to their most formal service provider used as defined in the table below. For example, if a user has any financial service/product from any formal category, they are placed in the formally included category, even though they may additionally use an informal service. If a user has an informal group only, they are placed in the informally included category." This means that for 32.6% of adults, the most formal service they used was a formal, non-prudentially regulated service, such as mobile money. In total, 71.4% of adults used mobile money, which suggests that a significant proportion of mobile money users also use a more formal, prudentially regulated financial service, such as a bank account. This also suggests that a significant proportion of bank account users also use a mobile money service

[52] See footnote 51. Financial Inclusion Insights (2014) reports that 49% of people that use a mobile money service also have a bank account. Source: Intermedia. (2015). 'Kenya. Digital Pathways to Financial Inclusion 2014 Survey Report'. *Financial Inclusion Insights*: *Applied research for digital financial inclusion.* Available here.''

Figure 1: Usage of financial services in Kenya (%), 2006-2015



Source: FinAccess National Survey 2016, cited in footnote 49.

The total number of mobile payments transactions exceeds by far the number of transactions made using debit cards, EFTs and cheques in Kenya (Figure 2). The gap in the number of transactions has grown in recent years as the number of payments made using debit cards has declined since 2013. This is a consequence of mobile money agents being considerably more widely available than branches, ATMs and point of sale (POS) machines (see Figure 27 in Section F.1.4 below).

Transaction values across mobile money platforms have grown significantly over time, to approximately Ksh 248 billion in August 2015 (Figure 3). Nonetheless, this remains a relatively small proportion of the total value of electronic transactions in Kenya. The total value of mobile money transacted in approximately 9% of the value transacted using the Real Time Gross Settlement (RTGS) system, for example (Figure 3).

Figure 2: Total number of mobile & debit card payment transactions, 2009-2015

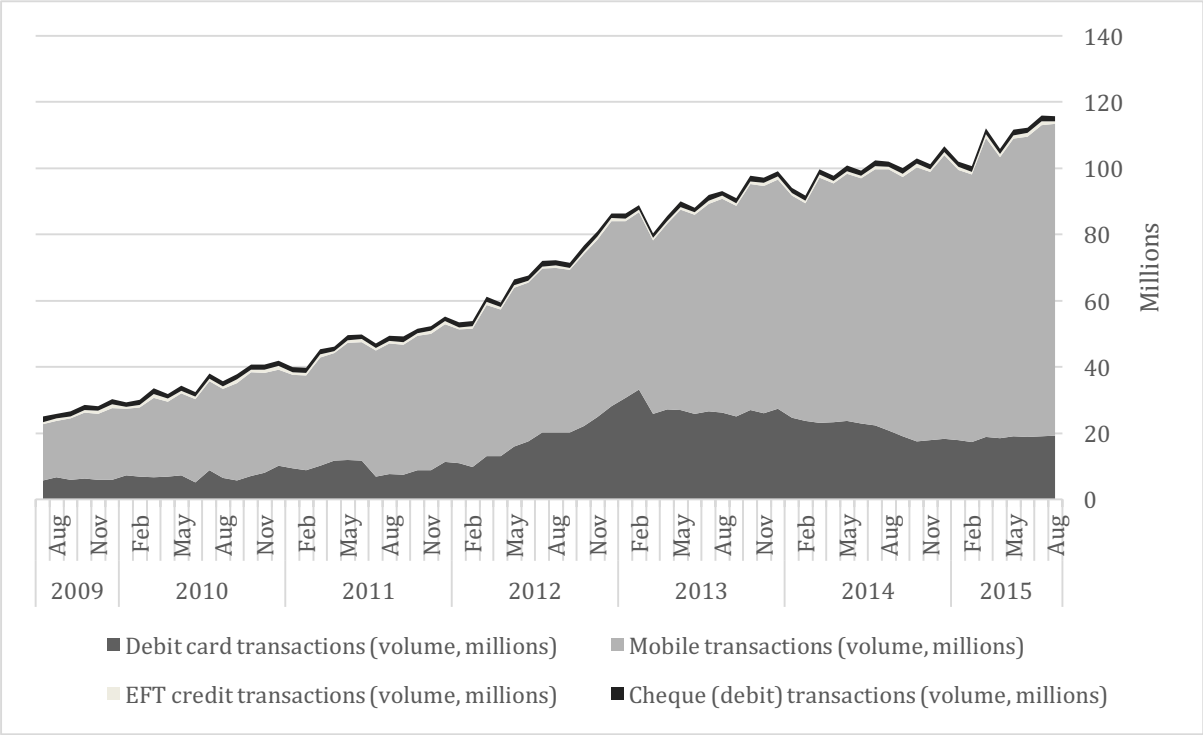
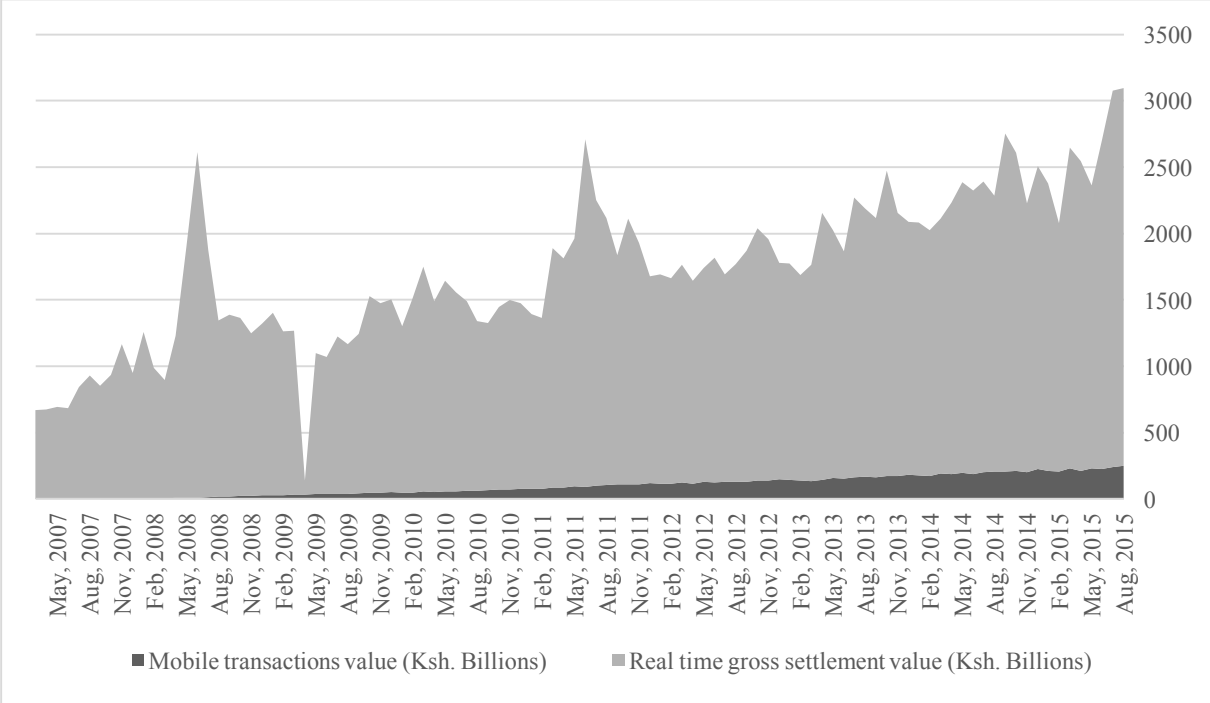


Figure 3: Mobile money and real time gross settlement system values transacted (2007 - 2015)



Source: Analysis of Central Bank of Kenya statistics

Despite the growth of M-Pesa and access to traditional bank accounts, the bulk of transactions are still made in cash in Kenya: for example, only 6% of income transactions measured in the Financial Diaries study (a study on 298 households in Kenya between January 2012 and

December 2013)[53] were paid electronically (15% of income transactions by value were paid electronically).[54] Electronic channels accounted for only 1% of transactions undertaken by households. While the most widely used means of payment in Kenya is cash, the main means of payment used for electronic transactions is mobile money. Among the Financial Diaries study participants, 48% of electronic transactions took place via mobile money. The use of debit cards (4 transactions out of 2,222) and bank transfers (88 transactions) was negligible (Table 2).

While money remittances now take place to a significant degree electronically (and even then this is for remittances between parties that do not live in the same community)[55], these remittances are largely cashed out and then used to pay for goods and services (discussed below in Section D.3.2 below, see Figure 24). Cash and in-kind payments are the main means by which incomes are received in Kenya: only 6% of income transactions by volume and 15% by value were made electronically by the financial diaries study participants.[56]

Table 2: Use of electronic transaction channels (Financial Diaries participants)

	N	**%**
Mobile money	1,072	48.2%
Okoa Jahazi (Airtime advance)	824	37.1%
Sambaza (send airtime)	197	8.9%
Bank transfer	88	4.0%
Loyalty points	37	1.7%
Debit card	4	0.2%
Total	**2,222**	

Source: Zollman, J. & Cojocaru (2015). 'Cash Lite: Are we there yet?', Bankable Frontier Associates, available here.

[53] 31% of sampled households were in urban areas, and 72% of households earned less than $2 per day. Source: Zollman, J. & Cojocaru (2015), cited above.

[54] Source: Zollman, J. & Cojocaru, L.. 2015. 'Cash Lite: Are we there yet?'. *Bankable Frontier Associates.* Available here. The Gates Foundation reports that 98.2% of transactions, by volume, are in cash while in terms of value 17.3% of transactions are in cash. The next largest payment channel by transaction volume is mobile money, which accounts for 1.4% of payment volumes, followed by cheques (0.2%), debit cards (0.1%), direct debits and credit transfers via the Automated Clearing House (ACH) (0.1%). Source: Gates Foundation. 2013. 'Fighting poverty, profitably'. Available here. Credit transfers also take place via The Real Time Gross Settlement System (RTGS), which accounted for almost 70% of transaction value in 2011. Since the RTGS is used for very large transfers, including for large inter-bank transactions, the RTGS transaction value data do not reflect usage of payment channels used by consumers. MasterCard Advisors Cashless Journey estimates that 27% of retail payments, in terms of value, are made electronically in Kenya (reported by Gates Foundation, 2013, cited above). The MasterCard Advisors Cashless Journey report contains an estimate that 2% of consumer payment transactions, by volume, in Kenya are made by non-cash means. Source: MasterCard. 2013. 'Measuring progress towards a cashless society'. Available here.

[55] In fact, only 15% of inbound receipt transaction volumes among Financial Diaries study participants were received electronically. The bulk of receipts (74%) were in-kind receipts between parties in the same home community. For receipts that were not local, 55% were completed electronically. Electronic transactions accounted for 74% of monetary receipt (excluding in-kind gifts) transaction volumes and values where the giver and recipient were not in the same community. Monetary gifts between participants in the same community were only rarely made electronically (4% by volume and 6% by value). Source: Zollman, J. & Cojocaru (2015), cited above.

[56] Source: Zollman, J. & Cojocaru (2015), cited above.

The majority of electronic transactions, measured by volume, are airtime purchases, which account for 86% of electronic transactions.[57] Safaricom reports that 41% of airtime top-ups were directly via M-Pesa in 2015.[58]

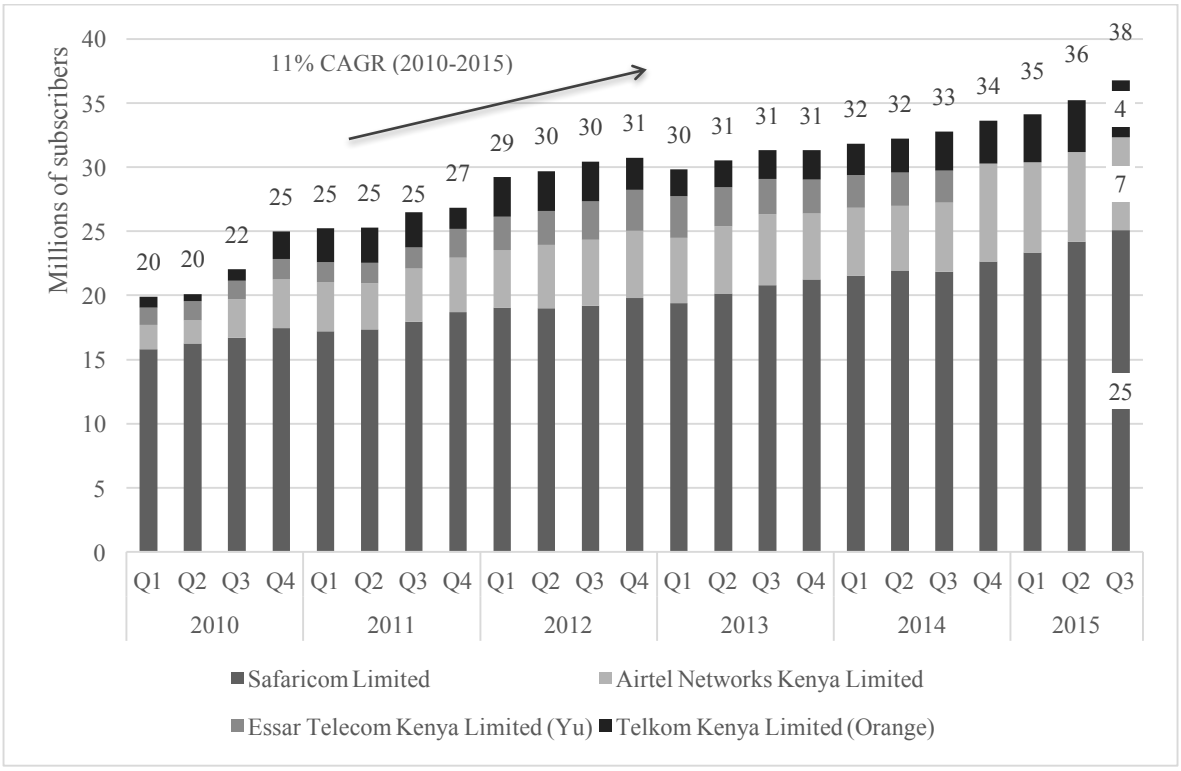
D.2 Telecommunications services

D.2.1 Mobile network subscribers

The telecommunications sector is growing quickly in Kenya, with the number of mobile connections having grown from approximately 20 million in the first quarter of 2010 to almost 38 million in the 3rd quarter of 2015, an average annual growth rate of 11% (Figure 4). The largest operator by a considerable margin is Safaricom (25 million connections, 66% out of a total of 38 million). Safaricom has had a relatively stable share of mobile connections since the first quarter of 2011 (see Figure 5).

Between 2010 and 2011, when Bharti Airtel bought Zain in Kenya and targeted the mass market with aggressive pricing, Safaricom's share of total connections fell from 79% in Q1 2010 to 70% in Q4 2010 (see Figure 5).[59] In 2014, Essar (Yu) sold its subscribers to Airtel, which caused Airtel's market share to rise to 23% in the fourth quarter of 2014.

Figure 4: Number of subscribers per operator (Millions)

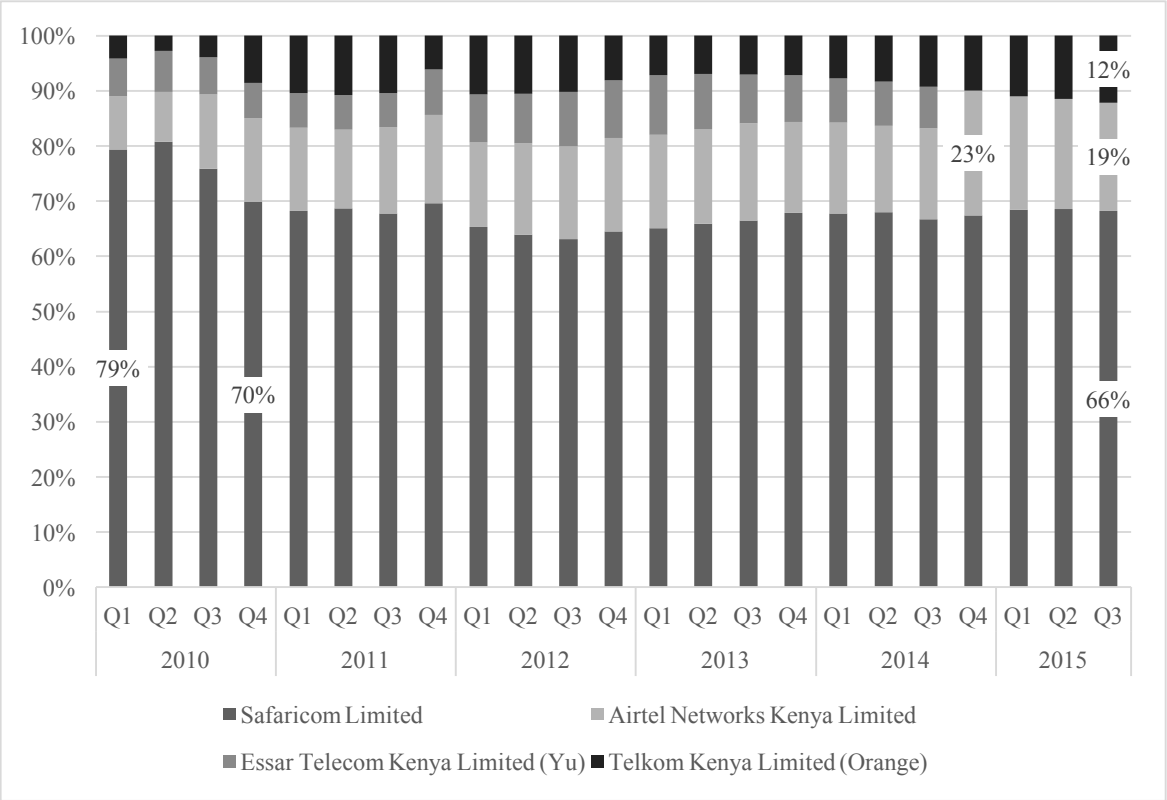


[57] Source: Zollman, J. & Cojocaru (2015), cited above.

[58] See Safaricom's half-year results for FY 2015, available here. Among Financial Diaries study participants, only 8% of airtime top-ups were made electronically, which suggests that they may represent a different segment of the population when compared with M-Pesa users.

[59] See, for example, Waema, T.M. & Ndung'u, M.N. (2012). 'What is happening in ICT in Kenya?' *Evidence for policy action, Research ICT Africa*. Policy paper 9. Available here.

Figure 5: Proportion of subscribers per operator (%)



Source: Analysis of Communications Authority Sector Statistics reports

Subscriber market share numbers, however, understate by a considerable margin Safaricom's position in the market due to dual SIM usage. [CONFIDENTIAL] This means that of the 19% of subscribers that have joined Airtel (Figure 5), [CONFIDENTIAL] also belong to the Safaricom network.[60]

Further evidence of dual SIM usage is the very high number of total connections (38 million) relative to the number of adults in Kenya (approximately 25 million).[61] The Safaricom network alone has 25 million connections (see Figure 4). Even if every single adult had a mobile connection (and there is evidence that suggests that this is not the case[62]), there would be 1.5 mobile connections per adult.

This suggests that even where consumers join a network other than Safaricom, they carry on using their Safaricom SIM. The most likely explanations for this are to take advantage of on-net voice call discounts on the Safaricom network (discussed next), and in order to be able to

[60] Table 2 shows that [CONFIDENTIAL]% of subscribers join the Airtel & Safaricom, or Yu & Safaricom, networks while only [CONFIDENTIAL]% join the Airtel or Yu networks exclusively. This means that only [CONFIDENTIAL]% of Airtel & Yu subscribers (reported in combination as Airtel subscribers by the Communications Authority) join those networks on an exclusive basis ([CONFIDENTIAL]).

[61] The Kenya National Bureau of Statistics reports in its 2015 'Kenya Facts & Figures' report says that there were 43m people in Kenya in 2014. Available here. Last accessed on 15 August 2015. The United Nations demographic yearbook (2013) reports that 42.9% of the population was aged between 0 and 14 years old. Available here, last accessed on 15 August 2015. 57.1% of 43m people equals 24.6 m people.

[62] The GSMA, for example, estimated that only 42 out of every 100 people in Kenya had a mobile phone in 2014. See GSMA. (2015). 'The Mobile Economy: Sub-Saharan Africa 2015'. Available here.

use M-Pesa and related financial services only available through Safaricom (such as M-Shwari and KCB M-Pesa).

Table 3: [CONFIDENTIAL]

The usage market shares, measured in terms of volumes of minutes and in terms of volumes of SMS, make this clear. Safaricom's share of voice traffic is 72% (Figure 6), and its share of SMS traffic is 90% (Figure 7). This in turn means that Safaricom's revenue market share exceeds its subscriber market share by a considerable margin: Safaricom's revenue market share is in excess of 80% (discussed in Section F.2.1 below).

Figure 6: Total minutes of usage per operator, on-net and off-net (operator % share of total)

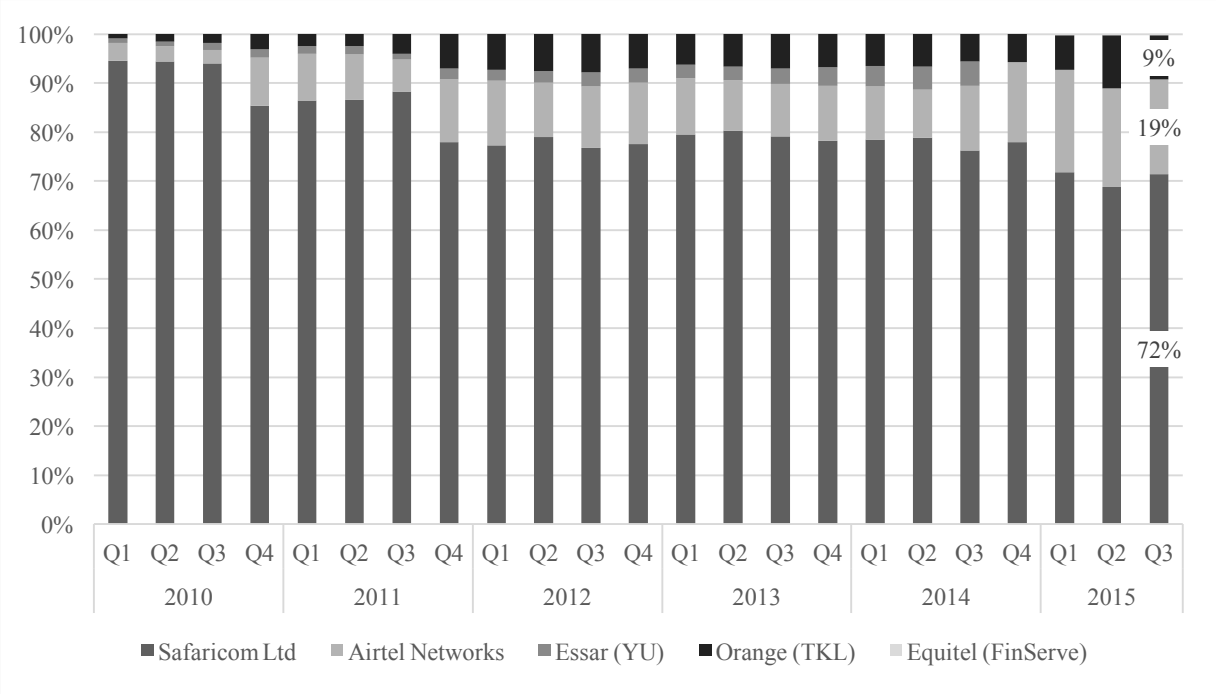
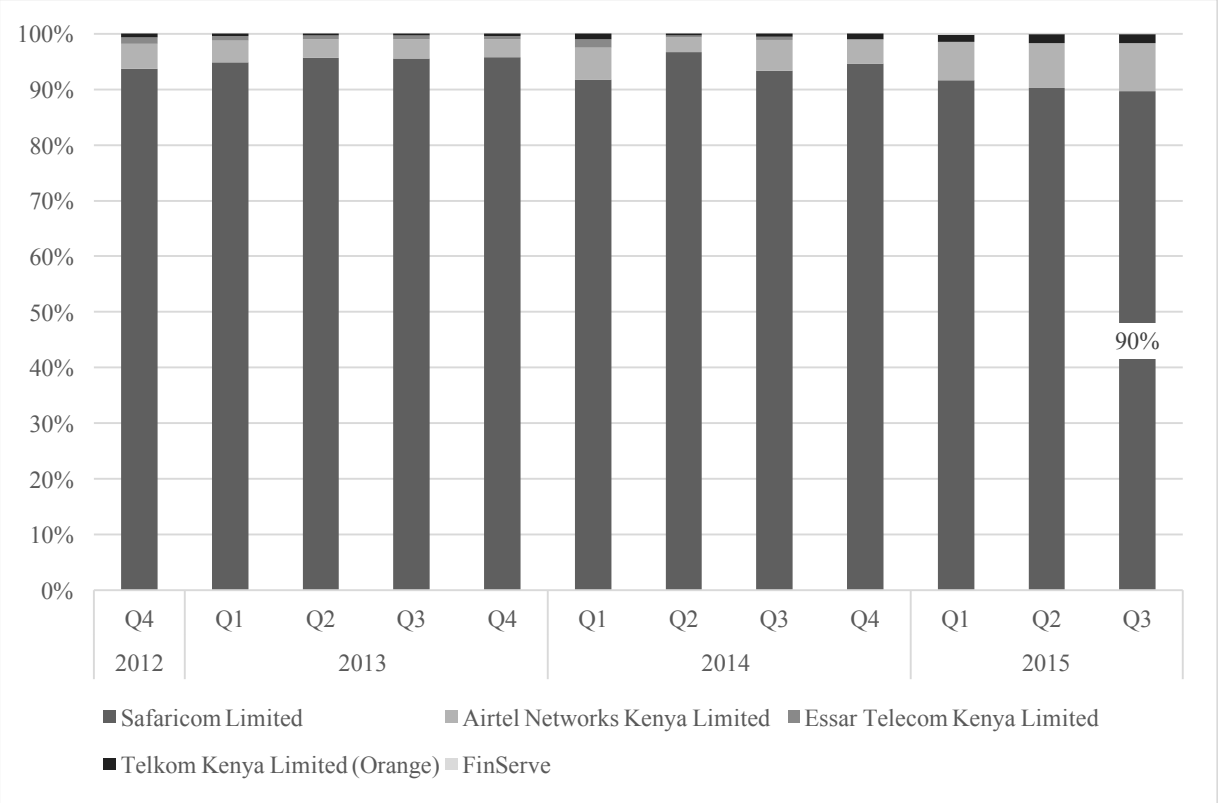


Figure 7: Total SMS usage per operator, on-net and off-net (% share of total)



Source: Analysis of Communications Authority of Kenya data, corrected for in Q4 2014 with data provided by Airtel.

D.2.2 On-net calls and network effects (club effects)

Dual SIM usage is driven by network effects (sometimes referred to as 'club effects'). As is reviewed in more detail in Section G.1.2, the economics of networks are important to understand competition issues in telecommunications and banking. The value of a network to any member on a network depends on the number of others who are members of the same network, and the extent to which rival networks interoperate. There is evidence that suggests that there are very strong network effects in the telecommunications sector in Kenya (see Figures 10-12).

In telecommunications, network-effects are generated by charging lower prices for on-net calls than for off-net calls, and charging low on-net prices relative to call termination rates (the lowest possible price that networks can charge for off-net calls without making losses). Large networks are able to preserve market power through network-effects by using low on-net prices to make it attractive for customers to belong to the large networks.[63]

There are considerable discounts for on-net calls in Kenya (see Table 4). Safaricom, for example, has offered discounts of up to 60% for on-net calls, such as in 2014 when an on-net off-peak call was Ksh 2, while an off-net call cost Ksh 5.

[63] See, for example, Laffont, J., Rey, P., and Tirole, J. (1998). 'Network competition II: Price discrimination'. *Rand Journal of Economics*. Vol. 29, no. 1.

Table 4: Safaricom's tariffs and call termination rates

Peak / Off-peak	On-net / off-net	2010	2011	2012	2013	2014
Call termination rate*		4.42	2.21	1.44	1.15	0.99
Peak**	**On-net**	**3**	**4**	**4**	**4**	**4**
	Off-net	4	5	4	4	5
Off-peak**	**On-net**	**3**	**2**	**2**	**2**	**2**
	Off-net	4	5	4	4	5

*Sources: * Communications Authority, Interconnection Determination No. 2 of 2010. Rate applicable until 30 June of each year. ** Safaricom submission to CAK, provided on 17th of June, 2015. Rate applicable as at December of each year.*

These on-net discounts appear to have generated substantial tariff-mediated network effects. 99% of Safaricom's voice minutes were on-net in the first quarter of 2010 (Figure 8 below). On-net calls declined to 95% of the total in third quarter of 2015. If operators exhibited a balanced calling pattern, we would expect the proportion of on-net calls to be similar to their market share. While Safaricom had a subscriber market share of 79% in Q1 2010 (see Figure 5 above), the proportion of on-net minutes suggests that Safaricom subscribers were disproportionately more likely to call each other than call off-net.

Airtel subscribers are more likely to make off-net calls but, again, they disproportionately make on-net calls (their subscriber market share is only 19% (Figure 5), 64% of calls are on-net (Figure 9)). Again, this suggests that consumers use Airtel SIM cards as a second SIM, for on-net Airtel calls to take advantage of on-net discounts on the Airtel network. The same pattern appears on the Orange network, where subscribers are far more likely to make on-net calls than make off-net calls (Figure 10). Given the very small overall market share of Orange subscribers, this suggests that consumers use Orange SIM cards as a second SIM card (for on-net calls to other Orange subscribers to take advantage of on-net discounts).

Figure 8: Safaricom on-net calls, 2010 & 2015

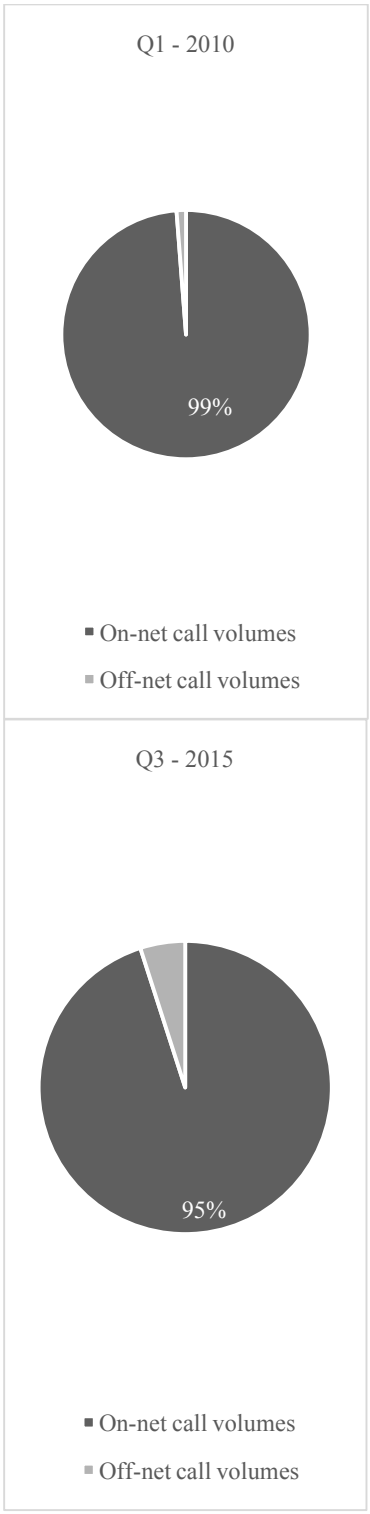


Figure 9: Airtel on-net and off-net calls, 2010 & 2015

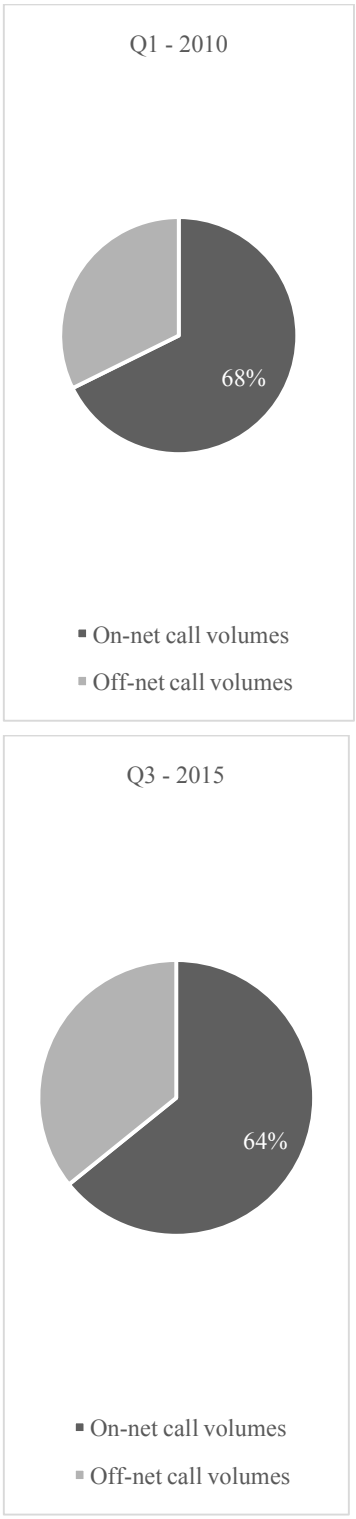
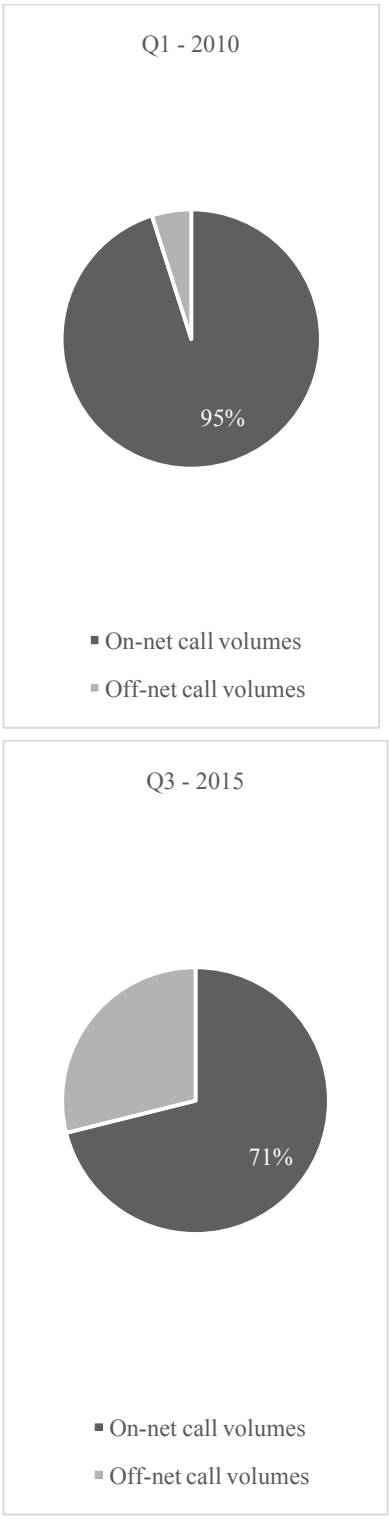


Figure 10: Orange on-net and off-net calls, 2010 & 2015



Source: Analysis of Communications Authority of Kenya data

D.2.3 Radio frequency spectrum

Spectrum holdings in Kenya are skewed significantly in Safaricom's favour, which further supports Safaricom's strong market position. Shares of spectrum are often measured below the 1GHz band, which operators are able to use to cheaply provide coverage and in-building penetration, and above the 1GHz band, which operators use for capacity.[64] Safaricom, through the acquisition of Essar (Yu)'s spectrum in 2010, controls almost two thirds of spectrum in bands below 1GHz (Table 5), and 43% of spectrum between 1GHz and 3GHz (Table 6).

Table 5: Spectrum assignments in Kenya (<1GHz)

	790 – 862MHz	880 – 960MHz	Total
Safaricom	30	35	65
Airtel		20	20
Orange		15	15
Total			**100**

Table 6: Spectrum assignments (>1GHz, <3GHz)

	1710 – 1880MHz	1920 – 2100MHz	Total	Market share
Safaricom	40	20	60	43%
Airtel	20	20	40	29%
Orange	20	20	40	29%
Total			**140**	**100%**

Source: Analysis of information provided by the Communications Authority of Kenya, provided on the 9th of July, 2015.

This means that Safaricom is able to offer considerably higher maximum data speeds than its rivals, which provides it with a further advantage in markets for telecommunications services.

D.2.4 Internet access

An important question in this market inquiry is whether there are alternatives to USSD, including accessing banking and mobile money services via the internet, and especially via applications loaded onto smartphones. Internet access is growing rapidly in Kenya, at a rate of approximately 41% per annum over the last four years (see Figure 11). There were 22 million mobile data connections in September 2015, or more than 50% the number of mobile connections (38 million). While Safaricom has the largest share of internet connections (64%), this has declined over time from more than 90% in 2011 (Figure 12). Both Orange and Airtel appear to be growing their market shares. A recent new entrant, Equitel (Finserve) also appears to be growing its market share in respect of internet access.[65]

While a considerable number of people in Kenya have access to basic mobile data services, such as via 2G enabled feature phones, a considerably smaller proportion of people have access to mobile broadband, including via smartphones. The mobile data connections reported on Figure 11 and Figure 12 are not necessarily mobile broadband connections. CA reported that

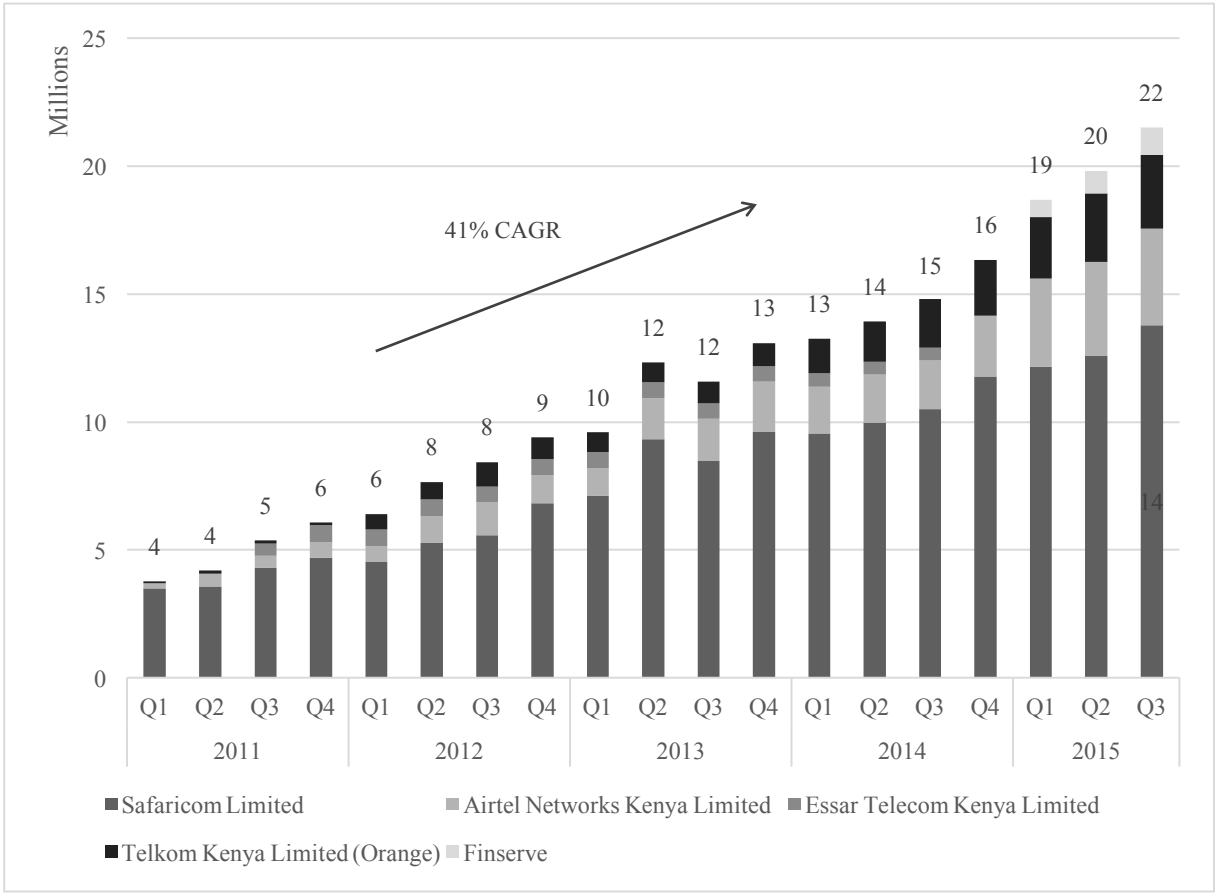
[64] [CONFIDENTIAL]

[65] We note that Equitel's subscriber base reported in quarterly Communications Authority sector statistics reports the same number of prepay, internet and mobile money subscribers.

there were 6.4 million mobile broadband connections in September 2015, more than three times the number of mobile broadband connections reported in June 2013 (1.8 million).[66]

While the number of mobile broadband connections and smartphone use is growing significantly in Kenya, broadband penetration remains relatively low (6.4 million connections, 17% out of 38 million mobile subscriptions, see Figure 4 above). Safaricom, by far the largest network in Kenya, reported 4.1 million smartphones connected to its network in September 2015, and a total of 25.1 million connections.[67] Smartphones therefore account for 16% of mobile connections on the Safaricom network. This is lower than the average smartphone and mobile broadband proportion of connections in Sub-Saharan Africa of 24%, which the GSMA anticipates will increase to 57% by 2020.[68] This means that USSD services are likely to be a must-have service for a considerable proportion of people in Kenya for at least the next 5-10 years.

Figure 11: Internet subscribers, 2011-2015

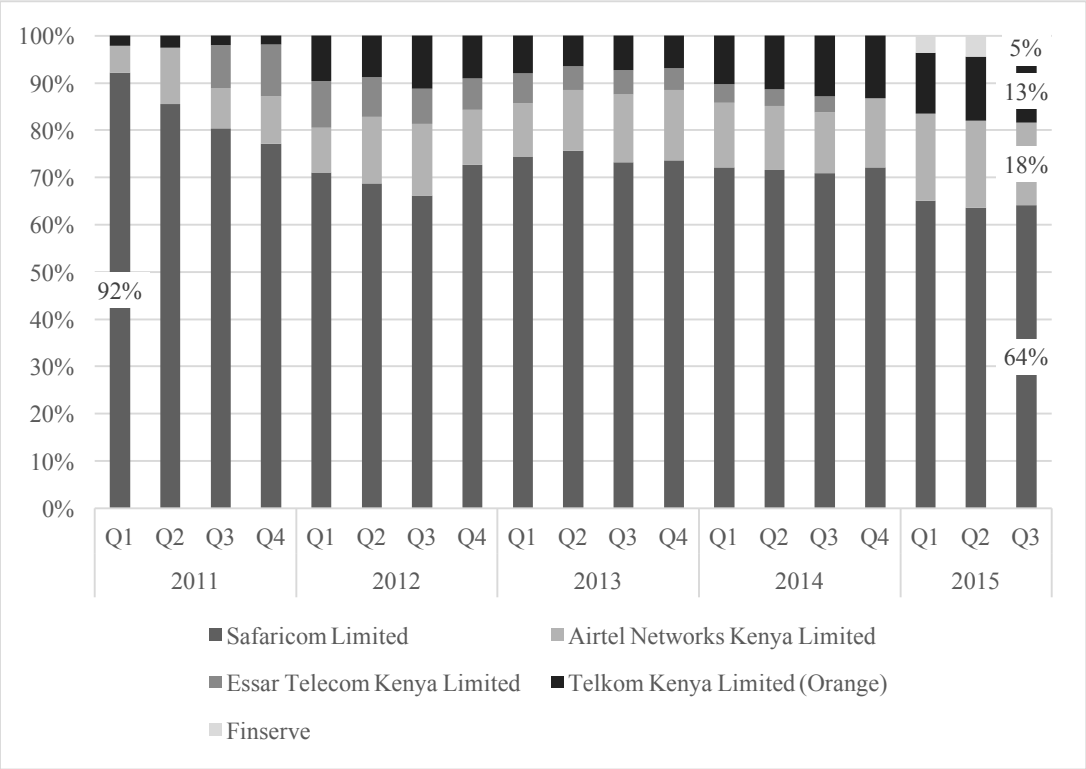


[66] See First Quarter Sector Statistics Report for the financial year ended 2015 / 2016 (July – September 2016), prepared by the Communications Authority. The Communications Authority appears to have changed its definition of broadband subscriber in its Q4 2013 / 2014 sector statistics report, from which point mobile broadband subscribers were reported separately, and the number of broadband subscribers was revised upwards going back to June 2013.

[67] See Safaricom half-year results for financial year 2016, available here.

[68] See GSMA. (2015). 'The mobile economy: Sub-Saharan Africa 2015'. Available here.

Figure 12: Internet subscriber shares, 2011-2015



Source: Analysis of Communications Authority of Kenya data

D.3 Registered banks, microfinance banks and mobile money services providers

D.3.1 Registered banks and microfinance banks

D.3.1.1 Overview

The banking sector in Kenya comprises 43 commercial banks and one mortgage finance company (a total of 44 'banking institutions').[69] Other institutions in the industry include 10 microfinance banks, 8 representative offices of foreign banks, 86 foreign exchange bureaus, 14 money remittance providers, and 2 credit reference bureaus. Of the 44 banking institutions, 30 are locally-owned.[70] Total net assets of the banking sector amounted to Ksh 3.2 trillion in December 2014 (from Ksh 2.7 trillion in 2013), and deposits totalled Ksh 2.29 trillion in December 2014 (from Ksh 1.93 trillion in 2013).[71] The total number of bank branches was 1,443 and the total number of ATMs was 2,613 in December 2014.[72]

[69] Central Bank of Kenya (CBK). (2015). Performance and Developments in the Kenyan Banking Sector for the quarter ended 31st March 2015.

[70] CBK. (2014). 'Bank Supervision Annual Report 2014.'

[71] Source: CBK (2014), cited above.

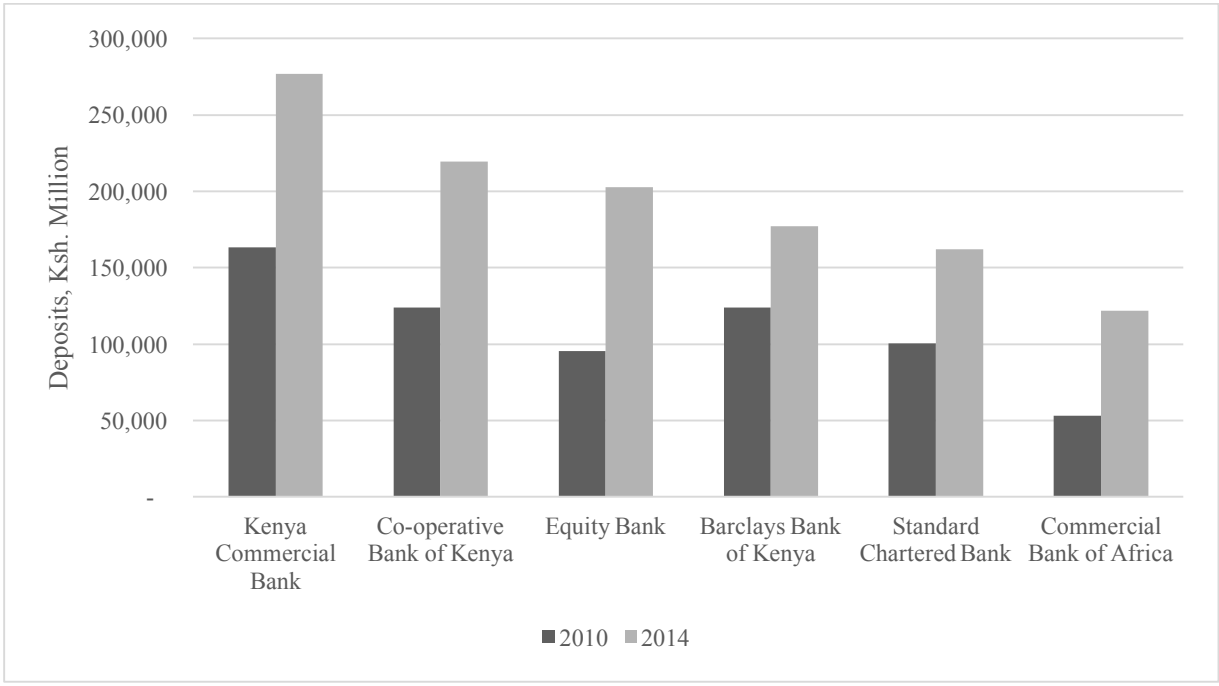
[72] Source: CBK (2014), cited above.

CBK classifies banks into three peer groups (large, medium, small) based on a weighted composite index of key parameters: net assets, customer deposits, capital and reserves, number of deposit accounts, and the number of loan accounts. Of the 43 commercial banks, 6 were classified as large banks in 2014, 21 were classified as small banks, and the remainder 16 banks were medium banks. Based on the index, the 6 large banks accounted for 49.9% of the market (from 52.4% in December 2013), medium banks represented 41.7% (37.95% in December 2013), and small banks held a market share of 8.4% (9.66% in December 2013).[73]

The six largest Kenyan banks in terms of the CBK's index (in order, beginning with the largest) are Kenya Commercial Bank (KCB), Co-operative Bank, Equity Bank, Barclays Bank of Kenya, Standard Chartered Bank, and Commercial Bank of Africa (CBA). These banks are also amongst the highest ranked in terms of net assets and total deposits held (Figure 13).

In addition to traditional banks, there are 12 microfinance banks. The establishment of microfinance banks was made possible in 2008 with the implementation of the Microfinance Act, 2006. The largest microfinance banks are considerably smaller when compared to the banks: the largest microfinance bank, Kenya Women Microfinance Bank, held deposits worth Ksh 17 billion in 2014, compared to the largest bank, KCB, which held Ksh 277 billion in deposits (Figure 14).

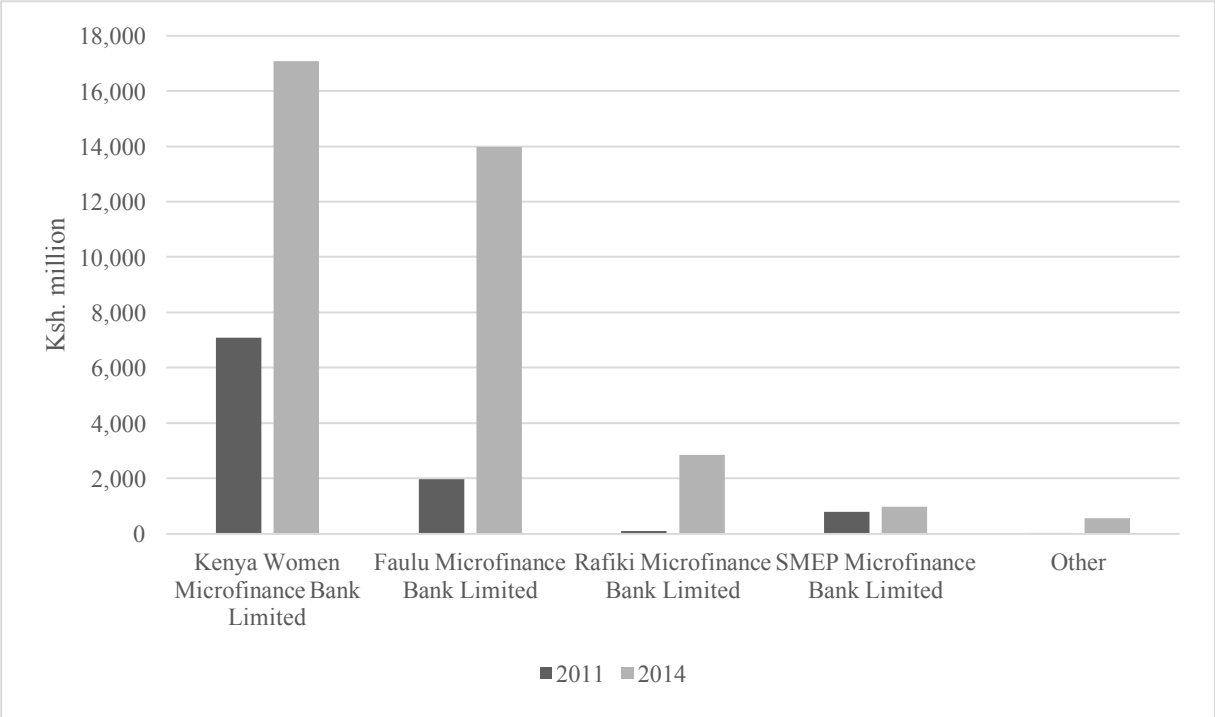
Figure 13: Total deposits of largest banks, 2010 & 2014 (Ksh, Millions)



Source: Analysis of CBK data

[73] Source: CBK (2014), cited above.

Figure 14: Total deposits of largest microfinance banks, 2011 & 2014 (Ksh, Millions)



Source: Analysis of CBK data

Banks fall into different groups in terms of their approach to mobile financial services. First, there are a number who still do not have a mobile banking offering. These include very small and/or niche banks such as Fidelity Bank, Giro Bank, Bank of India and Victoria Bank. We note that they may allow internet banking which means account holders with a smartphone can access their accounts via their mobile phone. The banks may also offer SMS notifications.

The second group of banks are those which have a mobile banking offering, via USSD, organised through an aggregator such as Cellulant. These banks include Barclays, Bank of Africa (Kenya), CfCStanbic, Diamond Trust Bank, Ecobank and I&M Bank.

The third group consists of banks which have agreements with the main MNOs for their mobile banking offerings. These banks include CBA, KCB and Equity Bank. Each of these banks are 'mass-market' banks for whom low cost offerings which are accessible to those who do not have smartphones are a priority. Within this third group, some banks have atypical arrangements with the MNOs, discussed next.

The impact of USSD charges is mainly focused on the third group of banks, which all target the mass market using mobile channels and agents as their primary means of interacting with clients, also discussed next.

D.3.1.2 Savings and loans products supplied by registered banks

There are a variety of savings and loans products available from traditional banks and from non-traditional providers, including through M-Pesa partners (see Box 2), CBA (for the M-Shwari service[74]) and KCB (for the KCB M-Pesa service). The total number of bank accounts

[74] M-Shwari, the most successful savings and loan product in terms of number of customers, was started in 2012 through a partnership between Safaricom and Commercial Bank of Africa (CBA).

has grown considerably over the last five years, from 11.9 million deposit accounts in 2010 to 28.4 million deposit accounts in 2014 (see Figure 15). Note that a considerable number of people in Kenya appear to have more than one bank account. As discussed above, there are approximately 25 million adults in Kenya[75] and approximately 38% of adults used a bank account in 2015 (9.5 million adults).[76] This means that each banked adult in Kenya likely has more than one bank account. This suggests that many people likely use bank accounts provided by different banks in a way that is complementary: they might use an M-Shwari account in a way that is complementary to the use of a traditional bank account at Equity Bank, for example. Indeed, 54% of M-Shwari users surveyed in 2014 also had a bank account aside from M-Shwari.[77]

CBA has the largest number of customer accounts (due to the M-Shwari service), having 9.4 million accounts in December 2014. The next largest banks are Equity Bank, which is largely a traditional bank (8.4 million deposit accounts) and Co-operative Bank, also a traditional bank (2.6 million deposit accounts). KCB is the next largest bank (again, measured by number of accounts), which had a traditional retail banking customer base (2.3 million deposit accounts; this excludes KCB M-Pesa, which was launched in 2015). Each of these banks has a considerably smaller number of loan accounts (Figure 16): Commercial Bank of Africa (1.9 million), Equity Bank (0.9 million), Co-operative Bank (0.4 million) and Kenya Commercial Bank (0.3 million).[78]

The most significant change can be seen in the growth of CBA from 2011 to 2014 in both deposit and loan accounts held. CBA's deposit accounts grew from less than 30,000 accounts in 2011, to 9.4 million accounts by 2014, due to the introduction of M-Shwari in 2012. Safaricom reported in September 2015 that there are 7.1 million active M-Shwari users, and 3.3 million 30-day active customers, which suggests that a significant number of M-Shwari accounts are opened and subsequently not used. [79] KCB M-Pesa was launched in 2015, and therefore KCB M-Pesa accounts are not reflected on and below which reflect 2010 and 2014 CBK data. Safaricom reported 2.7 million active KCB M-Pesa customers, and 1.6 million 30-day active KCB M-Pesa customers in September 2015.[80]

[75] The Kenya National Bureau of Statistics reports in its 2015 'Kenya Facts & Figures' report says that there were 43m people in Kenya in 2014. Available here. Last accessed on 15 August 2015. The United Nations demographic yearbook (2013) reports that 42.9% of the population was aged between 0 and 14 years old. Available here, last accessed on 15 August 2015. 57.1% of 43m people equals 24.5m people.

[76] See FinAccess survey (2016), cited above.

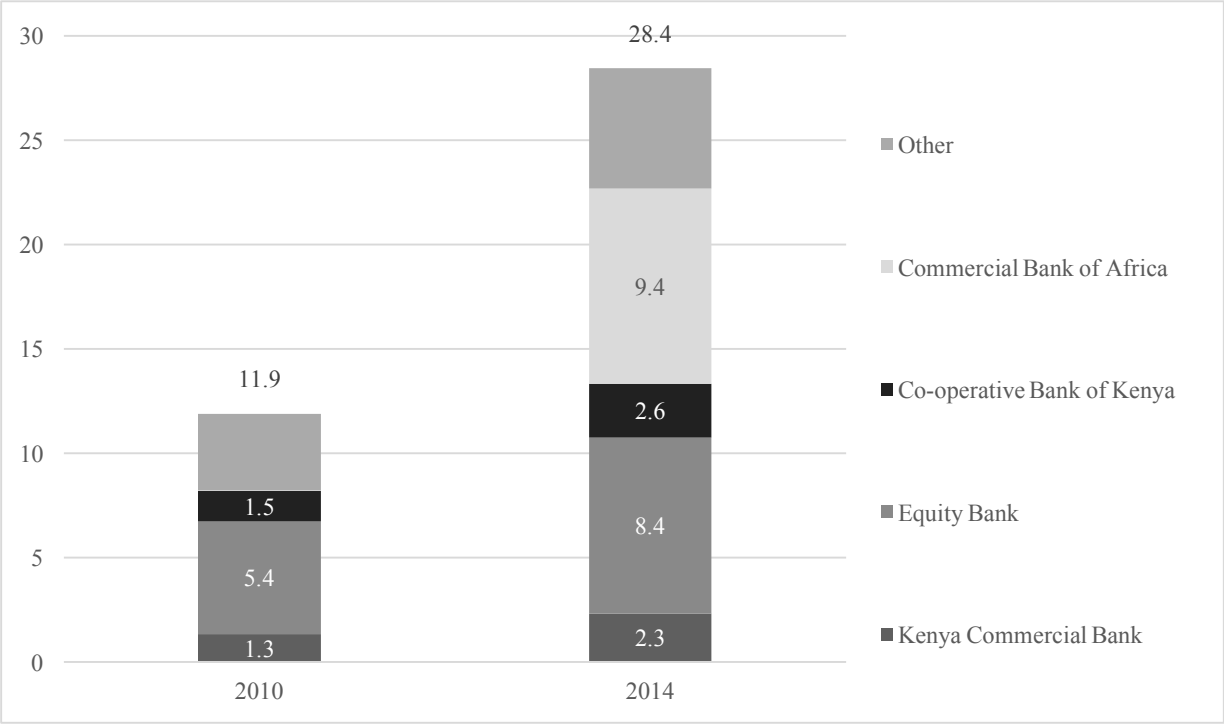
[77] Cook, T. and C. McKay. (2015). 'How M-Shwari Works: The Story So Far'. *Access to finance forum*. No. 10. CGAP and FSD Kenya. Available here.

[78] Source: CBK, 2014.

[79] Source: Safaricom's half year results for financial year 2016, available here.

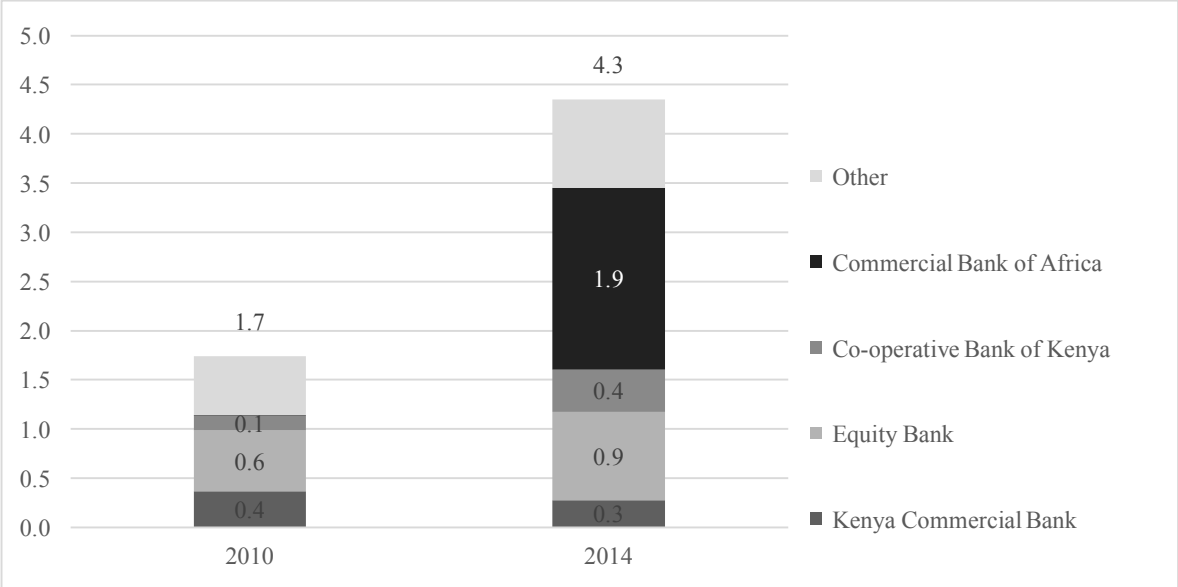
[80] Source: Safaricom's half year results for financial year 2016, cited above.

Figure 15: Total bank deposit accounts in December 2010 & 2014 (Ksh, millions)



Source: Analysis of CBK data

Figure 16: Total number of bank loan accounts, 2010 & 2014 (Ksh, millions)



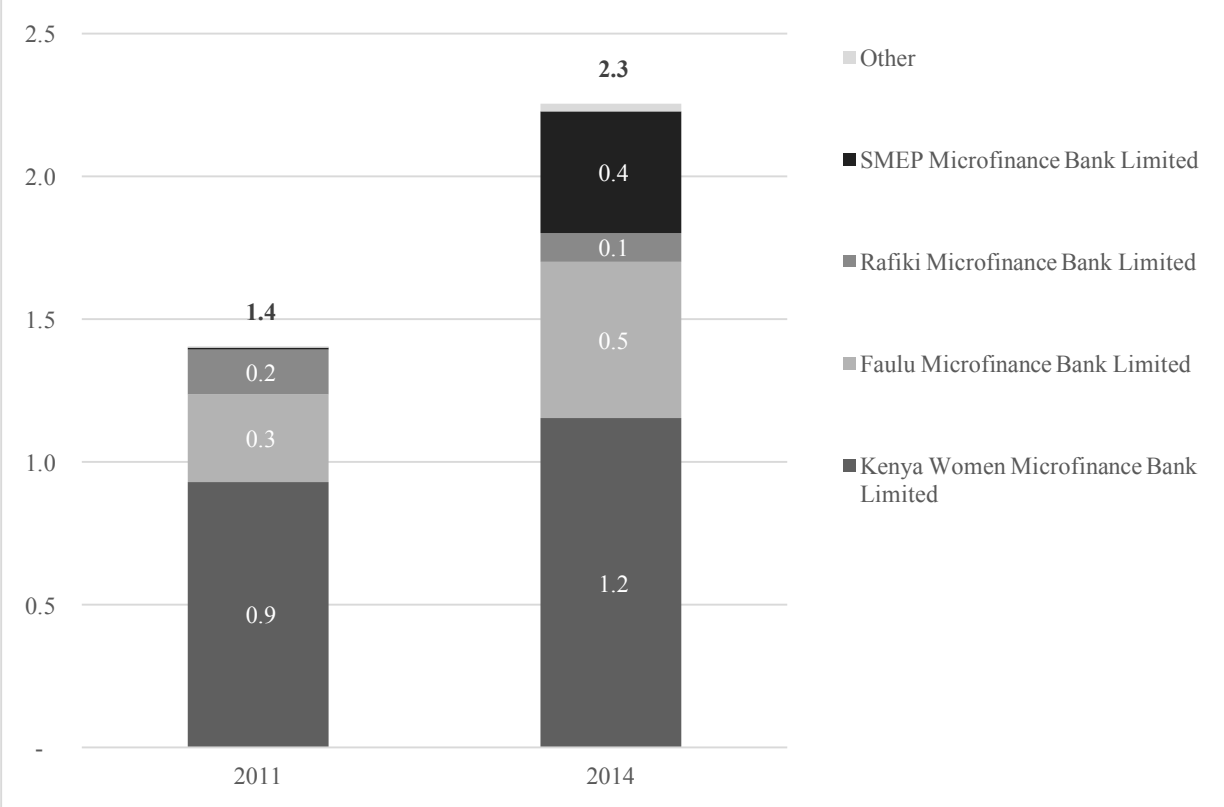
Source: Analysis of CBK data

D.3.1.3 Savings and loans products supplied by microfinance banks

Microfinance banks have also grown the number of deposit accounts, from 1.4 million accounts in 2011 to 2.3 million accounts in 2014 (see Figure 17 below). The Kenya Women Microfinance Bank is the largest microfinance bank by a considerable margin, with 1.2 million deposit accounts in 2014.

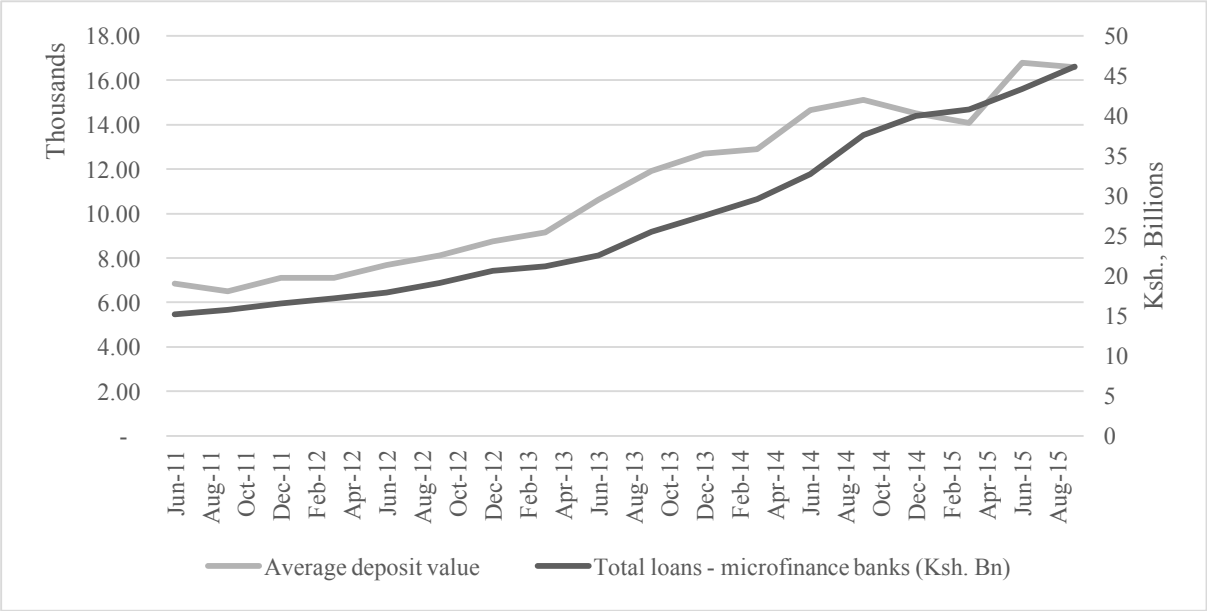
There are fewer loan accounts at microfinance banks (0.4 million in 2015, see Figure 18) than deposit accounts (2.3 million in 2014, see Figure 17 below). While the number of microfinance loan accounts has fallen from approximately 500,000 in 2011 to approximately 415,000 in 2015, the value of those loans increased from approximately Ksh 14 billion to Ksh 46 billion over the same period (see Figure 18).

Figure 17: Total microfinance bank deposit accounts, 2011 & 2014 (Ksh, millions)



Source: Analysis of CBK data

Figure 18: Microfinance bank loan accounts, 2011 - 2015



Source: Analysis of CBK data

D.3.1.4 Mobile bank accounts that are "mobile centric" or are "add-ons" to mobile money services

Mobile banking services that are "mobile centric" (i.e., bank accounts for which mobile is not merely one channel but is the primary means of interacting with the service), such as MCo-op Cash (offered by Co-operative Bank) and Equitel My Money, offer both the mobile money functionality offered by M-Pesa as well as the "add-on" mobile banking functionality that M-Shwari and KCB M-Pesa offer, via one institution. As at December 2014, there were 1.42 million MCo-op Cash account holders, after the service was launched in the third quarter of 2014.[81] In September 2015, after having launched in July 2015, approximately 1.1 million consumers had signed up for the Equitel My Money service.[82]

M-Shwari and KCB M-Pesa are somewhat different from MCo-Op Cash and Equitel My Money, and are also different to other bank accounts at traditional banks, because transactions mainly (and in M-Shwari's case exclusively) take place through a third party mobile wallet (M-Pesa) rather than using bank transaction channels (a brief history is shown in Box 2 below). These mobile bank accounts are therefore "add-ons" to a mobile money service (M-Pesa). M-Shwari customers access the service on the Safaricom M-Pesa menu (using STK, described above in Section C.3.1), and are able to open a savings account and/or take out a loan. All transactions are made via M-Pesa wallets. Customers are able to transfer money between their M-Shwari account and M-Pesa for free, using the same PIN for both services. KCB M-Pesa is a similar service launched in 2015 through a partnership between KCB and Safaricom, though it is currently accessed via USSD. KCB M-Pesa also allows for both savings and loans, and allows for transfers between KCB M-Pesa accounts (subject to a transfer charge).

[81] See Co-operative Bank Annual Report, 2014.

[82] See First Quarter Sector Statistics Report for the financial year ended 2015 / 2016 (July – September 2016), prepared by the Communications Authority.

While the savings and loans products provided by the traditional banks and microfinance banks offer interoperability with other banks through the payments system in Kenya (via the automated clearing house (ACH), real time gross settlement (RTGS) system and interoperable ATM networks, including Kenswitch), M-Shwari and KCB M-Pesa accounts are not directly interoperable with accounts at other banks. In order to withdraw funds from M-Shwari or KCB M-Pesa or make a payment to a merchant or pay a bill, customers must first transfer money to their M-Pesa wallets. M-Shwari customers may only make person to person transfers using their M-Shwari accounts by first transferring money to their M-Pesa wallets. KCB M-Pesa customers may transfer funds to other KCB M-Pesa customers but must otherwise use M-Pesa for person to person transfers. The M-Shwari and KCB M-Pesa accounts are therefore not fully fledged bank accounts in that they do not interact with the rest of the bank payments system (other than via M-Pesa). This is because of restrictive conditions imposed upon these accounts.

Box 2: A very brief history of "add-on" and "mobile centric" savings and loan products

M-Kesho was introduced through an agreement between Equity Bank and Safaricom in 2011. It operates as a 'bolt-on' to M-Pesa, as a banking offering under Equity Bank's licence. The account can be opened at an Equity Bank or Safaricom agent. Charges are split between Safaricom and Equity Bank. The joint venture relationship between Safricom and Equity Bank has broken down, however. Equity Bank claims to be the driver of M-Kesho as Equity had been looking to develop a mobile money solution since 2003, with a cash-in, cash-out functionality similar to M-Pesa. **Equitel My Money**, also an MVNO service, was launched by Equity Bank in July 2015, and had reached 1.1m mobile subscriptions by September 2015. This service is offered to Equity Bank account holders, though anyone may open an account using Equity Bank's *247# USSD code, via any mobile network. An Equity Bank account holder may collect a SIM card from an Equity Bank branch, activate the My Money account (effectively linking their bank account to their Equitel SIM card), and subsequently accesses their bank account via STK on the Equitel SIM.

M-Shwari was introduced by Safaricom in November 2012 through agreement with CBA, whose bank licence underpins the accounts. The service is provided through STK, and has grown very quickly. CBA is primarily a corporate bank along with high net worth individuals. Through M-Shwari its accounts have grown from around 1 million accounts at end 2012 (mainly high net worth individuals) to around 9.4 million accounts in 2014. Of these accounts, 7.1 million were active in September 2015, and 3.3 million were 30-day active. A credit scoring system has been developed based on customers transfer behaviour which allows them to be appraised for the purposes of offering credit to them.

KCB's mobile banking products are **M-Benki**, launched in 2013, and **KCB M-Pesa** launched in March 2015. These services are delivered through USSD. For the KCB M-Pesa product there is no separate USSD charge. [CONFIDENTIAL] KCB M-Pesa was made possible through a strategic partnership with Safaricom, which facilitates the opening of bank accounts and other transactions via its M-Pesa menu. [CONFIDENTIAL] Safaricom reported that there were 2.7 million active KCB M-Pesa customers in September 2015, and 1.3 million 30-day active customers.

MCo-op Cash was launched in Q3 2014 by Co-operative Bank, targeting 10 million co-operative members in Kenya. By December 2014, 1.42m customers had registered for the service. The service offers a mobile wallet, including the ability to make payments and transfer funds across banks, micro-finance institutions and mobile networks. The service also offers a bank account, as well as the ability to apply for loans.

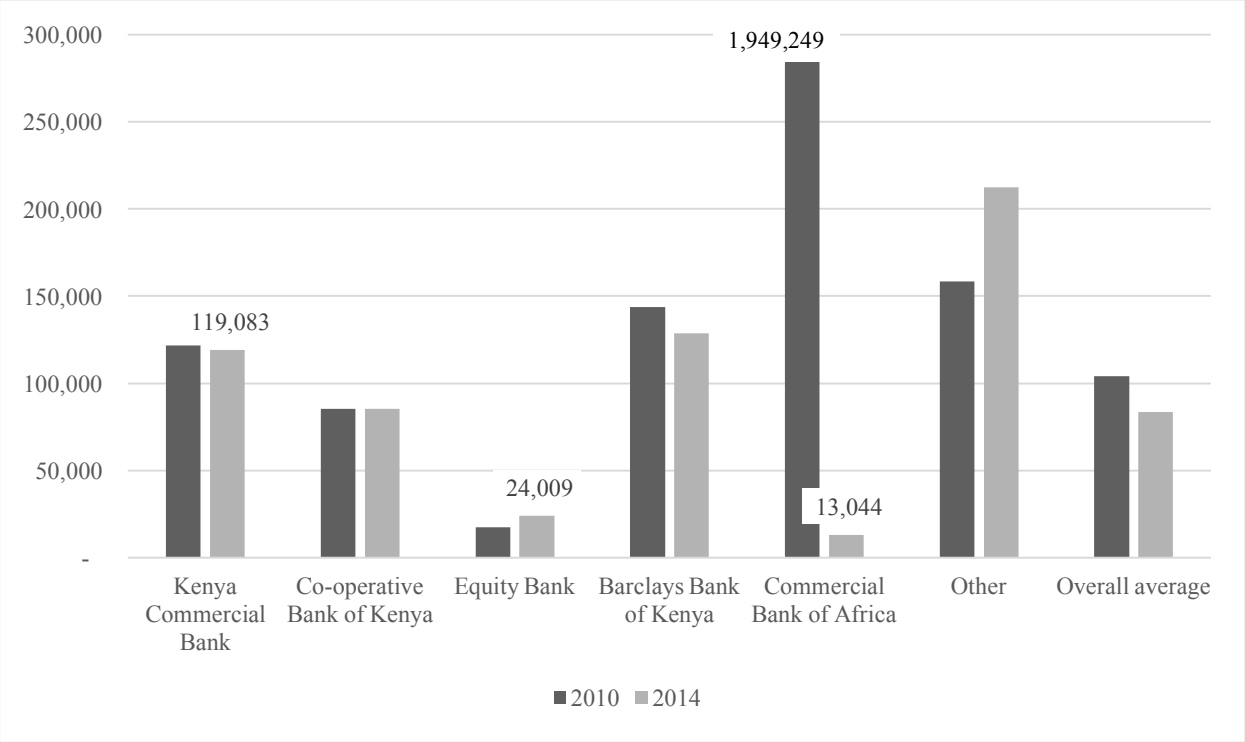
Sources: CBK data, CA data, company annual and half-year results, and stakeholder interviews.

Another important feature of the M-Shwari accounts is that while they account for a considerable proportion of all bank deposit accounts (9.4 million out of 28.4 million in 2014), the average M-Shwari deposit size is now relatively small (Figure 19). CBA's extreme drop in average deposits from 2010 to 2014 shown in Figure 19 is explained by CBA's extremely high growth in number of accounts across which average deposits are calculated. CBA's deposit size today likely includes the sizable deposits that existed before M-Shwari existed at CBA, so that the average deposits across M-Shwari accounts (which will not include those sizable deposits)

are likely even lower than the Ksh 13,044 average shown in Figure 19. Indeed, CGAP reports that M-Shwari's average savings balance for accounts that were active in the last 30 days are Ksh 1,971 (the fixed deposit 'M-Shwari Lock' average balance was Ksh 5,984).[83] This compares to average deposits held in all bank accounts of Ksh 83,727[84], and average deposits held in microfinance bank deposit accounts of Ksh 16,573 in September 2015 (see Table 12 in Section F.1.5 below). M-Shwari deposit sizes are closer to those at microfinance banks (see Figure 20). Average loan sizes for M-Shwari of approximately Ksh 1,280[85] are smaller than average bank loan sizes (Ksh 344,256 in 2014, see Table 12 in Section F.1.5 below) and microfinance bank loan sizes (Ksh 111,000 in September 2015). M-Shwari loans are limited to a minimum of Ksh 100 and a maximum of Ksh 100,000.

To some degree, this suggests that M-Shwari is not targeting the traditional banking sector's main market and rather seeks to add-on to M-Pesa and attract low-income consumers that are currently unbanked. At the same time, more than 50% of M-Shwari customers already have a bank account.[86] This implies that the M-Shwari service is to some degree complementary to existing banking products (partly because of the way it has been interfaced with M-Pesa) and to a degree it is competing with the services of other banks, especially where agency services have been rolled-out.

Figure 19: Average account deposits at banks, 2010 & 2014 (Ksh)



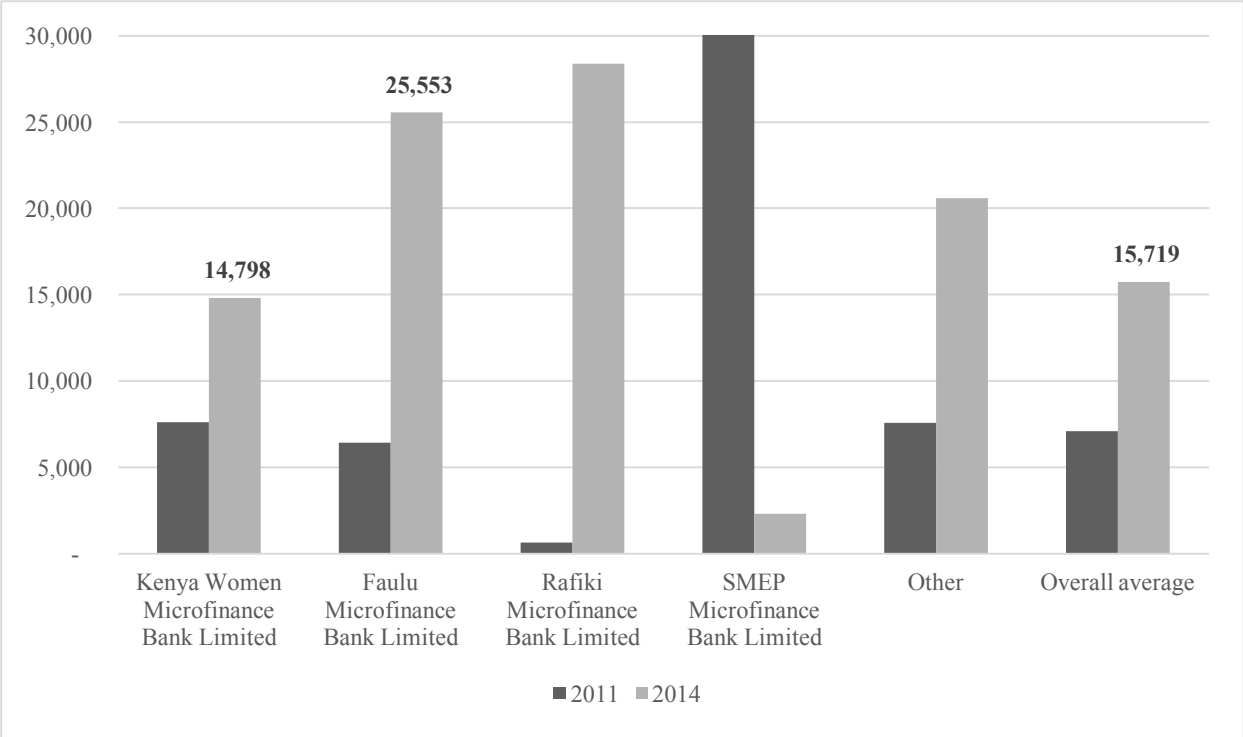
[83] Cook, T. and C. McKay. (2015). 'How M-Shwari Works: The Story So Far'. *Access to finance forum*. No. 10. CGAP and FSD Kenya. Available here.''

[84] KCB's average deposit account value was 119,083 Ksh. per deposit account in 2014 for traditional bank accounts (before KCB-M-Pesa existed).

[85] Calculated from data reported by Cook & McKay (2015), cited above.

[86] Reported by Cook & McKay (2015), cited above.

Figure 20: Average account deposits at microfinance banks, 2010 & 2014 (Ksh)



Source: Analysis of CBK data

D.3.2 Mobile money services providers

Mobile money services, such as M-Pesa, Tangaza Pesa, Mobikash, Airtel Money and Orange Money, initially provided customers with basic MMT services. This has since expanded to a range of other services (including merchant payments and bill payments) described in more detail below in Section F.1.4. Nonetheless, mobile money services serve different needs to traditional bank accounts. Approximately 50% of people that use a mobile money service in Kenya also have a bank account.[87]

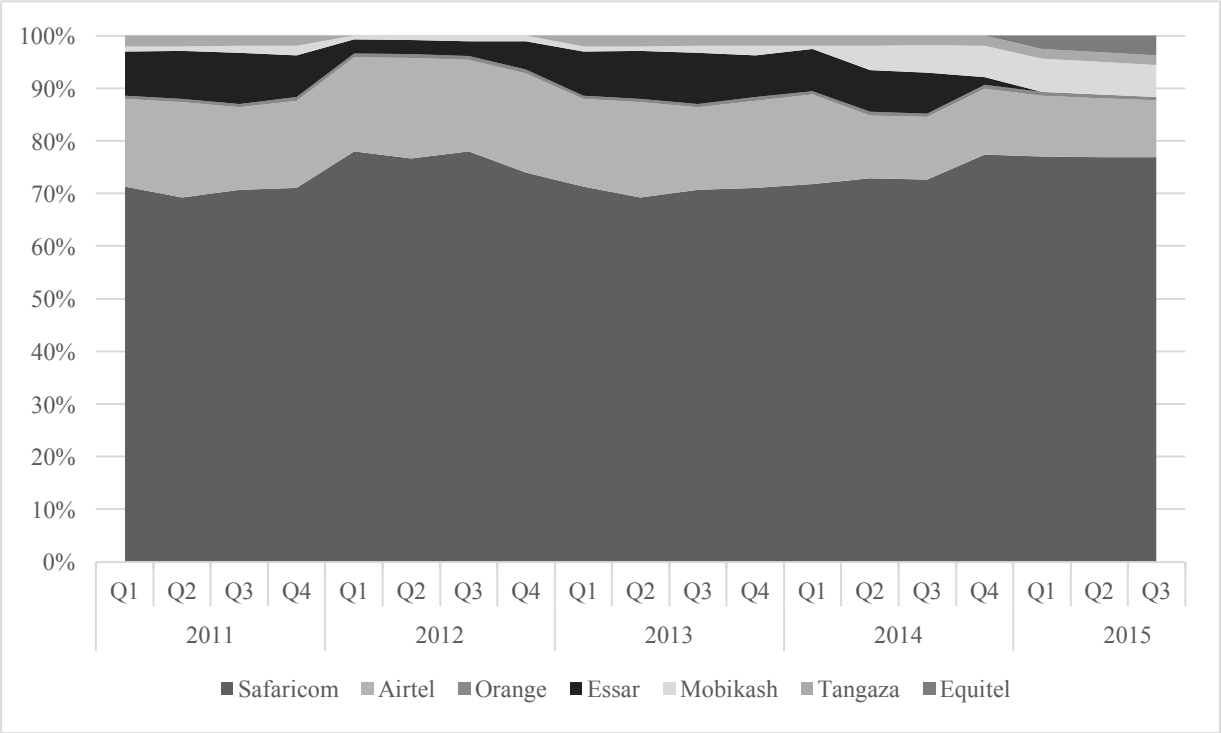
Six mobile money services providers provide statistics to CA on their mobile money services, including the three mobile network operators (Safaricom, Airtel and Orange), a dedicated mobile money services provider (Mobikash) and two mobile virtual network operators (Equity Bank (Finserve, branded as Equitel) and Tangaza Pesa). Equity Bank is also a registered bank.

Safaricom provides services to almost 80% of all mobile money subscribers (Figure 21), and has signed up almost 70% of all agents (Figure 22). While rival networks Airtel, Orange and Mobikash are growing their market shares in respect of number of agents, Safaricom's market share in respect of number of subscribers appears to be (gradually) increasing. Furthermore, Safaricom's market share measured in terms of deposits into mobile money accounts shows that Safaricom serves almost 100% of the market (Figure 23). This is corroborated by 99% of active mobile money account users reporting using Safaricom M-Pesa in 2014, measured by Intermedia's Financial Inclusion Insights Kenya.[88]

[87] See Intermedia (2015), cited above.

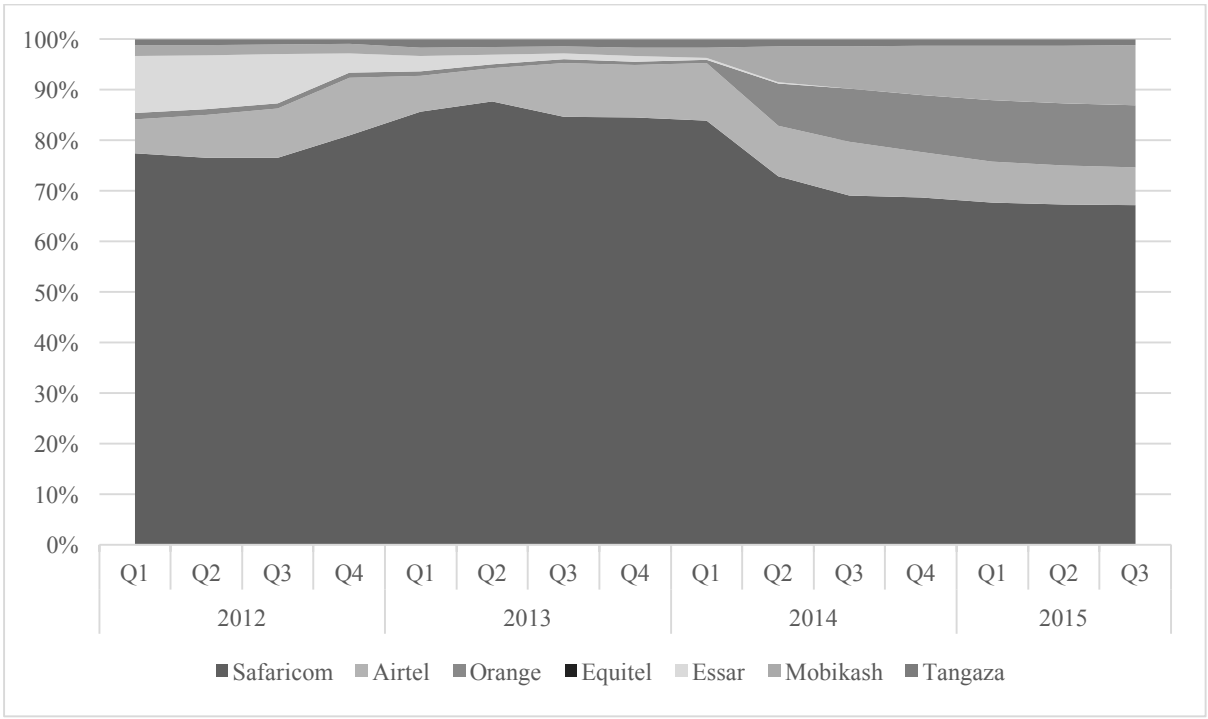
[88] 'Active' means accounts used within the previous 90 days. See Intermedia (2015), cited above.

Figure 21: Mobile money services subscriber market shares (%)



Source: Analysis of Communications Authority of Kenya information

Figure 22: Mobile money agent market shares (%)



Source: Analysis of Communications Authority of Kenya information

Figure 23: [CONFIDENTIAL]

M-Pesa users in Kenya make on average 6.72 chargeable transactions per month.[89] Money transfers account for the bulk of the value of these transactions (see Figure 24). In fact, two thirds of the value of real time payments relate to person-to-person payments (see Figure 25).[90] The bulk of funds deposited are subsequently transferred and then withdrawn, as reflected in the Financial Inclusion Insights survey on usage of mobile money services (in 2014, see Table 7 below), which noted that "[person-to-person] transfers are the typical impetus for opening an account; once opened, it's commonly used for deposits and withdrawals."[91]

Other uses of funds deposited, such as airtime purchases, deposits into M-Shwari accounts, active merchants and merchant payments via Lipa na M-Pesa, are growing. As a proportion of total value transacted on the M-Pesa platform, transactions other than deposits, transfers and withdrawals, grew from 5% in 2011 to 18% in 2015, having grown at 78% per annum over the last four years, compared to 23% growth per annum for person to person transfers.[92] This is supported by growth in the number of Lipa na M-Pesa agents: as at March 2015, there were 49,413 active Lipa na M-Pesa merchants accepting payments, an increase from 24,400 active merchants in the previous year.[93] Nonetheless, while Lipa na M-Pesa is growing quickly, it accounted for only Ksh 15 billion in transaction value per month in September 2015, compared to Ksh 107 billion in person to person average monthly transfers in the six months to September 2015.

This also reflects global usage of mobile money: 73% of mobile money transactions globally were for person to person transfers.[94] This suggests that money transfers, mostly withdrawn in cash, continue to account for the bulk of the value of M-Pesa transactions in Kenya.

[89] Source: Safaricom's half year results for financial year 2016, available here.

[90] Total real time payments (Ksh. 160.2bn, monthly or Ksh 1,922, annually), reported on Figure 25 roughly corresponds to 'person to person' and 'other' value transacted across the M-Pesa platform (Ksh. 2,170, HY FY 16 annualised), reported on Figure 24.

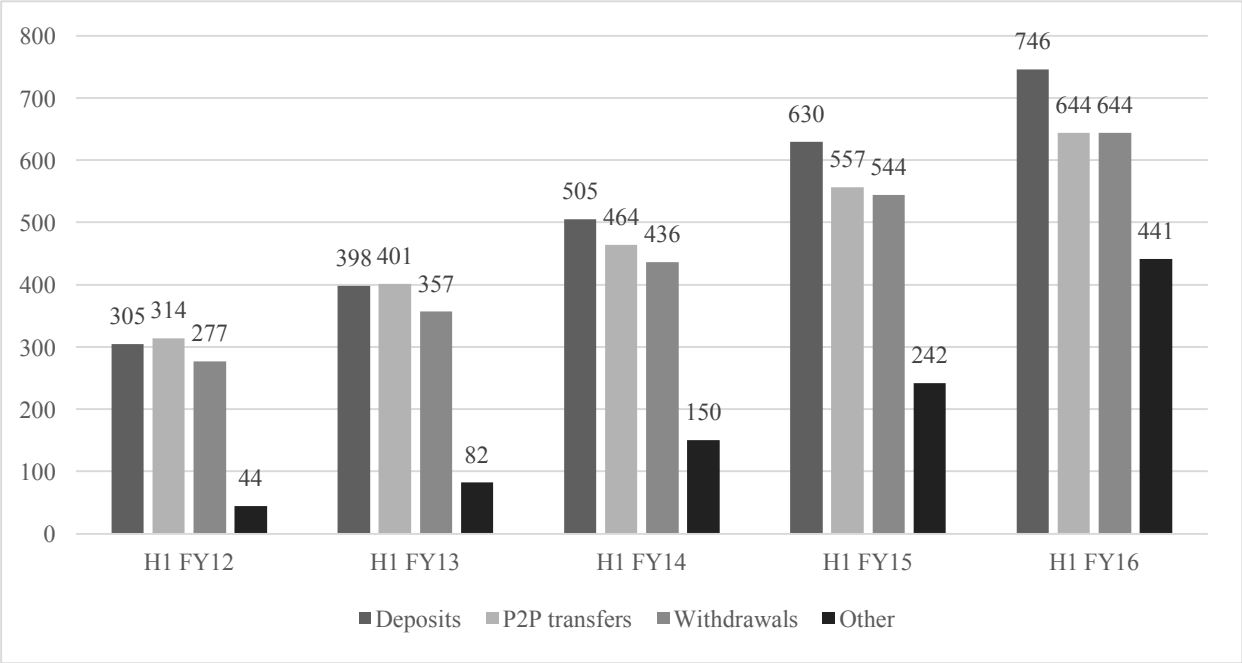
[91] See Intermedia (2015), cited above.

[92] See Aron, J. (2015). ''Leapfrogging': a Survey of the Nature and Economic Implications of Mobile Money.' Available here.

[93] See Safaricom Annual Reports, 2014 & 2015, available here. We note that Safaricom confusingly reported in its half year results for financial year 2016 (available here) 'Lipa na M-PESA merchants now at 36k.' This still represents significant growth over FY 2014.

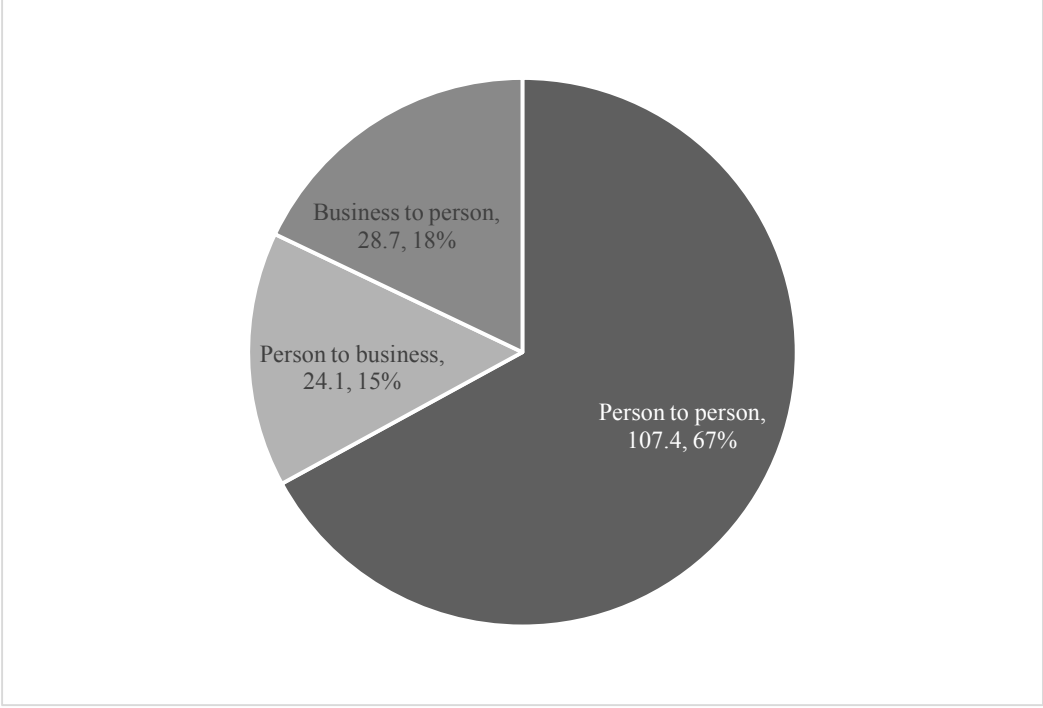
[94] See GSMA. (2014). 'State of the industry: Mobile financial services for the unbanked'. Available here. See Figure 9 on p. 33.

Figure 24: Safaricom M-Pesa transaction statistics (2012-2016, Ksh, billion)



Source: Safaricom half-year results, FY 2016, available here.

Figure 25: Safaricom M-Pesa transaction statistics by payer and recipient (2015, Ksh, billion)



Source: Safaricom half-year results, FY 2016, available here.

Table 7: Top reasons for opening and using a mobile money account

Rank	Top reasons for opening an MM account (percentage of active account holders n=1,859)	%	Rank	Top uses for MM accounts (percentage of active account holders n=1,859)	%
1	I had to receive money from another person	42	1	Deposit money	90
2	I had to send money to another person	21	2	Withdraw money	87
3	I wanted a safe place to keep/store our money	8	3	Buy airtime top-ups	68
4	I wanted to start saving money with a mobile money account	6	4	Receive money from other people for regular support/allowances, or emergencies	54
5	A person I know tried it and recommended it to me	3	5	Receive money from other people for other reasons or no particular reason	43
6	Most of my friends/family members are already using the services	2	6	Send money to other people for other reasons or no particular reason	38

Source: Intermedia (2015), cited above.

Several commentators have noted that charges for M-Pesa in Kenya are high compared to M-Pesa charges in Tanzania, where markets for mobile services are more competitive.[95] One such comparison,[96] of transfer charges, is reproduced on Table 8 below. Charges in Kenya are significantly higher than charges in Tanzania for almost all transfer values, and are more than double the charge in Tanzania for several transfer values. International price comparisons should be treated with caution since there may be differences in costs, and associated costs may also change the result. For example, Table 8 does not include charges for cash-in or cash-out, which are also costs often incurred in relation to a transfer, as many people will cash-out funds received. Nevertheless, institutional settings and features of demand that account for differences in prices between countries, high prices for mobile money services in Kenya are likely a reflection of Safaricom's market power in respect of mobile money services.

Table 8: M-Pesa transfer charges in Kenya and Tanzania (USD)

Transfer amount (USD)	*Safaricom's M-PESA Fees (Kenya)*	*Vodacom's M-PESA Fees (Tanzania)*
0.5	0.01	0.01
1	0.03	0.02
5	0.12	0.06
10	0.16	0.15
20	0.42	0.18
50	0.64	0.30
100	0.90	0.33

Source: Sitbon, 2015, cited above.

[95] See for example: Sitbon, E. (2015). 'Addressing competition bottlenecks in digital financial ecosystems'. *Journal of Payments Strategy & Systems*. Vol (9) No (3). Available here. See also: Robb, G. & Vilakazi, T. (2015). 'Mobile payments markets in Kenya, Tanzania and Zimbabwe: a comparative study of contestability and outcomes'. *Centre for Competition, Regulation and Economics Development Working Paper 8/2015.* Available here.

[96] Sitbon, E. (2015).

E. LEGAL AND REGULATORY OVERVIEW

In this section, we provide an introductory overview of Kenya's legal and regulatory framework applicable to the market for USSD services and mobile financial services relevant to this market inquiry, and comment on the general sufficiency of the regulatory framework.

After defining relevant markets and assessing dominance in Section F and examining competition problems and market conduct in Section G, we return in Section H.3 to consider potential improvements to the regulatory framework and regulatory interventions that might be usefully made under it.

E.1 The legal and regulatory frameworks

There are three primary legal and regulatory frameworks that impact the provision of mobile financial services and are relevant to this market inquiry: competition, telecommunications and financial services.

E.1.1 The competition framework

The competition framework relevant to this market inquiry is governed by the Competition Act. The Competition Act establishes CAK as the independent regulator of competition in Kenya. Section 5 of the Competition Act establishes the primary authority of CAK over competition matters, but includes mechanisms for cooperation with sector regulators that may also regulate competition within a sector.

E.1.2 The telecommunications framework

The telecommunications framework relevant to this market inquiry is governed by

(1) the Kenya Information and Communications Act, as amended through 2015 (the IC Act)[97];

(2) numerous overlapping regulations issued by the Ministry of Information Communications and Technology (MICT); and

(3) guidelines, rulings and determinations of the Communications Authority (CA), the independent regulator of the telecommunications sector.

In addition, draft regulations are under review by MICT and have been made available for public consultation. The telecommunications framework covers competition, licensing, issuance of short codes, interconnection, consumer protection and many other topics which are not relevant to this market inquiry.

E.1.3 The financial services framework

The financial services framework relevant to this market inquiry is governed by

(1) the Constitution of Kenya, 2010 (the Constitution);

[97] For purposes of this market inquiry, we refer to the Kenya Information and Communications Act, Revised Edition 2011 (2010), as amended by (1) the Kenya Information and Communications (Amendment) Act, 2013 and (2) the Statute Law (Miscellaneous Amendments) Act, 2015. To our knowledge, no consolidated version of the IC Act incorporating either set of amendments is available.

(2) the Central Bank of Kenya Act, Laws of Kenya, Chapter 491 (the CBK Act);

(3) the Banking Act, Laws of Kenya, Chapter 488, as amended through 2014 (the Banking Act);

(4) the National Payment Systems Act, Laws of Kenya, No. 39 of 2011 (the NPS Act);

(5) the National Payment Systems Regulations, 2014 (the NPS Regulations), issued under the NPS Act; and

(6) Prudential Guidelines, January 2013, Guideline on Consumer Protection.

The Constitution and the CBK Act establish an independent Central Bank of Kenya (CBK) that, among other things, regulates and supervises payment systems in Kenya. The CBK does not consider itself as a regulator of competition in the financial services sector and does not regulate prices. Rather, its regulatory focus is primarily on ensuring stability in the financial sector along with some consumer protection functions.[98]

E.1.4 Other sources

In addition to the formal legal and regulatory frameworks established under laws of Kenya, there are other informal sources.

E.1.4.1 GSMA Code of Conduct

In November 2014, 11 members of the GSM Association (GSMA), an association of MNOs, launched a Code of Conduct for Mobile Money Providers (GSMA Code of Conduct) which was endorsed by MNO groups Airtel, Orange and Vodafone, among others.[99] Since then, the GSMA Code of Conduct has been endorsed by four individual mobile money operators, including Safaricom of Kenya.[100]

E.2 Market entry: licensing and short codes

The primary regulatory controls on entry into the various parts of the mobile financial services business include:

- *Telecommunications infrastructure and services:* requirement of a telecommunications licence under the telecommunications framework to operate and provide network platforms such as USSD, STK, SMS and the Internet that are used to provide mobile financial services;
- *Short codes:* in the case of USSD and SMS, requirement of short codes under the telecommunications framework; and

[98] Interview with the Central Bank of Kenya, 24 June 2015.

[99] See: http://www.gsma.com/mobilefordevelopment/gsmas-code-of-conduct-for-mobile-money-providers-where-are-we-today The GSMA Code of Conduct was revised in October of 2015.

[100] See: http://www.gsma.com/mobilefordevelopment/gsmas-code-of-conduct-for-mobile-money-providers-where-are-we-today

- *Mobile financial services:* requirement of a banking licence (in the case of a bank) or an authorisation (in the case of a payment services provider) under the financial services framework as well as a Content Service Provider license under the telecommunications framework.

E.2.1 Telecommunications licensing

There are three categories of telecommunications licensee relevant to this market inquiry[101]:

- Network Facilities Provider, which includes operators of communications infrastructure such as USSD, STK, SMS and Internet. There are only three MNOs in Kenya (Safaricom, Airtel and Orange), each of which is a Network Facilities Provider.
- Application Service Provider, which includes MVNOs and other service providers (e.g., Equitel and Tangaza) that offer telecommunications services utilising the services of a Network Facilities Provider.
- Content Service Provider, which includes providers of content and information services, including payment service providers and banks utilizing USSD or SMS.

In none of these cases does there appear to be an unusual barrier to entry that would restrict competition. In the case of the Network Facilities Provider licences, the limited number of such licences reflects the capital intensive nature of telecommunications networks and the consolidation of Kenya's telecommunications sector rather than a particular policy of restricting entry (we discuss this economic reality in Section G.1). Eligibility for Applications and Content Service Provider licences are not cited as barriers to entry.

E.2.2 Assignment of short codes

In addition to these licences, USSD and SMS use short codes to connect customers to mobile financial services providers. As described in section 10.1 of the Procedures and Guidelines for the Management of Telecommunications Short Codes and Premium Rate Numbers in Kenya, 2012 (Short Code Guidelines), such numbering resources are "a valuable scarce national resource, finite in size." While CA assigns short codes to licensees, nothing in the telecommunications framework establishes the short codes as a form of property, or indicates that licensees "own" or acquire property rights in such codes. The short code is an administrative permission: what is actually assigned is the right to use the short codes, subject to certain conditions.

The assignment of a short code to a Content Service Provider is a two-step process. The CA initially assigns short codes to Network and Facility Providers and Application Service Providers (i.e., a 'primary assignment'). Content Service Providers may, in turn, be assigned short codes from Network Facilities Providers and Application Service Providers (i.e., a 'secondary assignment'). Under section 11.9 of the Short Code Guidelines, secondary assignments must adhere to principles of fairness, transparency and non-discrimination.

[101] See: http://www.ca.go.ke/index.php/telecommunication

Section 3 of the Short Code Guidelines indicate that this two-step process is undertaken "for the convenience of quick industry operations, partly because most of these codes are technically network specific codes and also because they are not based on the international ITU-T E.164 standard." However, there have been suggestions[102] that this process exposes the Content Service Providers to potential abuse. A recent CGAP report[103] reported:

> One aggregator active in [Kenya and Tanzania] noted that it finds negotiations [for USSD access] to be more challenging in Kenya than Tanzania since it has less leverage with providers because they do not already have a code when they go to MNOs to request access. While USSD code access was not mentioned as an issue by any providers in Tanzania, in Kenya the issue was raised by several third-party providers as a barrier to access. This may mean that having MNOs issue the codes directly could be a subtle, but significant, impediment to fair access.

However, none of the banks or payment service providers who utilize USSD or the aggregators that we interviewed identified this two-step assignment process as creating a barrier to USSD access. Indeed, they indicated that secondary assignments were easy to obtain and were reasonably priced.

E.2.3 Financial services licensing

The MNOs and MVNOs that provide the technological platforms (USSD, STK, SMS, Internet) for mobile financial services do not require any licence or authorisation under the financial services framework for providing those platforms. However, the providers of mobile financial services that use these platforms (including MNOs and MVNOs like Safaricom and Equitel, respectively, that use their own platforms to provide mobile financial services) require either a licence or an authorisation for the provision of those services.

Banks that provide mobile banking services must be licensed as banks under the Banking Act.

Mobile financial services providers that provide mobile money services are not considered to be banks and are not subject to the provisions of the Banking Act. Rather, they are considered "payment service providers" under the NPS Act. Section 12 of the NPS Act and section 4 of the NPS Regulations requires all payment service providers to be authorised by CBK. The NPS Regulations recognize "mobile payment service providers," a subset of payment service providers, which must be licensed as Content Service Providers under the telecommunications framework.

None of these licences or authorisations have been cited as onerous barriers to entry into mobile financial services markets. Indeed, Kenya's "light touch" approach to market entry on the basis of no objection letters, now replaced by the mobile payment service provider authorisations, is well recognised for having facilitated the growth of mobile money services.

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[102] The terms of reference included in the request for proposals from potential consultants to undertake this market inquiry, identified this two-step assignment process as a potential root of high USSD prices: "USSD services use MNO infrastructure, network and capacity and consequently MNOs typically charge fees to other service providers for access to and usage of their USSD services. In some jurisdictions, for example Tanzania, MNOs, third-party providers of value added services (VAS) and users such as banks apply directly to the regulatory authorities for allocation of USSD codes. In such cases, small players and non-telco users are on almost equal ground when it comes to acquiring licences to operate USSD based services. However in Kenya, as in some other jurisdictions, although the regulatory authority licences the provision of USSD services, it is the MNOs which issue the codes and determine pricing on a bilateral basis with providers wishing to use the USSD channel."

[103] Mazer, Rafe and Rowan, P. (2015) at 9.

E.3 Regulation of competition

For purposes of this inquiry, our discussion of the regulation of competition focuses on:

(1) general authority to regulate competition;
(2) defining markets;
(3) determining dominance;
(4) *ex ante* regulatory obligations for dominant market participants;
(5) abuse of dominance; and
(6) regulatory powers of investigation.

E.3.1 General authority to regulate competition

E.3.1.1 Competition framework

The Competition Act addresses anticompetitive behaviour, mergers and other competition related matters. CAK has various powers under the Competition Act to promote competition, including investigatory and merger control powers. The scope of these powers is not restricted by economic sector or whether a sector regulator already has competition powers. CAK's competition powers cover all businesses that engage in trade. Its competition powers under the Competition Act thus extend to all aspects of mobile financial services, including competition among MNOs and MVNOs for the provision of the technological platforms (USSD, STK, SMS) that make mobile financial services possible, as well as competition among mobile financial services providers.

E.3.1.2 Telecommunications framework

Section 84R of the IC Act grants CA a mandate to "ensure there is fair competition in the [telecommunications] sector" and "promote, develop and enforce fair competition and equality of treatment among [telecommunications] licensees." Section 5 of the Kenya Communications Regulations, 2001 (the 2001 Regulations) similarly states that CA shall "promote, develop and enforce fair competition and equality of treatment among all licensees in any business or service relating to communications." Finally, section 4 of the Kenya Information and Communications (Fair Competition and Equality of Treatment) Regulations, 2010 (the Competition Regulations) reaffirms CA's mandate to regulate competition matters, stating that CA has "the power to determine, pronounce upon, administer and enforce compliance of all its licensees with competition laws and regulations, that it [sic] relate to commercial activities in the communications sector."

This authority to regulate competition covers the licensed MNOs and MVNOs that provide the technological platforms (USSD, STK, SMS) that make mobile financial services possible. It also covers competition among mobile financial services providers that utilize these platforms because these providers must be licensed by CA as Content Service Providers. Mobile financial service providers that exclusively use mobile internet (i.e., where the internet traffic and access is operated by others) to deliver their services do not require such a license and would not fall under this authority.

E.3.1.3 Financial services framework

CBK does not have a statutory mandate to regulate competition in the telecommunications sector. Also, as mentioned in Section E.1.3, CBK does not consider itself as a regulator of competition in the financial services sector and does not believe it has the authority to regulate prices. Nevertheless, its ability to impose requirements such as interoperability of accounts in mobile financial services makes it an important actor for competition purposes.

E.3.1.4 Concurrency and coordination

CA has various *ex ante* and *ex post* regulatory powers and CAK has various *ex post* powers. CAK's authority extends under section 5 of the Competition Act to competition among all businesses that engage in trade, which will include all aspects of mobile financial services. CA's authority is limited to regulating competition within the communications sector.[104] Its authority to regulate competition encompasses licensed MNOs and MVNOs that provide USSD, STK and SMS and licensed Content Service Providers that offer mobile financial services utilizing these technological platforms.

Overlap between these agencies' powers may result in conflicting positions, section 5(2) of the Competition Act provides:

> Where there is a conflict between the provisions of [the Competition Act] and the provisions of any other written law with regard to matters concerning competition, consumer welfare and the powers or functions of [CAK] under [the Competition Act], the provisions of [the Competition Act] shall prevail.

Even with such a provision, the potential for concurrent jurisdiction to lead to confusion, discord, gaps and simple inaction is high. Thus both the competition and telecommunications framework require coordination between CA and CAK. Section 5(3) of the Competition Act sets out mechanisms for cooperation between regulatory authorities.[105] Similarly, under the IC Act, section 4(2) of the Competition Regulations similarly requires CA to cooperate with other agencies with concurrent jurisdiction over competition maters.

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[104] Section 84R of the IC Act grants CA a mandate to "ensure there is fair competition in the [telecommunications] sector" and "promote, develop and enforce fair competition and equality of treatment among [telecommunications] licensees." Section 5 of the 2001 Regulations similarly states that CA shall "promote, develop and enforce fair competition and equality of treatment among all licensees in any business or service relating to communications." Finally, section 4 of the Competition Regulations reaffirms CA's mandate to regulate competition matters, stating that CA has "the power to determine, pronounce upon, administer and enforce compliance of all its licensees with competition laws and regulations, that it relate to commercial activities in the communications sector."

[105] Section 5(3) of the Competition Act provides:

> If a body charged with public regulation has jurisdiction in respect of any conduct regulated in terms of [the Competition Act] within a particular sector, [CAK] and that body shall—
>
> (a) identify and establish procedures for management of areas of concurrent jurisdiction;
>
> (b) promote co-operation;
>
> (c) provide for the exchange of information and protection of confidential information; and
>
> (d) ensure consistent application of the principles of [the Competition Act]:
>
> Provided that in all matters concerning competition and consumer welfare, if there is any conflict, disharmony or inconsistency, the determinations, directives, regulations, rules, orders and decisions of [CAK] shall prevail.

CA and CAK entered into a Memorandum of Understanding in May 2015 regarding such cooperation. Such cooperation is essential in regulating the markets for mobile financial services. The application of and interaction between *ex ante* and *ex post* remedies and investigatory powers of the two authorities needs to be coordinated. Under recent amendments to the IC Act, CA is required to consult with CAK before declaring a licensee a dominant telecommunications service provider which may have *ex ante* regulatory consequences. Coordination prevents duplicative and potentially conflicting action by the two regulators. As discussed below, both regulators have broad powers to investigate and impose remedies after finding an abuse of dominance. For these remedies to be collectively sensible and effective, communication and coordination is necessary.

E.3.2 Defining relevant markets

Both the competition and telecommunications frameworks provide guidance on defining markets and determining dominance, focusing on possibilities for substitution in supply or demand in geographic and product markets.

E.3.2.1 Competition framework

Under section 4(1)(c) of the Competition Act, a "market" means:

> a market in Kenya or a substantial part of Kenya and refers to the range of reasonable possibilities for substitution in supply or demand between particular kinds of goods or services and between suppliers or acquirers, or potential suppliers or acquirers of those goods or services.

E.3.2.2 Telecommunications framework

Some of the relevant markets involved in this inquiry are markets in telecommunications services, in particular mobile telecommunications services and USSD and STK access services, as discussed below in Sections F.1.2 and F.1.3 respectively. To the extent that markets may be assessed for the purposes of analysis under and application of the IC Act, then, it is necessary to consider the regulations adopted under it. Under the IC Act, "market" is defined in section 2 exactly as it is in the Competition Act. Section 6 of the Competition Regulations introduced under the IC Act states that CA may, when evaluating or designating a relevant market, consider:

(a) the communications products that makeup [sic] a specific market

(b) the geographic scope of that market for a given group of consumers;

(c) the demand-side substitutability in order to measure the extent to which consumers are prepared or able to substitute other communications products or services for the communications products or services subject to consideration at low cost;

(d) supply-side substitutability to determine the extent to which suppliers are able to supply other communications products or services in place of the communications products or services subject to consideration at low cost;

(e) any other factor or issues which is in the opinion of [CA] relevant.

The considerations relevant to defining a market under the IC Act's Competition Regulations above are broadly consistent with the definition of a market in section 4(1)(c) of the

Competition Act. Both focus on the core question of substitutability and acknowledge the possibility that different geographic parts of Kenya may be relevant. We do not consider it necessary or useful for the purposes of this inquiry to consider further whether there are nuances of interpretation under the Competition Act and the IC Act and its Competition Regulations that would lead to different results in some circumstances.

E.3.3 Determining dominance

E.3.3.1 Competition framework

A person or undertaking has a dominant position under sections 4(3) and 23(1) of the Competition Act[106] if it (emphasis added):

(a) produces, supplies, distributes or otherwise ***controls not less than one-half of the total goods*** of any description which are produced, supplied or distributed in Kenya or any substantial part thereof; or

(b) provides or otherwise ***controls not less than one-half of the services*** which are rendered in Kenya or any substantial part thereof.

Section 23(2) (added as part of the Finance Act, 2014) adds that an undertaking will be "deemed dominant" where the undertaking:

(a) though not dominant, controls at least forty per cent but not more than fifty per cent of the market share unless it can show that it does not have market power; or

(b) controls less than forty per cent of the market but has market power.

"Market power" is defined in section 2 as "the power of a firm to control prices, to exclude competition or to behave to an appreciable extent, independently of its competitors, customers or suppliers."

Section 4(2) states that the following should be taken into account when assessing effects on competition and determining whether a person has a dominant position in a market:

(a) the importation of goods or the supply of services by persons not resident or carrying on business in Kenya; and

(b) the economic circumstances of the relevant market including the market shares of persons supplying or acquiring goods or services in the market, the ability of those persons to expand their market shares and the potential for new entry into the market.

The definition of market power reflects common international, particularly European, usage. The use of bright line percentage tests for dominance in section 23 of the Competition Act has certain drawbacks, including shifting a great burden to the definition of relevant markets and vulnerability to manipulation, as well as a somewhat arbitrary result where a firm shifts percentage brackets. However, for the purposes of this inquiry, as will be seen in Section F, it

[106] Dominant position is defined in section 4(3) with respect to a "person" (which includes a body corporate under the definition in section 2) and in section 23(1) with respect to a "dominant undertaking." An "undertaking" is defined in Section 2 as "any business activity intended to be carried on, or carried on, for gain or reward by a person, a partnership or a trust in the production, supply or distribution of goods or the provision of any service."

makes little difference due to the strong dominance of Safaricom in the most important relevant markets under consideration.

E.3.3.2 Telecommunications framework

The definition of dominance in the IC Act was amended during the course of this inquiry under the Statutes (Miscellaneous Amendments) Act 2015, and now refers to the criteria in the Competition Act. Accordingly, section 2 of the IC Act now defines "dominant telecommunications service provider" to mean "a licensee determined to be a dominant telecommunications service provider pursuant to the criteria set out in sections 4 and 23 of the Competitions [sic] Act, 2014." The test for dominance under the telecommunications and competition regimes is thus effectively the same.

E.3.4 *Ex ante* regulatory obligations applying to dominant firms

Under the telecommunication framework the IC Act and the Competition Regulations create general obligations for dominant licensees including filing with CA tariffs, rates, terms, and conditions of interconnection. The Competition Regulations also apply enhanced interconnection obligations for dominant licensees. The Kenya Information and Communications (Tariff) Regulations, 2010 (the Tariff Regulations) have enhanced requirements for dominant licensees, such as requiring approval of tariffs by CA and in some cases permitting CA to set tariffs.

There are no *ex ante* regulatory obligations for dominant market participants under the Competition Act.

E.3.5 Abuse of dominance

E.3.5.1 Competition framework

Section 24(1) of the Competition Act prohibits abuse of a dominant position and section 24(2) provides guidance on what constitutes an abuse. Abuses include: unfair pricing and other trading conditions; restrictions on production, investment, distribution and development; discriminatory trading conditions; tying; and abuse of intellectual property rights. [107]

These provisions reflect European influence, and are generally workable. The provisions are discussed further in Section G.2 below where we introduce our discussion of whether market conduct amounts to abuse of dominance in the Kenyan market.

[107] Section 24(1) and (2) provide:

(1) Any conduct which amounts to the abuse of a dominant position in a market in Kenya, or a substantial part of Kenya, is prohibited.

(2) Without prejudice to the generality of subsection (1), abuse of a dominant position includes—

(a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;

(b) limiting or restricting production, market outlets or market access, investment, distribution, technical development or technological progress through predatory or other practices;

(c) applying dissimilar conditions to equivalent transactions with other trading parties;

(d) making the conclusion of contracts subject to acceptance by other parties of supplementary conditions which by their nature or according to commercial usage have no connection with the subject matter of the contracts; and

(e) abuse of an intellectual property right.

Under section 36 of the Competition Act, after concluding an investigation where CAK determines that an undertaking has infringed the prohibition on abuse of a dominant position, CAK may restrain the undertaking from engaging in that conduct, take action against the undertaking to reverse the infringement, impose penalties or grant other appropriate relief.

Section 24(3) of the Competition Act states that the penalty for abuse of a dominant position by any person is "imprisonment for a term not exceeding five years or to a fine not exceeding ten million shillings or to both." Section 37 of the Competition Act allows CAK to grant interim relief to prevent serious, irreparable damage from potential infringement or on public interest grounds.

While the threat of prison will be an important deterrent, it is not clear whether it will apply to an employee of a dominant firm. The level of potential fines for abuse of dominance is small and unlikely to be as significant a deterrence as the reputational harm and potential other remedies that the CAK (or CA) might apply. While the threat of fines would be more effective if the limit were higher, it is likely that any weakness of deterrence arises from lack of resources devoted to investigations and enforcement.

E.3.5.2 Telecommunications framework

The IC Act also prohibits abuse of dominance in section 84S(2)(a), without elaborating on what may constitute an abuse.[108]

Under section 84T(6) of the IC Act, when CA decides that a licensee "has engaged in anti-competitive conduct," it may order the licensee to cease the conduct, impose fines "not exceeding the equivalent of ten percent of the annual gross turnover of the preceding year for each financial year that the breach persists," declare agreements null and void or impose any other lawful measure.

Section 7(6) of the 2001 Regulations states that when CA "is of the opinion that a licensee is competing unfairly it may issue an order" requiring the licensee to cease and desist from the activity or take action to remedy the unfair competition, requiring the licensee to pay a penalty not exceeding six thousand shillings for every month or part thereof during which the contravention of the fair competition continues or declaring any anticompetitive agreements null and void. Section 98(4) provides that if as a result of an inquiry, CA "is satisfied that a licensee is in breach of the [IC Act] or [the 2001 Regulations], it may direct the licensee in writing to remedy the breach or to do such act or acts as [CA] may in writing require.

These powers, particularly the power to fine up to 10% of gross turnover, are relatively robust and, if applied should go a long way to address abuses of dominance in markets regulated by CA.

[108] Section 84S of the IC Act provides that an "act or omission" "in breach of fair competition or equal access" includes "any abuse by an [sic] licensee, either independently or with others, of a dominant position." Under section 5 of the 2001 Regulations, "acts of unfair competition" are defined to include "any abuse by a licensee either independently or with others, of a dominant position that unfairly excludes or limits competition between such licensee and any other party." While section 3 of the Competition Regulations states that one of its purpose is to "protect against the abuse of market power," the Regulations do not provide guidance for determining such an abuse.

E.3.6 Investigatory powers

E.3.6.1 Competition framework

Section 31 of the Competition Act grants CAK the authority to carry out an "investigation" into conduct which may constitute "an infringement of prohibitions relating to abuse of dominance." In an investigation, CAK may compel production of information, documents, records and testimony, conduct searches, seize information and take evidence of witnesses (sections 31(4), 32-33). CAK may also impose remedies, including granting interim relief during an investigation, taking action against undertakings, including imposing penalties, after an investigation and at any time reaching settlements (sections 36-38).

E.3.6.2 Telecommunications framework

Section 84S grants CA the authority to, "on its own motion of upon complaint, investigate any licensee whom it has reason to believe or is alleged to have committed any act or omission, or to have engaged in a practice, in breach of fair competition or equal access."

Section 7 of the 2001 Regulations permits CA to, on its own motion or upon complaint, investigate breaches of fair competition. Section 98(1) of the 2001 Regulations gives CA the power to "investigate any matter falling within its competence under the [IC Act] or [the 2001 Regulations] that relates to communications services provided or communications equipment or apparatus manufactured or supplied in Kenya . . ." and "make any inquiry as it deems necessary."

Section 13(1) of the Competition Regulations reaffirms CA's power to investigate competition issues stating that CA may "on its own motion or upon complaint, investigate a licensee whom it has reason to believe has committed an act or omission, or is alleged to have committed an act or omission, or to have engaged in a practice, breaching the requirement for fair competition or equality of treatment." Section 13(2) of the Competition Regulations enumerates specific investigatory powers of CA, including, requiring production of documents and entering premises with a warrant to secure such production.

E.4 Agent exclusivity

Agent networks are of particular importance to mobile financial services, just as in telecommunications. An extensive agent network is crucial for end-users to be able to carry out cash-in and cash-out transactions, which remain a large part of the mobile financial services business.

The development of an agent network involves substantial upfront costs in training and contracting, as well as ongoing costs by way of supervision and commissions. Where a firm has achieved a large share in the market, the volumes of transactions for its competitors are lower, and as a result, agents may not be able to generate significant revenue from the competitors. It is thus far more feasible for a competitor to attract agents where they are already agents for the leading market player. This also reduces costs for the competitor.

Until 2014, Safaricom's practice was to prevent agents from working for competitors. After a CAK review, such mandated agent exclusivity was found unlawful. Around the same time CBK issued the NPS Regulations prohibiting agent exclusivity in section 15.2, which provides "[n]o contract for the provision of retail cash services between an electronic retail payment service

provider and an agent or cash merchant shall be exclusive." Section 15.3 allows agents to work for multiple financial institutions.

This liberalisation of the distribution market for mobile financial services should reduce the barrier to growth for competing providers. We understand that in practice, many agents are unaware that they are at liberty to act as agents for Safaricom's competitors, and that some agents have been intimidated into refusing to take on mobile financial services providers other than Safaricom. A combination of information programmes and targeted enforcement actions should address this.

E.5 Interoperability of mobile payment systems

The financial services framework addresses interoperability of payment service providers, which includes providers of mobile financial services. Section 21(1) of the NPS Regulations requires that a payment service provider "use systems *capable of becoming* interoperable with other payment systems in the country and internationally" (emphasis added). CBK, currently interprets this provision to mean that a payment service provider may not implement a payment system that is technologically incapable of ever becoming interoperable.[109] This is a fairly low burden.

The financial services framework allows for and sets out some tools for payment service providers to achieve interoperability voluntarily. Section 21(2) of the NPS Regulations permits payment service providers to enter into "interoperable arrangements." Section 22 allows payment service providers to participate in "payment service provider management bodies" to facilitate interoperability. According to CBK, no such bodies have yet been established, though some stakeholders have confirmed that introductory talks have occurred among MNOs and others.

The existing financial services regulations on interoperability are useful in that they set the stage for future interoperability, whether voluntary or imposed by mandate. By requiring the possibility of technical interoperability between payment systems and establishing mechanisms available to payment service providers to interoperate, CBK has reduced some of the potentially costly barriers that might otherwise plague future efforts at interoperability.

In light of our conclusions on the competition problems in Section G, we discuss in Section H.3.5 the need for more robust interoperability requirements, as well as facilitation (and ultimately determination) by the regulators of an effective interoperability mechanism or mechanisms. While important, the negotiation and implementation process for introducing interoperability would take time and considerable effort. It should not distract from more immediately implementable remedies for competition problems, such as resolving excessive and discriminatory pricing and margin squeezes.

E.6 Accounting separation

USSD is used by end-users to communicate with providers of various services, including mobile financial services, ring tones and others. As described in Section G.3.1, it may be paid for either by the end-user on a retail basis (prepay) or by the service provider on a wholesale basis (postpay). However, in both cases, the price is negotiated with the MNO. For example, a

[109] Meeting with the Central Bank of Kenya, 24 June 2015.

bank will negotiate with the MNO the price the end-user will pay to access the bank's services. In this sense, regardless of who pays, a key concern is that it is a service provided by a vertically integrated firm to its competitors for provision of their services to the firm's end-users.

Various remedies have been employed to address the conflicts of interest that may arise in such circumstances. Where downstream services are also telecommunications services, various access and related obligations apply in most countries, and these exist also in Kenya under the Interconnection and Access Regulations. However, these apply for the most part to access to network facilities provided by one licensee to other licensees[110] for the purpose of the latter to provide telecommunications services rather than to provide other services. Access regulation is thus typically internal to telecommunications service markets and imposed with the intention of ensuring that the telecommunications sector functions more competitively, rather than extending to other services which merely use the networks.

CA could require accounting separation, either for all MNOs and MVNOs or only those that are dominant, with respect to the provision of USSD access. When applied to a vertically integrated firm, accounting separation is a useful tool to make the costs of a particular downstream service transparent to prevent excessive or exclusionary pricing and also to guard against cross-subsidization. Accounting separation can be used to verify that USSD access prices charged to third parties for the downstream service are not exclusionary or excessive

There is ample regulatory authority for CA to require accounting separation. Section 84W(2) of the IC Acts permits the Minister in consultation with CA to make regulations with respect to "account separation." Section 10(1) of the Competition Regulations issued under the IC Act requires that all licensees, when required by CA, to "maintain separate books of account for each service" and "not cross-subsidize the prices for any service it offers in the market with revenue from the sale of communications systems and services." Under section 10(2) all licensees must "maintain accounting separation techniques to be focused on the separation of revenues, costs and capital employed into categories in order to ensure that there is no discrimination between internal and external pricing in all services provided by the licensee." The Competition Regulations also have accounting separation requirements specifically related to interconnection services that apply to dominant telecommunications service providers.

These may be a useful mechanism to address discriminatory pricing and similar concerns in the provision of USSD for mobile money purposes, as discussed further in Section H.3.4.

E.7 Tariff regulation

Only the telecommunications framework addresses *ex ante* tariff regulation. The principal instruments are the IC Act itself, the Tariff Regulations[111] and the Short Code Guidelines, which we describe below.

[110] While mobile money services providers must hold a Content Service Provider licence and so are licensees under the telecommunications framework (see Section E.2.1), the provision of mobile money services over the telecommunications networks are generally not naturally viewed as telecommunications services.

[111] The Competition Regulations under the IC Act have provisions to regulate the prices charged by dominant telecommunications service providers, but only with respect to interconnection charges, not more generally. The Interconnection Regulations also have provisions on regulation of interconnection charges of all licensees.

E.7.1.1 IC Act

The IC Act does not set out an elaborate price regulation regime. Rather, it mandates the CA in Section 23(a) of the IC Act to "protect the interests of all users of telecommunications services in Kenya with respect to the prices charged for . . . such services." Under Section 84W(2), a dominant telecommunications service provider must "file tariffs, rates, terms, and conditions of interconnection with [CA]."

E.7.1.2 Tariff Regulations

The Tariff Regulations issued under the IC Act provide restrictions on the setting of tariffs by licensees. Under section 4(1), a licensee may only set tariffs that are "just and reasonable" and "non-discriminatory." Just and reasonable tariffs are those that "enable a licensee to maintain financial integrity, attract capital, operate efficiently and fully compensate investors for risks borne." Section 5 requires all licensees to file their tariff rates with CA.

The Tariff Regulations have enhanced requirements for "regulated services" and dominant licensees. A regulated service is one offered or supplied by a licensee "in a market or market segment that is uncompetitive" or "where the licensee has been declared dominant in the relevant market or market segment." An "uncompetitive market" is a "market or market segment in which there is no competition in the provision of service or in which consumer choice of service provider or service is either absent, limited, impeded, obstructed or constrained." Under section 6(1), CA may determine which services are considered regulated services by publishing a schedule.

Section 5 of the Tariff Regulations also requires approval of tariffs, and periodic review, by CA for regulated services. Section 6(5) goes as far as permitting CA to set tariffs for regulated services on its own motion. Under section 6(8), dominant telecommunications service providers are required to comply with any guidelines issued by CA relating to regulated services.

The Tariff Regulations also grant CA the authority to investigate tariff matters. Section 10(1) states that CA "may on its own motion or pursuant to a complaint made under [the Tariff Regulation] investigate any tariff set by a licensee. Section 10(2) sets out a complaint mechanism and authorises CA to adjust tariffs when it "is of the view that tariffs should be adjusted." Offences under the Tariff Regulations may result in "a fine not exceeding one million shillings" or "imprisonment not exceeding three years" or both, unless otherwise stated in the Tariff Regulations.

These provisions under the Tariff Regulations provide CA with relatively extensive tools to regulate the prices of wholesale USSD access. CA would need to make a determination that these services are "regulated services" (i.e., the market is uncompetitive or there is a dominant licensee) to avail itself of most of these tools.

E.7.1.3 Short Code Guidelines

The Short Code Guidelines also address tariffs charged to customers. Under section 11.8 of the Short Code Guidelines, tariffs for services delivered over Short Codes will be "mutually determin[ed]" by network operators and service providers using the Short Codes, bearing in mind that the tariffs must be "justifiable, fair and non discriminatory to both parties." Tariffs must be filed with CA.

The Short Code Guidelines address revenue sharing between network operators and Content Service Providers. All commercial arrangements between the two must comply with the prevailing regulations relating to tariffs, fair competition and equality of treatment.

E.8 Consumer protection

E.8.1 Competition framework

Part VI (sections 55-70) of the Competition Act addresses consumer welfare. Section 55(b)(i) considers an offence, any false or misleading representations "with respect to the price of goods or services." Section 57 considers an offence any unconscionable conduct in business transactions.

E.8.2 Telecommunications framework

The telecommunications framework would apply both to the MNO that is providing USSD access and the third-party provider, as both are licensees.

The Kenya Information and Communications (Consumer Protection) Regulations, 2010 (the Consumer Protection Regulations) address consumer protection in the telecommunications sector. Section 3 sets out the rights and obligations of customers, including (in section (3)(1)) a right to "receive clear and complete information about rates, terms and conditions for available and proposed products and services."

The Tariff Regulations under the IC Act provide restrictions on the setting of tariffs by licensees. Under section 4(1), a licensee may only set tariffs that are "sufficiently clear and enable the end-user to determine the description of the service, the details relating to the nature of service and charges payable for the service."

The Short Code Guidelines also include consumer protection provisions. Under section 13.1, service providers must "ensure that the highest level of service is given to consumers" and that consumers "have sufficient information to enable them make informed decisions about accessing the services offered using a particular Short Code and/or Premium Rate Number."

E.8.3 Financial services framework

The NPS Regulations briefly address disclosure of information by payment service providers to customers. Section 35(1) requires that a payment service provider provide the "rates, terms, conditions and charges for [its] services and shall publish such information and display it prominently *at all points of service*." (emphasis added). USSD access can be considered a point of service.

The Prudential Guidelines, January 2013, Guideline on Consumer Protection are applicable to banks. Section 3.4.6 requires that an "institution" (which includes banks) "display prominently its standard fees and charges at all its branches, promotional materials and *through any other communication channels which it uses*" (emphasis added). Institutions must also "inform a consumer of any additional charges or expenses that a consumer has to pay in respect of a particular transaction." Particularly relevant to USSD charges by MNOs, "where third party fees and charges are involved, an institution shall inform a consumer in advance of the relevant service or product and applicable fees and charges." Third-party fees mean those "which are not levied directly by an institution but arise when another institution, agent or party is used."

E.8.4 GSMA Code of Conduct

The GSMA Code of Conduct mostly addresses issues of security and soundness of services. However, there are a few provisions that address consumer protection. For purposes of this market inquiry, the only relevant provision is principle 6.1.1, which states "Providers shall ensure that users are provided with clear, prominent and timely information regarding fees and terms and conditions." However, this would only apply to those providers which have signed the Code of Conduct, which is limited to MNOs, not third-party mobile financial services providers.

F. DEFINING MARKETS AND ASSESSING DOMINANCE

In this section, first we discuss four distinct markets that are relevant to this market inquiry. Next, for each of these four markets we assess whether any market participant is dominant. In each of these steps we draw on international principles of competition economics. We also tie each step back to relevant legal and regulatory processes under Kenya's competition and telecommunications frameworks.

F.1 Market definition

The pricing and provision of access to USSD for the delivery of mobile financial services are likely to be influenced by and have effects in adjacent markets. In this section, we consider four relevant markets. In some cases, such as the retail money transfer and payment market, we consider different market segments, including customer segments and narrower market segments, in terms of particular characteristics which are competitively significant. These segments may or may not constitute discrete markets.

F.1.1 Preliminary considerations

F.1.1.1 Defining markets generally

In internationally recognised competition law and economics, market definition is a tool used to determine whether any market participants have market power (and over which set of products and services they hold market power). Market power is in economic terms the ability of firms to raise prices above marginal costs. The ability of a firm to do this is linked to the availability to consumers of feasible alternatives or substitutes. The exercise of market definition therefore, is about considering the feasible alternatives or substitute products and services available to consumers.

In defining the relevant market, it is common to consider both the "product market" and the "geographic market."

In defining a product market we consider which products are "sufficiently good demand substitutes for the product in question" for these products to be deemed to form part of the same relevant market.[112] In the case of the use of USSD to deliver mobile financial services, there are several candidate product markets that might be relevant, including markets for mobile voice and data services, and markets for transactional banking services, including money

[112] Kaplow, L. and Shapiro, C. (2007). *Antitrust*. p. 15.

transfers (possibly including both mobile money services and money transfer services via traditional banking) and savings and loans.

In defining a geographic market, we consider the feasibility of substitution by understanding which geographic alternatives for buying the product would be acceptable to the buyer.[113] In markets for telecommunications services, and mobile services in particular, there may be geographic markets that have several competing networks, such as in metropolitan areas, and there may be geographic markets where only one network is available, including in rural areas.

In markets for financial services, this relates to the geographic availability of services, such as agents, ATMs and branches. There may, for example, be separate rural and metropolitan area markets: consumers in metropolitan markets (Nairobi, Mombasa and Kisumu), and perhaps sub-segments of these markets (such as in central business districts and in shopping malls), might have access to a rich choice set of agent and mobile based banking, ATMs and bank branches. Consumers in rural markets, and consumers based in informal settlements in urban areas (such as Kibera and Mathare in Nairobi) might have a narrower set of choices, relying mainly on agent and mobile based financial services.

These observations on internationally accepted competition law and economics are aligned with the approach under Kenyan law to defining markets for the purposes of competition analysis (see Section E.3.2).

F.1.1.2 Defining markets for rapidly changing services

Markets for financial and telecommunications services exhibit a strong degree of dynamism in Kenya, which means that the market definition process should be approached with caution. For example, there is growing convergence among the financial services products supplied by the traditional banks, the MNOs and non-MNO mobile money services providers, as the non-traditional providers grow their financial services offerings. In response to this, at least one bank (Equity Bank) and one non-MNO mobile money services provider (Tangaza Pesa) have decided to expand into markets for telecommunications services by obtaining mobile virtual network operator (MVNO) licences. This may lead to different market and competitive outcomes in the next 5-10 years in Kenya.

A further important trend is the growing use of smartphones. Our information requests included questions on the use of smartphones in Kenya, and their likely growth over the next 5-10 years. Although the MNOs did not provide much information in response, [CONFIDENTIAL] explained during the course of an interview that smartphones account for a relatively small proportion of devices on their network, though they are seeing considerable growth. While smartphones accounted for only 16% of connections on the Safaricom network in 2015, the GSM association expects the proportion of smartphone and mobile broadband connections to grow to 57% of connections in 2020 in Sub-Saharan Africa (see discussion above in Section D.2.4 above). Smartphones will likely largely replace handsets that offer only voice and basic data services. The use of mobile applications for banking services might, therefore, ultimately

[113] Baker, J. B. (2007). 'Market definition: an analytical overview' in *Antitrust Law Journal;* p. 2.

become a substitute for the use of USSD and STK/SMS, and so change the analysis of relevant markets.

In addition, payment services provided by traditional banks are evolving in Kenya. For example, there have been moves to reintroduce payment by payment card for public transport using matatus.[114] Both KCB and Equity Bank offer contactless payment cards using the MasterCard PayPass system. This system is capable of being used at traditional point of sale devices, as well as at mobile point of sale (M-POS) devices used by smaller merchants (including those used by matatus).

There is therefore considerable dynamism in markets for financial and telecommunications services, particularly in Kenya, which makes it difficult to delineate relevant markets precisely. We therefore recommend frequent reviews of the relevant markets discussed here.

F.1.2 Market #1: Retail mobile telecommunications services provided by MNOs and MVNOs

The MNOs and MVNOs in Kenya provide various traditional retail mobile telecommunications services such as voice telephony, data and SMS. Customers subscribe to a particular network through purchasing a SIM card for that network. In some cases, customers may hold SIM cards from multiple networks in what is termed 'multi-simming' which allows them to take advantage of the offerings of different networks (such as specific discounts or particular functionalities such as mobile money transfers).[115]

There are debates about the level of substitution between mobile services provided by MNOs and MVNOs and services provided by fixed-line operators. However, for the purposes of this inquiry it is not necessary to evaluate this question in detail given the low level of fixed line penetration in Kenya, and given the fact that USSD services can only be provided by MNOs with the infrastructure to do so. USSD services relate specifically to *mobile* telecommunications services. Functionally, the ability to provide USSD services leverages the mobile telecommunications infrastructure and network of MNOs. Furthermore, there is no indication that customers could obtain the services from another country or geographic location.

It is thus reasonable to work on the basis of a relevant market for retail mobile telecommunications services provided by MNOs and MVNOs in Kenya.

F.1.3 Market #2: The wholesale provision of USSD and STK access by MNOs and MVNOs to mobile financial services providers

F.1.3.1 Introduction

MNOs and MVNOs provide a range of wholesale services, such as wholesale call termination (provided to other MNOs and MVNOs), wholesale MVNO services (provided by MNOs to MVNOs) and wholesale access to USSD and STK services (provided to banks, mobile financial services providers, and premium rate service providers (such as providers of ringtones)).

[114] See, for example, July 2015, 'Govt to re-introduce cashless bus fare', *Daily Nation*, available at http://www.nation.co.ke/business/Govt-to-re-introduce-cashless-busfare/-/996/2800748/-/bdpdxi/-/index.html, last accessed on 27 January 2016.

[115] See Economides, N. and Jeziorski, P. (2015). 'Mobile money in Tanzania'; p. 4.

The wholesale services of interest in this market inquiry are access to USSD and STK services of MNOs and MVNOs for the provision of mobile financial services (as opposed to other services, such as the provision of ringtones). We consider this access to USSD and STK to be wholesale services because it enables third parties (banks and mobile financial services providers) to connect to their customers (end-users).

It is important to differentiate between the retail and wholesale markets in access to USSD and STK. In the retail market, the customers are end-users of financial services, who access those services on their mobile device via USSD and/or STK.

In the wholesale market, which we are concerned about here, the customers are banks and other mobile financial services providers. These wholesale customers enter into agreements with and in some cases pay the MNO or MVNO to provide them with a position on an STK menu or for an MNO or MVNO to assign them a USSD code and provide USSD access. Financial services providers often pay the MNO or MVNO directly for the end-user's USSD access and usage (the 'postpay' model, described in more detail below in Section G.3.1.1). End-users might pay their MNO or MVNO for USSD services directly (often referred to as the 'prepay' model because the retail customers are typically paying for the USSD service on a prepay basis). In some cases, they enter into revenue sharing arrangements with the MNO or MVNO instead of paying USSD charges on a per session basis. No matter what the payment model for USSD and STK access is, it is a wholesale service supplied by MNOs and MVNOs to banks and mobile financial services providers, since the USSD code or place on the STK menu is used by banks and mobile financial services providers to interact with their end customers.

F.1.3.2 Are IVR, SMS and smartphone or feature-phone applications substitutes for wholesale access to STK and USSD by mobile financial services providers?

Mobile financial services providers can, at least in theory, use several technological communications channels in addition to STK and USSD to connect to their end-users. These include IVR, SMS and smartphone or feature-phone applications. As discussed in Section C.3, cost, convenience and security differences exist between the different technologies. These differences impact their substitutability.

During the course of this market inquiry, we interviewed a number of MNOs and mobile financial services providers in Kenya. The stakeholders interviewed explained that USSD and STK are the main means by which end-users access financial services. In Kenya, IVR is not a widely used means of accessing financial services. [CONFIDENTIAL], for example, initially attempted to use IVR for access to its mobile financial services products but indicated that this is not a widely used alternative.[116] There are cost and complexity problems associated with using the combination of IVR and SMS.[117] The use of SMS exclusively (i.e., not in combination with USSD, STK or IVR) is also not a viable alternative to USSD or STK. This is because SMS uses batch processing and is therefore not a real-time service (discussed above in Section C.3 above), and because SMS charges are paid by end-users. Banks and non-bank financial service providers do not have the option to pay for SMS in the way that they are able to for USSD.

Mobile internet platforms do not currently appear to be a viable substitute for mobile financial providers either. While internet access is growing strongly in Kenya, at 41% per year to 22 million subscriptions in September 2015 (see Figure 11 in Section D.2.4 above), only 6.4

[116] Meeting with [CONFIDENTIAL]

[117] See Hanouch & Chen (2015), cited above.

million people had access to mobile broadband in September 2015. The high speeds offered by mobile broadband are needed in order for smartphones and their applications to work. This means that only a very small proportion of the 38 million mobile subscriptions in Kenya are used with smartphones. This suggests that access to financial services via a smartphone application is an alternative to STK or USSD for only a small proportion of mobile users. This in turn means that a hypothetical monopolist over USSD and/or STK access would be able to raise prices by 5-10% without losing usage volumes to smartphone applications. This suggests that USSD and/or STK access are in a separate market to smartphone applications.

The growth in mobile internet access reflects growing access to low-cost data-enabled 'feature phones,' such as Orange Kenya's 'Kaduda' dual-SIM handset. This device currently costs in the region of Ksh 1,000 and offers GPRS data over which users can access the internet on a small, colour screen.[118] These devices, however, are not the equivalent of smartphones which allow for a more fully fledged internet experience with large screen sizes and significantly faster internet access speeds. [CONFIDENTIAL] is nevertheless developing an application for feature phones to allow its customer base to access its mobile financial services[119]. Whether this is a viable alternative to USSD / STK remains to be seen, however, and therefore we do not view access to financial services via a feature phone application to be an alternative to STK or USSD access, at least for the foreseeable future.

F.1.3.3 Are USSD and STK access substitutes?

STK and USSD access appear to be substitutes. While STK is the platform used most by MNOs and MVNOs providing mobile financial services in Kenya, USSD is widely used in Tanzania and South Africa and customers do not express dissatisfaction regarding this platform.[120] This is despite the fact that STK provides greater levels of security. In Kenya, USSD is also the platform most often used by non-MNO/MVNO mobile financial services providers that are not in a partnership with an MNO or MVNO.

The relevant question regarding substitutability of the technologies is whether there are differences or similarities in the experience of customers when interacting with the service that would lead us to define separate markets for each. Given the widespread use of both services for similar purposes, any differences that exist do not provide a basis for defining a separate market for each service.

Due to the fact that USSD services are not based on the SIM card or embedded in the mobile phone as discussed above, financial services providers can offer mobile banking services via USSD to all of their end-users regardless of the MNO or MVNO network to which such end-users subscribe.

This is different in the case of STK. STK is a 'client-side' technology in that the applications, solutions and service offerings are embedded on the customer SIM or mobile device, compared to USSD which is a 'server-side technology'.[121] Using STK, the user's instruction is typically encrypted prior to leaving the handset and sent to the service provider for decryption and execution of the instruction. An important constraint of this technology is getting new applications onto SIM cards or handsets which have already been issued in the market. This

[118] See the Orange Kaduda handset here.

[119] Source: Interview with [CONFIDENTIAL].

[120] See, for example, Camner et al, 2012, cited above. See also Hanouch & Chen (2015), cited above.

[121] Krugel, 2007.

requires the ability to either issue new SIM cards with the application already embedded, or to send over the air instructions that self-configure the application onto the SIM, both of which can be costly and complex processes. The MNOs and MVNOs therefore control the ability of downstream mobile financial services providers to embed new features and services onto the SIM cards or mobile devices of MNO or MVNO customers.

From the perspective of downstream mobile financial services providers as customers of MNOs and MVNOs for accessing USSD channels, STK and USSD appear to be imperfect substitutes. As discussed, USSD offers greater access across networks. With STK, the application resides on the SIM which is under the control of the MNO, implying less control and access for the mobile financial services provider.[122] At the same time, end-users have more immediate access to services provided over STK, which provides a menu of services to the consumer, without the consumer having to remember a USSD code. End-users nonetheless widely access financial services via USSD in other countries, as discussed above in this section. The indifference of the end-user makes these differences less significant for the wholesale provider, and for the purposes of this inquiry, it is not necessary to conclude on whether USSD and STK form part of the same relevant market. As discussed in Section F.2, given Safaricom's share of mobile subscribers and of mobile service volumes and revenues, Safaricom would be dominant in the use of both STK and USSD whether these services are part of the same market or constitute separate markets. We analyse STK and USSD as part of the same market in this report.

F.1.3.4 Is there a separate relevant USSD market on each MNO's and MVNO's network?

It may be argued that there is a separate market for provision of USSD access connecting with each MNO's and MVNO's customers, akin to the frequent definition of a relevant market in call termination services for each MNO or MVNO to its own customers. The theory behind this approach to call termination is that only that an MNO or MVNO can terminate calls to its own customers and an increase in price will not lead to substitution. By analogy, one might consider separate markets for provision of USSD on each MNO's or MVNO's network because any service provider seeking to offer services across USSD on an individual MNO's or MVNO's network can only do so acquiring access to that MNO's or MVNO's USSD. This would also make each MNO or MVNO dominant in the market for USSD provision on its own network as it would be the sole provider in the market. This is the approach taken in the Ugandan Communications Commission findings on USSD.[123]

In Kenya, the apparently high level of multi-simming may mean that there is a large overlap of customers between Safaricom and the other operators, such that a large number of Airtel and Orange customers also have Safaricom subscriptions. If so, where Airtel or Orange provide USSD access to mobile financial services providers, they are providing a connection to the same customers to whom Safaricom can also connect the mobile financial services providers.

Perhaps more significantly also in Kenya, there are two ways in which USSD use is paid for: a postpay approach where the mobile financial services providers absorb the cost and pay the MNO or MVNO for the end-user's usage when accessing their mobile financial services, and a prepay approach where end-users pay the MNO or MVNO directly for their usage of the USSD, albeit at rates agreed between the MNO and MVNO and the mobile financial services provider.

[122] Krugel, 2007.

[123] *UCC Market Definition and Market Power Assessment, 12 March 2015*, and *Mobile Platform Access for USSD-based Applications (MPA-USSD) Market Assessment*, 30 January 2015 available here.

Thus, in theory at least, an end-user finding the USSD charges costly to access mobile financial services across one MNO or MVNO could switch to another MNO or MVNO. However, as discussed in Section H.3.6, pricing of USSD charges is not always transparent to the end-user.

At this time, then, we would be cautious about applying the Ugandan approach in Kenya without fuller data on multi-simming and usage patterns, particularly given the extreme difference in scale of usage of mobile money on Safaricom's network (see Section F.2.2) as opposed to Airtel's and Orange's networks. For present purposes, it is sufficient to work on the basis of a relevant market in USSD and STK rather than a separate USSD market for each individual network.

F.1.4 Market #3: Retail money transfer and payment services (including mobile money services)

A wide range of retail money transfer and payment services are available to consumers in Kenya. These services are traditionally provided by banks together with a savings or transactional banking account. Money transfer and payment services are also offered via mobile wallets on a stand-alone basis by MNOs such as M-Pesa, Airtel Money and Orange Money, and by non-MNO mobile money services providers, such as Mobikash and Tangaza Pesa. There are also mass-market banks who have rolled out mobile-centric bank accounts and which compete directly with mobile money services, such as Equitel MyMoney and MCo-op Cash. To some degree, other banks using mobile channels for consumers to access their traditional bank accounts, also compete with mobile money services providers in respect of money transfer and payment services.

Consumers use banks and mobile money services providers for a range of purposes, including for money transfers to friends and family, to buy airtime, for savings and loans, for payments to merchants, to receive salaries and pay bills. These outcomes can be achieved through six main transaction types: payment in kind, in cash, by payment card, through electronic fund transfers (including via the Automated Clearing House (ACH) and Real Time Gross Settlement (RTGS) systems), debit orders and mobile money. Each transaction type in turn may take place using a variety of channels in many instances, including at a bank branch, at an automated teller machine (ATM), over the internet (including at a bank's website and via a bank's smartphone app), by means of a point of sale (POS) device and via USSD or STK. Consumer objectives, transactions types and transaction channels are mapped on Table 9 below.

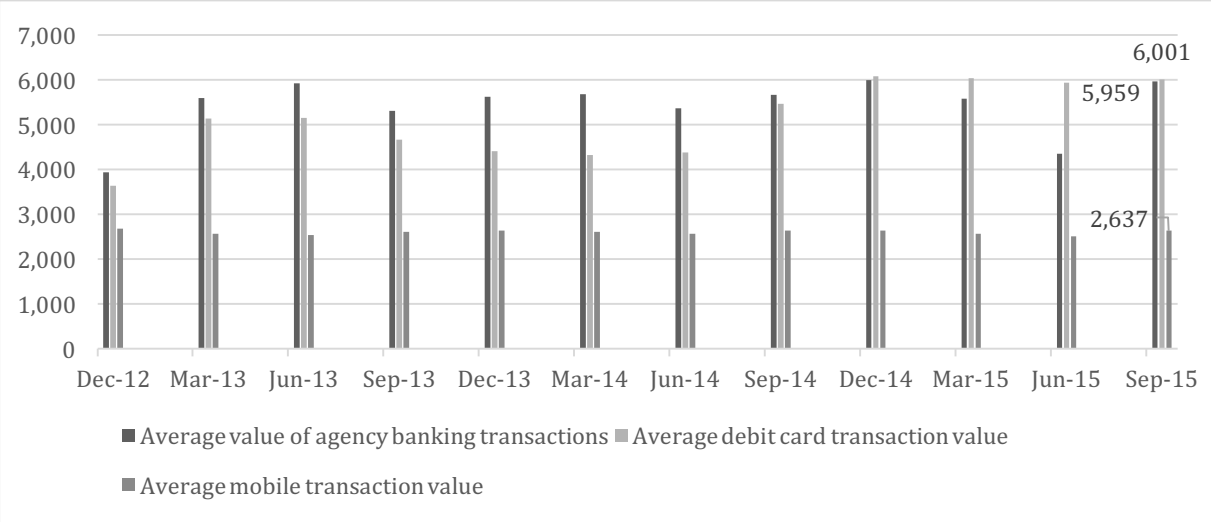
Table 9: Transaction outcomes, types and channels

Transaction outcome	Transaction type	Transaction channel
Saving, loan repayment	Cash deposit / repayment	ATM, Agent, Branch
	Electronic funds transfer (incl. RTGS and ACH), once-off and standing order	ATM, Agent, Branch, Online, USSD
	Mobile money	STK, USSD
Payments to merchants (e.g. retailers)	Cash payment	ATM, Agent, Branch, POS (withdrawals)
	Electronic funds transfer (incl. RTGS and ACH), once-off and standing order	ATM, Agent, Branch, Online, USSD
	Payment card	POS
	Mobile money	STK, USSD
	In kind	Informal

Transaction outcome	Transaction type	Transaction channel
Transfers to friends and family	Cash remittance	Informal
	Electronic funds transfer (incl. RTGS and ACH), once-off and standing order	ATM, Branch, Online, USSD
	Mobile money	STK, USSD
Pay / receive salary / wages	In kind	Informal
	Cash receipt	ATM, Agent, Branch, POS (withdrawals)
	Electronic funds transfer (incl. RTGS and ACH), once-off and standing order	Online, Branch
	Mobile money	USSD, STK, Online
Airtime purchase	Mobile money	USSD, STK
	Payment card	ATM
	Airtime advance (e.g. Okoa Jahazi)	USSD
	Airtime transfer (e.g. Sambaza)	USSD, SMS
Pay bills (e.g. rent, school fees)	Cash	ATM, Agent, Branch, POS (withdrawals)
	Debit order	Recipient agreement with acquiring bank
	Electronic funds transfer (incl. RTGS and ACH), once-off and standing order	ATM, Branch, Online, USSD
	Mobile money	USSD, STK

Customers can generally use some or all of these methods of transacting to achieve the same transaction outcome. In terms of market definition, what matters most is the degree of substitution between alternatives or the closeness of competition between different alternatives. This can be influenced by factors relating to quality of service such as cost, convenience, safety and accessibility. Transaction channel use might vary depending on the transaction value. Mobile money transactions have considerably lower average transaction values (Ksh 2,637 in September 2015) than debit card transactions (Ksh 6,001 in September 2015), for example (see Figure 26).

Figure 26: Average debit card, mobile money and agency based banking transactions (Ksh, 2012-2015)



Source: Analysis of Central Bank of Kenya statistics

Mobile money is significantly more widely used than payments and transfer services offered by the traditional banks such as debit cards, EFTs and cheques (see Figure 1 and Figure 2 in Section D.1 above). In fact, the total number of card payment transactions declined between 2013 and 2015. The use in Kenya of other modes of transacting such as EFT and cheques is negligible relative to both card and mobile payments, and there is no growth in the use of these services (see Figure 2 in Section D.1 above). Figure 2 in Section D.1 above also shows that the use of debit cards grew until 2013, over the same period mobile payment usage experienced significant growth. The use of mobile money in Kenya is likely to have contributed to a concomitant increase in the use of formal banking services, at least until 2013.[124]

Approximately 50% of mobile money users in Kenya also have a bank account (discussed in Section D.3.2). Consumers that have both a bank account and a mobile money service likely use mobile payment channels as part of a bundle of available payments mechanisms, differentiating between them at the margin depending on the most convenient and cost-effective method for a particular transaction type. While there is some complementarity in the various means of transacting, this is likely to apply differently between customer groups. For more price-sensitive, lower-income users the lower cost of paying for a good or service or the lower cost of sending money using mobile money relative to the cost of using a traditional bank account for the same transaction may be important. Traditional bank account and mobile money services are not substitutes in such circumstances.

The charges for common transaction types for person-to-person transfers and cash withdrawals are described on Table 10 and Table 11 respectively below for M-Pesa (see also Appendix A) and for Equity Bank, a bank targeting the mass market (discussed above in Section D.3.1.2). The cost of an MMT transaction (such as via M-Pesa or Equitel's My Money account) is relatively low for small transfer values (free using Equitel My Money, and costing between Ksh 1 and Ksh 15 for transfers up to Ksh 1,000 using M-Pesa). For low transfer values, the cost of using a traditional bank account such as an Equity Ordinary account, via Eazzy 247, Equity Bank's mobile channel, would be relatively expensive (Ksh 30).

Table 10: Person to person transfer channels for M-Pesa & Equity Bank

Provider	Name of service	Charges (Ksh)
M-Pesa	Transfer to other M-Pesa users	1 – 110 (0.2% - 11% of transaction value)
	Transfer to unregistered users	44 - 303 (0.9% - 44% of transaction value)
Equity Bank	My Money (Equitel) – transfer to other My Money, Orange Money or to Equity Bank accounts	Free
	My Money (Equitel) – transfer to M-Pesa, Airtel Money	34.1 – 60.5
	E-banking funds transfer	50
	RTGS	500
	Eazzy 24/7 funds transfer (Equity to Equity)	30

Similarly, low value cash withdrawal charges (Ksh 10 for between Ksh 50 and 100 via M-Pesa) are significantly cheaper than cash withdrawals from ATMs, branches and point of sale devices at merchants using traditional bank accounts, such as an Equity Ordinary account (see Table 11). In fact, for transactions up to Ksh 2,500, M-Pesa's withdrawal charge at an agent (Ksh 27) is cheaper than using a bank ATM (Ksh 30).

[124] Hernandez, J., Bernstein, J. and Zirkle, A. (2011). 'The Regulatory Landscape for Mobile Banking'. Telecommunications Management Group. International Telecommunication Union GSR 2011 Discussion Paper. Available here.

Table 11: Cash-out channels for M-Pesa & Equity Bank

Cash-out transaction channel	Agent	ATM	Branch	Point of sale
M-Pesa (see Appendix B) (Ksh)	10 - 330 (0.5% - 27% of transaction value)	33 - 193 (1% - 16.5% of transaction value)	Not applicable	
Equity Bank[125]	Rates not available on website.	30	100 (150 if inter-branch)	25

Source: M-Pesa charges from Safaricom submission, provided on 17 June 2015. Equity Bank tariff guide available here.

For a range of relatively higher value transactions, once the cost of having a bank account is paid, the incremental cost of using a debit card or EFT is similar to paying via M-Pesa.[126] Where M-Pesa is available in addition to branches, ATMs or POS devices, traditional bank account holders might use M-Pesa and debit cards / EFTs as substitutes.

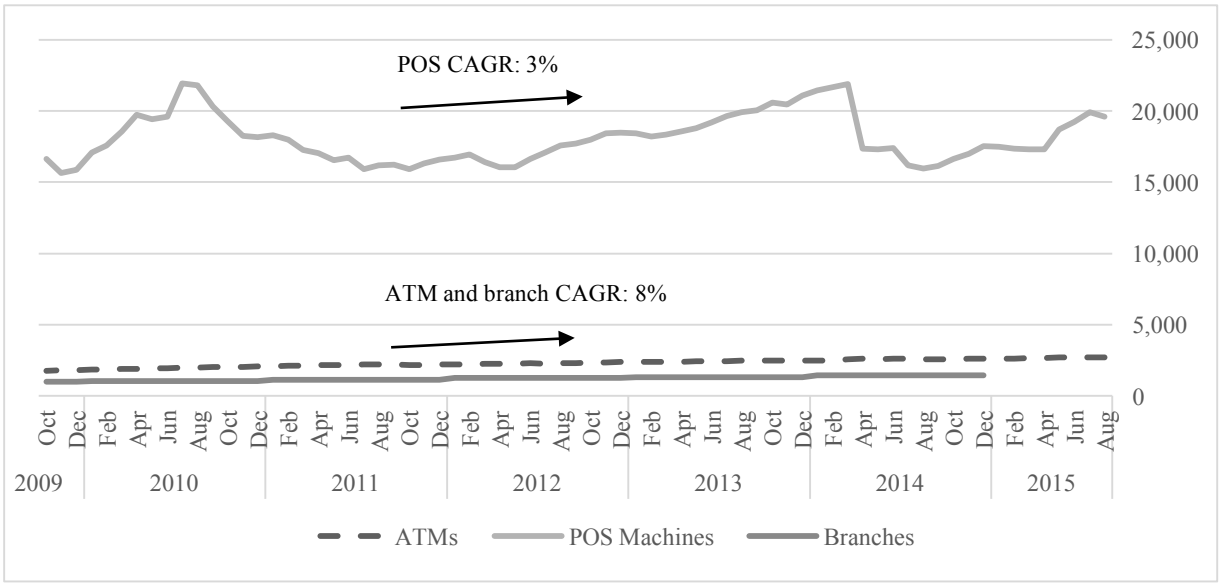
For low value transactions at least, mobile money services are cheaper to use for consumers than traditional bank accounts that use ATMs, branches and point of sale devices. Since mobile money is more convenient for consumers too (discussed in more detail below), traditional bank accounts are therefore likely not to be substitutes for low value transactions, even where consumers have both a bank account and mobile money service.

We are not sure what proportion of the 50% of M-Pesa users that do not have a bank account could open and use a traditional bank account but choose not to. It is likely, given the limited penetration of traditional bank channels including branches (1,443, see Figure 27), ATMs (2,700) and point of sale (POS) devices (20,000), compared to the number of mobile money agents (Safaricom alone has 91,000 agents) in Kenya, that a significant proportion of these M-Pesa users are not able to choose a traditional bank account instead. The numbers of branches, ATMs and POS devices are also growing at significantly slower rates than the number of agents. The number of branches and ATMs is growing at approximately 8% per annum, while the number of POS devices is growing at 3% per year (see Figure 27). This compares to considerably higher mobile agent growth (26% over the last three years, see Figure 28) and bank agent growth (41% per year).

[125] Assumes that Equity Bank allows money transfers to M-Pesa accounts via BillPay. Additional M-Pesa withdrawal

[126] A point of sale purchase using an Equity Bank Visa debit card, for example, is free and there is a fee of 25Ksh. to withdraw cash at point of sale. See Equity Bank's tariff guide, available here.

Figure 27: Number of ATMs and POS machines in Kenya (2010 - 2015)

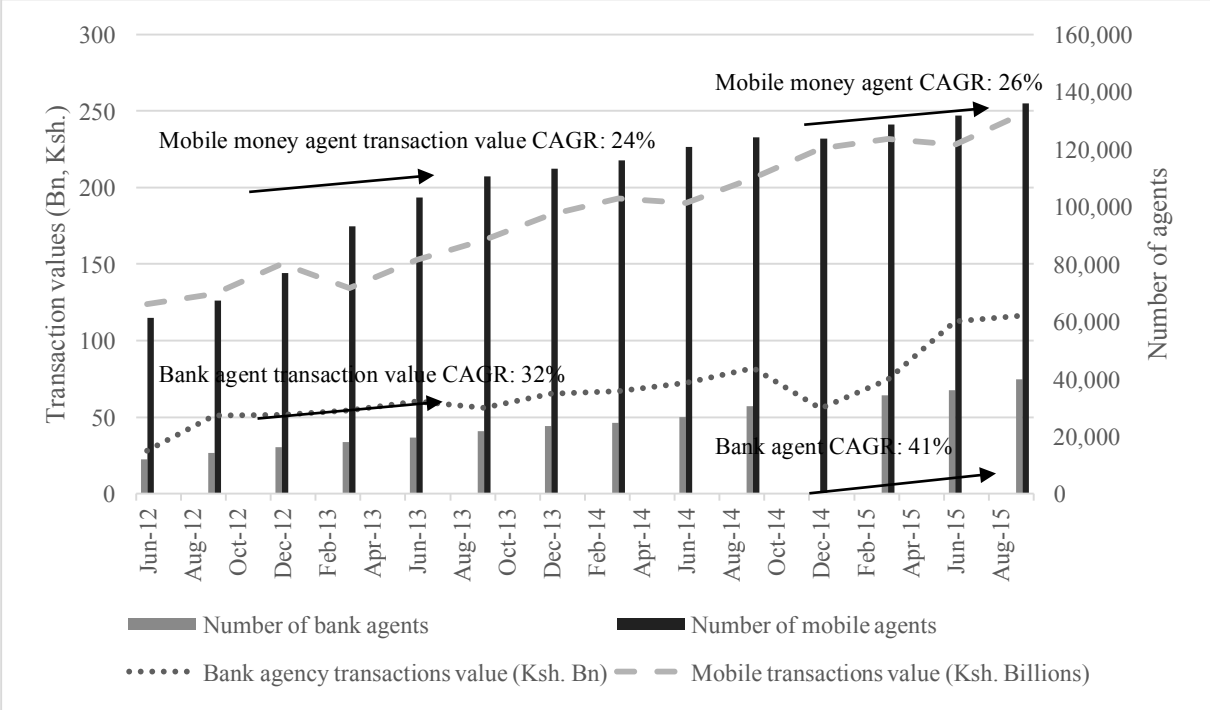


Source: Analysis of Central Bank of Kenya data.

Though mobile money services are currently more widely available than access to traditional banking services, access to bank accounts, particularly mobile-centric bank accounts (such as MCo-op Cash and Equitel My Money), is expanding significantly due to agency banking. Agency banking allows traditional banks to offer the same low costs for small transaction values that mobile money services providers are able to offer. Under agency banking, the bank interacts with the customer through an agent with a point-of-sale (POS) device. Cash is deposited with the agent and, using the POS device, the agent's account with the bank is debited, and the customer's account is credited. For withdrawals, the agent provides cash to the customer, the customer's account at the bank is debited and the agent's account with the bank is credited.

Agency based banking services are now growing more quickly than mobile money services, at least in Nairobi. If this trend were to continue, the number of bank agents and the overall value of agency banking transactions would catch up with mobile money services in the near future: while the number of mobile money agents has grown considerably at a rate of 26% over the last three years, the rate of growth in bank agents was 41% (see Figure 28). Similarly, while mobile money transaction values grew annually by 24% over the same period, agency based banking transaction values grew by 32% annually. The overall number of banks now offering agency based banking is now 17, having grown from 6 initially in September 2010. While average agency banking transaction values are currently similar to average debit card transaction values (see Figure 26 above), this may change as agency based banking grows.

Figure 28: Number of mobile money and bank agents, and value of mobile money and agency banking transactions



Source: Analysis of Central Bank of Kenya statistics

The growth in agency banking suggests that the banks are expanding into offering financial services typically offered by mobile money services providers, and bank agents represented 15% of the agent market in 2014.[127] This suggests that the effects of Safaricom's conduct in respect of USSD charges and access could be considered in the context of a relatively broad market for retail money transfer and payment services, including using mobile phones and via agents, as well as via traditional ATM, point of sale and branch based banking.

However, questions remain about the likely level of continued bank agent growth. Even with agent banking, banks are more tightly regulated than mobile money services providers, and may tend to favour branches as their hubs. Banks may also be less ambitious about building large scale agent networks as opposed to decongesting branches. They have legacy investments in branches to manage, which may restrain growth of agent networks. Half of bank agents are in Nairobi, where the greatest growth in number of bank agents has occurred.[128]

The main source of rivalry to mobile money services from banks is likely from the mobile-centric banks that target the mass-market through agency based banking, such as the Equitel My Money and MCo-op Cash services. There are therefore strong arguments – particularly given the convenience of mobile money services and the cost for lower income customers – that the mobile money services market segment, including banks offering mobile-centric bank accounts, such as MCo-op Cash and Equitel My Money, is a relevant market in itself for some customers.

Ultimately, whether one defines a broad relevant market for retail money transfer and payment services or a narrower relevant market segment for mobile money services (including mobile-

[127] Helix Institute of Digital Finance, Agent Network Accelerator Survey, Kenya Country Report 2014, p8.

[128] Helix Institute. (2014). Cited above.

centric banks) likely does not significantly affect the analysis in this study of competition in USSD access. Mobile money services providers and their bank rivals are downstream from USSD and STK access, which are inputs to mobile financial services. While dominance in a downstream market can be relevant in assessing market behaviour in the upstream market in question, its relevance primarily relates to the possible occurrence and harm of margin squeezes, yet a margin squeeze may exist even despite lack of dominance in the downstream market.

F.1.5 Market #4: Consumer savings and loans

In addition to money transfer and payment services, consumers require access to savings and loans and other financial products such as microinsurance. These products have in the past been the preserve of traditional bricks and mortar banks and insurance companies. This is changing rapidly in Kenya, however, where Safaricom has expanded beyond providing mobile money services to providing savings and loan products (M-Shwari and KCB M-Pesa), in partnership with banks (CBA and KCB), using mobile channels. In addition, Mobikash has begun offering traditional banking services in partnership with I&M bank.[129] These 'value-added M-Pesa' services may in fact be complementary to traditional bank accounts. 54% of M-Shwari customers have another non-M-Shwari bank account (see discussion above in Section D.3.1.2 above).

Similar to the market described above for retail money transfer and payments, the degree of substitutability between savings and loans offered by traditional banks and those offered as add-ons to mobile money services, or those offered by mobile-centric banks, depends on the nature of the product. M-Shwari, for example, offers loan sizes of between Ksh 100 and 100,000. The average loan size is small, at Ksh 1,280 (see Table 12). This compares to average loan sizes at registered banks of Ksh 344,256 and at microfinance banks of Ksh 87,407. Average deposit balance sizes also vary considerably between banks, microfinance banks and M-Shwari.

Table 12: Bank, microfinance bank and M-Shwari average deposit balances and loan sizes

	Deposit (Ksh)	Loan (Ksh)
Bank (2014)	83,727	344,256
Microfinance bank (2015)	16,573	110,943
M-Shwari (2015)	504*-1,971**	1,280
M-Shwari 'Lock' (2015)	5,984	

Source: (1) Banks and microfinance banks: Analysis of Central Bank of Kenya statistics; (2) M-Shwari: Cook & McKay, 2015, cited above.

*Notes: * All accounts; ** Active 30 days*

Markets for savings and loan products are rapidly evolving in Kenya, and delineating specific customer segments who may be able to use savings and loans from banks and mobile money services providers is therefore complex. Again, whether one defines a broad relevant market for savings and loan services or a narrower relevant market segment for mobile savings and loan services likely does not significantly affect the analysis in this study of competition in USSD access.

[129] See: http://www.capitalfm.co.ke/business/2015/03/im-bank-ventures-into-agency-banking-with-mobikash/

F.2 Determining dominance

F.2.1 Market #1: Retail mobile telecommunications services provided by MNOs and MVNOs

In respect of the market for mobile telecommunications services provided by MNOs, Safaricom has a market share of almost 70% based on the number of subscribers (discussed above in Section D.2.1). However, the number of subscribers is not necessarily the most useful indicator of market share. It is commonly cited simply because it is typically the easiest statistic to obtain. Where end-users hold multiple SIMs, subscriber data is less useful, and usage and revenues are far more instructive.

The market shares in terms of revenues can be derived from Communications Authority (CA) data. The sum of Safaricom's voice, SMS, data, handset and mobile money revenue alone (excluding connection and other revenues)[130] divided by total mobile revenues reported by CA results in a market share of between 80% and 90% for Safaricom over the period 2010-2014 (see Figure 29 below).[131] At least two other sources contain similar revenue market share estimates. CA's Q4 2013 / 2014 sector statistics report estimates Safaricom's market share, from a revenue perspective, at 85.5%.[132] Furthermore, [CONFIDENTIAL] estimates that Safaricom's revenue market shares are in excess of 80%.[133]

Usage provides another reference point for market share. As shown in Figure 6 on page 35, Safaricom's share of the number of minutes of telephone call traffic has been hovering between 70% and 80% for the last few years.

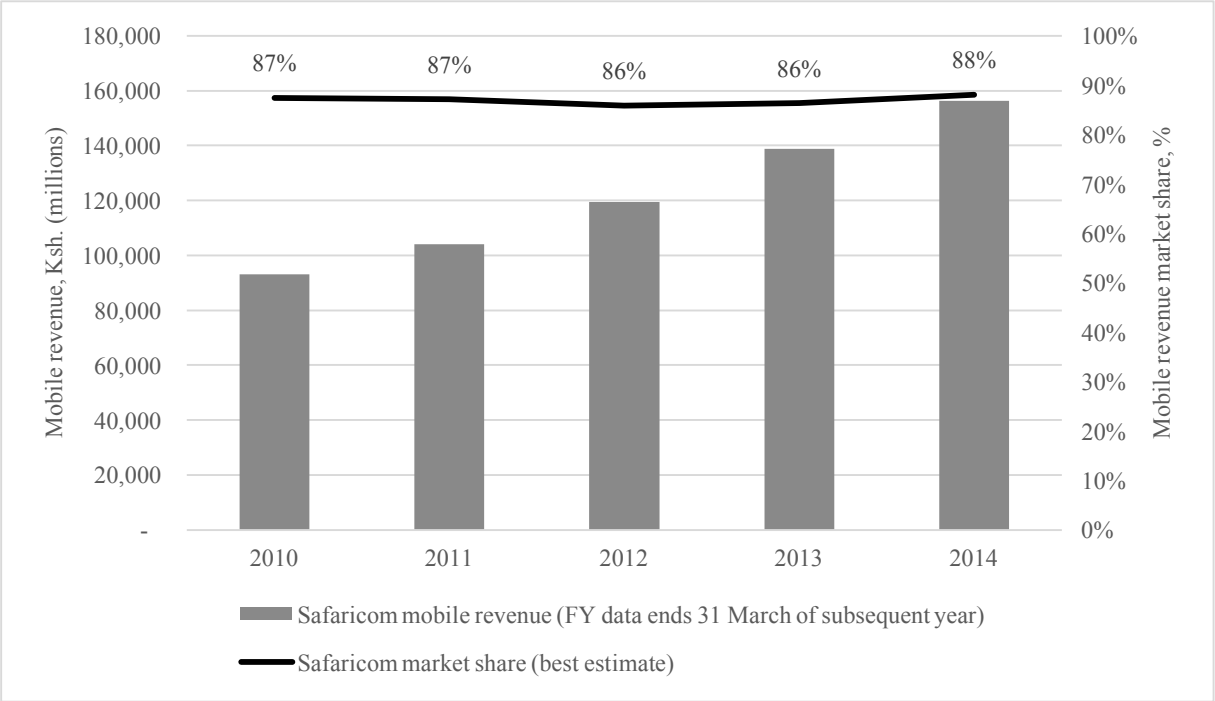
[130] We understand that this is the approach adopted by the Communications Authority of Kenya. See email from CA, dated 17 December 2015.

[131] Note that this applies Safaricom's revenues earned for the financial year to 31 March are applied to the previous calendar year for the total market revenue reported by the CA. For example, Safaricom's revenues for FY 2011 are applied to the total market revenues in the 2010 calendar year reported by the CA. The CA reports that it includes Telkom fixed network revenue in its estimates of total mobile market revenue in 2012 – 2014.

[132] Available here, see p. 18.

[133] [CONFIDENTIAL] This suggests that Safaricom had a revenue market share in excess of 80% between 2010 and 2014. See submission by [CONFIDENTIAL]

Figure 29: Safaricom revenue market share[134]



Source: Safaricom response to information request on 17 June 2015 and CA sector statistics (for total market).

Altogether, Safaricom's market share exceeds 50% in the relevant market, regardless of how it is measured and has consistently been above this threshold for a number of years (see, for example, Figure 29 above). Accordingly, its market share exceeds the market share threshold test for dominance.

In addition, Safaricom's rivals have been unable to expand in the market historically, evidenced in Safaricom's high and stable market shares over time, no matter how these are measured (see Figure 29 above, and Section D.2). This is a consequence of both high structural barriers to entry in the telecommunications sector (discussed below in Section G.1) as well as strategic barriers to entry introduced by Safaricom's behaviour in the market (discussed below in Section G.3). Safaricom has by far the highest proportion of radio frequency spectrum in Kenya, which likely gives it a considerable advantage in providing for higher quality connections and faster data speeds while allowing it to build its network at lower cost per user (see Section D.2.3).

Safaricom's high market share, the inability of rivals to expand in the market, together with high barriers to entry, mean that in economic terms, quite apart from the bright line test from section 4(3) of the Competition Act, Safaricom is clearly a "dominant undertaking" and has a "dominant position" under the Competition Act and is a "dominant telecommunications service provider" under the IC Act in the market for mobile telecommunications services.

[134] The total market size was arrived at by adding Safaricom's mobile revenues (using what we believe is the Communication Authority's definition, see main text), Airtel's total telecommunications revenues (set out in their annual reports), and Airtel's market share estimates for Orange and Yu for 2012-2014, and applying the same relative proportion to Airtel and Safaricom's revenues in 2010 and 2011. The total mobile revenues calculated using this approach are within 5% of those reported by the Communications Authority, except for 2013, where it appears as though the CA changed its definition for that year.

F.2.2 Market #2: The wholesale provision of USSD and STK access by MNOs and MVNOs to mobile financial services providers

F.2.2.1 Market shares

Market share in a wholesale market where there is a relatively small number of wholesale customers whose purchases may vary greatly from one to another is not usefully measured in terms of the numbers of such wholesale customers. Thus it is not particularly informative to compare the number of banks and aggregators whose retail customers rely on each of Safaricom's, Airtel's and Orange's networks for USSD and STK.

We could not measure actual usage and revenue from wholesale STK and USSD services, as no such data was provided pursuant to our information requests. However, it is possible to derive rough estimates of usage from the shares of the other markets.

The retail customers to whom the MNOs' wholesale USSD and STK customers provide their downstream mobile financial services (discussed in Markets #3 and #4) are the same retail customers to whom the MNOs provide their mobile telecommunications services (Market #1). These retail customers rely on the MNOs' USSD and STK services (Market #2) for their use of the downstream mobile financial services (Markets #3 and #4). Thus the MNOs' market shares in retail mobile telecommunications (Market #1) offer a useful reference point for the MNOs' market shares in the wholesale USSD and STK market (Market #2). It is reasonable therefore to conclude that Safaricom likely has a market share of the wholesale USSD and STK market (Market #2) of at least 80% to 90% (as discussed above in Section D.3.2).

To the extent that Safaricom's market share in mobile money services is even greater than this (as discussed in Section F.2.2.1), so also is it likely that its market share in the USSD and STK wholesale market would be greater.

Again, Market #2 is a wholesale market and not a retail market, and so the revenues that are derived from usage may differ from the level of usage depending on how services are priced, and the extent to which revenue is obtained on a per session/hop basis, revenue share, or otherwise. However, the signs are plain: in economic terms, the evidence strongly suggests that Safaricom's market share overwhelmingly exceeds the market share threshold test for dominance, which means that Safaricom is dominant in this market.[135]

The reasoning discussed in Section F.2.1 above in respect of Airtel and Orange's inability to expand their market shares and in respect of high barriers to entry in Market #1 applies equally in this wholesale market for USSD access. Safaricom's market share therefore not only exceeds the market share threshold test for dominance, Safaricom's rivals have been unable to expand their market shares significantly in Market #2, and barriers to entry are equally high in Market #2.

This means that Safaricom would be considered a "dominant undertaking" and to have a "dominant position" under the Competition Act and to be a "dominant telecommunications service provider" under the IC Act in the market for wholesale provision of USSD and STK access by MNOs and MVNOs to mobile financial services providers.

[135] In fact, Safaricom's market position would meet the test for 'super-dominance', a term which has been used in the EU (Whish, 2003).

F.2.2.2 Countervailing bargaining power

That Safaricom is dominant in this market is reinforced by the lack of countervailing bargaining power that exists when a mobile financial services provider procures USSD from Safaricom.

Safaricom has about 70% of the subscriptions in the Kenyan mobile telecommunications market (these may even represent a far higher portion of actual mobile users given that many Airtel and Orange subscribers have Safaricom subscriptions). Whether a mobile financial services provider purchased USSD from Airtel or Orange, or even launched its own MVNO across one of those MNOs' networks, it would face the problem that it could not reach the vast majority of end-users who are not connected to its host mobile network (whether Airtel or Orange).

Thus a mobile financial services provider has little option but to sign up with Safaricom in order to deliver its services to the large majority of the end-user market. In negotiating with Safaricom, a mobile financial services provider effectively has little and in many cases no countervailing bargaining power.

It is not that there are no alternatives at all to acquiring USSD from Safaricom while being able to reach Safaricom's customers. There are some, but although innovative they are likely weak alternatives, and are likely only available to a small number of players. Each involves setting up as an MVNO and thereby becoming both the mobile telecommunications provider and the mobile financial services provider for the end-user, rather than merely being the latter while relying on Safaricom to be the former.

Of course, the challenge for a mobile financial services provider MVNO is to reach the Safaricom customer. One strategy is to make services and a brand so attractive that Safaricom subscribers are prepared to acquire a second phone, or to acquire a dual-SIM phone. This "multi-simming" has been occurring in mobile telecommunications, as we have already discussed. Another innovative strategy has been pursued by Equity Bank, which has introduced thin-SIMs (or thin-film-SIMs) through its MVNO, Equitel/Finserve, to provide direct access to end-users to bank accounts and mobile wallets via STK.[136] Thin SIMs are placed on top of a consumer's existing SIM card inside their mobile phone, allowing the user to switch between the services of the SIM and thin-SIM card operators. The Equitel My Money bank account is accessed via STK on the thin-SIM (activated via a USSD channel provided by Airtel).[137]

The second handset, dual-SIM phone and the thin-SIM approaches all enable the mobile financial services provider to have access to the Safaricom customer while he or she continues to use Safaricom's services, including M-Pesa. However, each of these approaches has significant weaknesses. The second handset requires the inconvenience of obtaining and carrying around a second phone. The dual-SIM card phone requires the customer to acquire such a phone if he or she does not already have one. The thin-SIM requires the customer to switch networks to carry out the different tasks. The financial services provider also faces the major challenge of lack of account-to-account interoperability. The inability to transfer funds to or receive funds from M-Pesa, the most commonly used mobile money service, will hamper the attractiveness of the mobile financial service in the first place.

[136] Thin-SIM technology appears to have been developed in China, by F-Road, a technology company, originally to enable Chinese consumers to use avoid roaming charges when outside of their home network. See: Shrader, L. (2013). 'China – The Future Leader in Branchless Banking for the Poor?'. *CGAP*. Available here.

[137] See: http://equitel.com/my-money/get-activated

So although the availability of these alternatives may suggest the possibility of some countervailing bargaining power in negotiations, they are likely only available to firms with a major brand presence and customer base and they still face major disadvantages. Equity's existing large market presence and reputation in banking may help it, but whether others could succeed is not at all clear. While Equitel's subscriber base is growing (it had approximately 1 million subscribers in September 2015 after launching earlier that year), it has a very small proportion of total subscriptions in Kenya (38 million, and indeed the genuine market share in terms of usage and revenue may lag behind. This suggests that Equity's thin-SIM entry into in the market does not affect the evaluation of Safaricom's market power at this time. [138]

Lastly, the sheer awkwardness of these three alternatives only serves to illustrate the huge problem of finding any way to offer mobile financial services to the majority of the Kenyan market that does not go through Safaricom's USSD access. Countervailing bargaining power to Safaricom is, then, very limited.

In conclusion, Safaricom is clearly dominant in the market for USSD and STK for the purposes of mobile financial services.

F.2.3 Market #3: Retail money transfer and payment services (including mobile money)

In respect of money transfer and payment services, Safaricom's M-Pesa product is considerably more popular than any retail transfer service provided by traditional banks (e.g., see Figure 1 and Figure 2 above).

When it comes to the mobile money services market segment, Safaricom has a market share in excess of 70% of all mobile money subscribers, and has more than 60% of agents (Figure 21 and Figure 22 above).

In terms of usage and revenues, it is highly probable that Safaricom's share of the market segment in mobile money services is (like mobile telecommunications services) far greater than the number of subscribers (and here also agents). Primary data was not provided to us in response to our information requests for usage and revenues. However, Safaricom has (and has had for a number of years) an almost a 100% share of deposits to mobile money wallets (see Figure 23 in Section D.3.2).[139] Thus, while other providers may have collectively around 30% of the market in numbers of subscribers, their subscribers are making, comparatively, extremely low amounts of deposits. This is presumably because these subscribers are barely using these providers' mobile money services. As noted in Section D.3.2, Safaricom had an almost 100% share of active mobile money accounts in 2014, i.e., subscribers who used its service within the previous 90 days.

Section F.2.1 described how, in the mobile telecommunications market, end-users may have multiple SIMs, but they tend to use Safaricom's mobile telecommunications services more than they use those of the other MNOs whose SIMs they also carry. This disparity seems to be even

[138] While Equitel does not at this stage appear to provide USSD or STK services on its thin-SIMs on a wholesale basis, if thin-SIMs provide STK and USSD competition to MNOs at the retail level, then the price and quality at which wholesale MNO USSD and STK access services are supplied would be constrained. In the language of competition law and economics, USSD and STK over thin-SIMs provided at a retail level provide an 'indirect constraint' on the wholesale supply of USSD and STK services by MNOs. See Inderst, R. & Valletti, T. (2007). 'Market analysis in the presence of indirect constraints'. *Journal of Competition Law and Economics, Vol. 3, Issue 2*.

[139] Analysis of Communications Authority data as well as deposit data supplied by non-MNO mobile money services providers.

greater with mobile money services. End-users may have multiple subscriptions for mobile money services, but when they actually deposit funds and use the services, they are using M-Pesa more – apparently far more – than its rivals.

This all suggests that Safaricom's share of mobile money services is even higher – significantly so – than its share in mobile telecommunications services (Market #1). As usage attracts charges and generates revenues (subscriptions alone do not), this also suggests that Safaricom's actual market share in revenues from mobile money services is similarly larger.

Safaricom's near 100% of deposits and active subscribers mentioned above does not take into account customer deposits to bank accounts to and from which customers can transfer funds using mobile money services. As mobile-centric banks, such as Equity Bank (though the Equitel My Money service) and Co-operative Bank (through MCo-op Cash), and traditional retail banks grow their presence in the money transfer and payment market, Safaricom's percentage of deposits and active subscribers may decline. One indication of this is the growth in agency-based banking transaction values, which are growing more quickly than mobile money transaction values (see Figure 28 above in Section F.2.3). To the extent that deposits are made to bank accounts for purposes other than transfers (e.g., to earn interest on and save the money), deposits (or transaction values) may become a less useful indicator of the share in the mobile money services market segment. Furthermore, the traditional banks' services (relying on branches, ATMs, debit cards and POS devices) may not be serving the same needs as M-Pesa, particularly for low income customers, such that for such customer segment it may be inappropriate to include the traditional banks in the relevant market anyway.

Regardless, it is clear that, overall, Safaricom is also overwhelmingly dominant in the mobile money services market segment, which is downstream from the USSD and STK market. It is almost a complete monopoly and would plainly be considered dominant under the Competition Act and the IC Act.

F.2.4 Market #4: Consumer savings and loans

Safaricom also has a considerable market share in savings and loan products, offered via its mobile network, in respect of the M-Shwari and KCB M-Pesa products. Safaricom provides these savings and loan products in partnership with traditional banks, on the [CONFIDENTIAL] (see discussion in Section D.3.1.2 above).

Out of the 28.4 million savings accounts reported to CBK in 2014, 9.4 million (one-third) were at CBA (see Figure 16 in Section D.3.1.2 above). Given CBA's negligible market share prior to the launch of the M-Shwari savings and loan product, it is likely that almost all of these accounts are attributable to M-Shwari. While the number of active (7.1 million) and 30-day active (3.3 million) M-Shwari accounts reported in September 2015 are lower than the total number of reported CBA accounts in the CBK statistics, they still amount to a considerable proportion of total deposit accounts (28 million in 2014). This market share of savings and loan products might equally be ascribed to Safaricom, which is the primary enabler of the M-Shwari product.

It is not clear what market share KCB M-Pesa has managed to obtain in respect of overall deposits, as the latest available data from CBK is for 2014, and KCB M-Pesa launched in March 2015. There are signs that KCB M-Pesa accounts are resulting in significant growth in Safaricom's market share. Safaricom reported 2.7 million active and 1.6 million 30-day active KCB M-Pesa accounts in September 2015 (see Section D.3.1.2 above).

There are clearly far more KCB M-Pesa and M-Shwari accounts than there are Equitel My Money (1.1 million in September 2015) and MCo-op Cash (1.4 million in December 2014) accounts. Nonetheless, we do not need to conclude on whether Safaricom is dominant in markets for savings and loans in Kenya. Mobile savings and loan services providers are downstream from USSD and STK access, which are inputs to mobile savings and loan services. While dominance in a downstream market can be relevant in assessing market behaviour in the upstream market in question, its relevance primarily relates to the possible occurrence and harm of margin squeezes, yet even a margin squeeze may exist despite lack of dominance in the downstream market.

G. COMPETITION PROBLEMS AND MARKET CONDUCT

Certain features of the mobile financial services sector, including in particular the nature of the underlying infrastructure it relies upon and network effects of network industries, may limit the fullness of potential competition. These features make the sector more vulnerable to market conduct that constrains competition, in particular where a dominant firm abuses its position in the market. Section G.1 explains these features as background to discussing market conduct.

Section G.2 then identifies theories of harm, i.e., conduct of a dominant firm which may be a matter of particular concern in this context. We consider exploitative practices of excessive pricing and exclusionary practices of discriminatory pricing and margin squeeze that constrain competition in the market.

Having provided context and framed the questions for analysis, we evaluate in Section G.3 Safaricom's market conduct in the wholesale supply of USSD and STK services (Market #2), the constraints it imposes on competition and whether this conduct amounts to abuse of dominance under our theories of harm. The focus is on Safaricom and not other operators for the simple reason that it is Safaricom and no other operator that has the capability unilaterally to engage in practices that exploit market power and exclude competition.

We begin Section G.3 by discussing USSD prices in Kenya in Section G.3.1, initially asking whether these are excessive. Finding that in some cases the prices are excessive, while in other cases Safaricom offers lower prices to particular market participants, we go on to consider questions of price discrimination in Section G.3.2. In light of apparent excessive pricing and discriminatory pricing, we turn in Section G.3.3 to whether Safaricom is engaging in exclusionary practices, both through pricing that imposes a margin squeeze and through offering poor quality of service. Concluding that its practices likely impose a margin squeeze, Section G.3.4 goes on to discuss how Safaricom's approach to interoperability of M-Pesa with other mobile wallets and with bank accounts intensifies the exclusionary impact of network effects already amplified by Safaricom's market conduct in its pricing of USSD access.

The focus of this inquiry is on pricing and terms of access to USSD, but as is seen, the effects reach beyond this service even into mobile savings and loans.

G.1 The nature of telecommunications and mobile money markets

G.1.1 Economic and technical limitations on competition

Mobile financial services providers depend on being able to connect effectively and securely with customers through mobile devices. This requires access to the mobile devices of MNO or MVNO subscribers through one of the communications channels discussed in Section C.3. As

seen in Section F, the structure of the relevant markets here is extremely concentrated, indeed featuring dominance.

The market in mobile telecommunications services (Market #1) is in most countries relatively concentrated. This largely arises out of high financial, technical and regulatory barriers to entry and economies of scale (supply-side and demand-side) and scope.[140] Establishing a mobile network also involves substantial fixed sunk costs, including civil works, towers, base stations, electronic equipment, IT systems and other infrastructure, on a national basis. Technical factors, such as limitations on the amount of suitable radio spectrum that can be used over available technologies, also limit market entry. These factors and related regulatory constraints, including limitations on the number of licences available for operating a mobile telecommunications network (see Section E.2.1), result in a small number of MNOs in all countries. There are currently only three in Kenya.

The presence in the market of MVNOs offering mobile telecommunications services may increase the number of retail providers and so competition in the provision of retail services, but these remain dependent on the networks of the limited number of licensed network operators.

This inquiry is primarily concerned with the provision and pricing of access to USSD (Market #2), a key communications channel relied upon for the provision of mobile financial services. The sunk costs of including a USSD gateway in the mobile telecommunications network are small in comparison to those of the mobile telecommunications network, but because USSD is provided across the network, the number of possible USSD access providers is similarly limited.

These are, then, markets that by their nature lend themselves to certain structural constraints on competition. However, market conduct can exploit these constraints and further limit competition through exclusionary behaviour. MNOs and MVNOs are also often providers of mobile financial services through their mobile networks utilizing USSD, STK or other channels. However, for banks and other non-MNO mobile financial services providers, there is no viable substitute for USSD and STK access to deliver their services to customers. MNOs and MVNOs therefore serve as both upstream suppliers of this USSD and STK access as well as competitors.

Because MNOs and MVNOs serve these dual roles, and because the upstream market is already necessarily relatively concentrated, they may have an incentive and the ability to deny or limit access to USSD and STK to constrain competition. We explain such constraints on competition from market conduct below in Section G.2 and evaluate their apparent presence in Kenya in Section G.3.

However, Kenya's extreme level of market concentration in mobile telecommunications (or mobile money) is not explained alone by these factors. It is necessary to consider network effects and market conduct to understand the Kenyan market.

G.1.2 Network effects

In addition to the high sunk costs, supply-side economies of scale, and technical and regulatory factors that may constrain the potential for competition, the nature of telecommunications and financial services as network services means that 'network effects' (demand-side economies of

[140] See, for example: International Competition Network. (2006). 'Report of the ICN working group on telecommunications services'. Available here.

scale, also sometimes referred to as 'club effects') can significantly constrain competition further.

Network effects occur where the value to one user of a good or service depends on the number of other users of a product or service. In economic terms there is a positive external benefit (externality) from an additional person joining a network, as the network thereby becomes more valuable to all of its members. It is widely accepted that network effects can produce competition problems largely because they can enhance the market power of one or more firms.[141] These problems may require intervention in the form of competition enforcement and/or regulation.

In a *direct network effect*, the value of the network is related to its size, i.e., the number of people that each person can connect with on the network.

Telephone networks, for instance, have network effects: the more people that are connected, the more valuable the network is to all. Efficiently priced and technically effective interconnection among different operators' networks expands the network effects of a single network to comprise all interconnected networks. However, where interconnection is arranged in a manner that incentivises the caller to use only its network, this can entrench the network effect. For example, a mobile network that has lower prices for making calls 'on-net' (i.e., to other subscribers on the same network) than 'off-net' (i.e., to subscribers on another network) becomes more valuable as more people join the network because each subscriber has access to more subscribers at the lower prices.[142] Evidence of these 'tariff-mediated network effects' in Kenya is discussed in Section D.2.2 above. A positive feedback loop is created as a result of which end-users regard the MNO as a 'must-have' network. As this deepens, it can become extremely difficult for competing service providers to gain market share.

Similarly, in banking, there is a payments system which means transactions can be undertaken with customers of other banks, as well as of the customer's own bank (referred to as 'on-us' and 'off-us' transactions). These transactions can happen through the use of payment cards. Individuals may also be able to access funds from a customer's account through the ATMs of other banks. In the absence of such interoperability, or where consumers 'single-home' (that is, they choose just one ideal platform or network rather than maintaining several), a similar network effect can develop.

An *indirect network effect* relates to where there are complementary products or networks. These are also referred to as cross-side network effects. Economists talk of 'two-sided' (and 'multi-sided') markets or platforms where there are two or more different user groups who derive benefits from a platform. Indirect network effects arise when increasing the number of users on one side of the market makes it more valuable to users on the other side as well.[143] For example, in agency banking, the more customers there are, the more valuable the business is to agents, and the more agents there are, the more valuable the banking service is to customers.

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[141] See, for example, Farrell, J. & Klemperer, P. (2007). 'Coordination and lock-in: competition with switching costs and network effects'. *Handbook of Industrial Organization.* Vol. 3. Armstrong, M & Porter, R. (Eds.).

[142] These 'tariff-mediated network effects' may also be generated by operators charging low on-net prices relative to the call termination rate. See, for example, Laffont, Rey & Tirole (1998), cited above.

[143] See, for example, Anderson, J. 'Competitive and regulatory implications of mobile banking in developing markets' (25 August 2011). *Technology Banker*. See also, for example, Amstrong, M. (2006). 'Competition in two-sided markets'. *Rand Journal of Economics*. Vol 37 (3).

Both direct and indirect network effects exist in the market segment for mobile money (Market #3). Direct network effects exist because end-users value mobile money services more where there is a greater number of other mobile money users to whom they can send, or from whom they can receive, money. Indirect network effects exist between mobile money end-users and agents. The greater the number of agents participating in the platform, the more valuable the platform to end-users, and the greater the number of end-users, the greater the value to agents. The same effect exists for merchants making use of the platform, such as those participating in the Lipa na M-Pesa service.

In two-sided networks, a strong position in one network may lead to advantages in the other. A high market share in mobile telecommunications services (Market #1) increases the value of access to a network operator's USSD and STK channels (Market #2) because these connect the mobile money services provider to the retail customers. Likewise, the greater use that is made of the USSD and STK channels for mobile money services (Market #3) that can only be made across that operator's network, the more necessary it becomes for customers to obtain and maintain a mobile network subscription with that operator (Market #1).

When combined, these mobile money network effects and telecommunications network effects can be particularly problematic.[144] A cross-side feedback loop between the network effects in telecommunications and the network effects in mobile money is created as a result of which end-users regard the MNO as a 'must-have' network. As this deepens, it can become extremely difficult for competing service providers to gain market share. When one network becomes so large that all users gravitate towards it it may pass a 'tipping point.' There are likely to be significant first mover advantages for achieving this tipping point, which may make it worth investing in a network, making it available to a large number of users very cheaply (or free) in order to be able to build a dominant position which will earn future revenues. This can lead to a winner takes-all situation, with 'competition *for* the market'[145] resulting in substantial market power reinforced by network effects.

The Communications Authority identified this as occurring in Kenya six years ago in its Interconnection Determination No. 2 of 2010, which found:

> *6(k)* ***Impact of Mobile Money Transfers on the Voice Market:*** *That the mobile money transfer Services differentiates voice services and therefore strengthens and sustains a ''club'' effect through reduced churn rate primarily because the costs to non-registered users are very high.*
>
> *7.1(d) That considering the impact of mobile money transfer services on the competitive landscape in the telecommunications market in strengthening and sustaining a "club effect" and the onerous charges imposed on non-registered users, the Commission shall support any operators' request to enter into investigating the interconnectivity options*

[144] Evans, D. and A. Pirchio (2015) 'An Empirical Examination of Why Mobile Money Schemes Ignite in Some Developing Countries but Flounder in Most', Coase-Sandor Institute for Law and Economics Working Paper no 723; Sitbon, E. (2015) ' Addressing competition bottlenecks in digital financial ecosystems', *Journal of Payments Strategy & Systems*, 9(3); Jack, W. and T. Suri (2011) 'The Economics of M-Pesa' MIT working paper; Jack, W. and T. Suri. (2014) 'Risk Sharing and Transactions Costs: Evidence from Kenya's Mobile Money Revolution. *American Economic Review*, 104(1): 183-223; Robb, G. and T. Vilakazi (2015) 'Barriers to entry in mobile money: a comparative study of Kenya, Zimbabwe and South Africa', project report for CCRED/National Treasury project on Barriers to Entry; Hanouch & Chen (2015), cited above.

[145] Bourreau, M. and Valletti, T (2015) "Enabling Digital Financial Inclusion through Improvements in Competition and Interoperability: What Works and What Doesn't?" CGD Policy Paper 065, Washington DC: Center for Global Development at 14, available here.

for mobile money transfer services in line with convergence especially with regard to charges to non registered users;

In mobile financial services there are thus dynamic and complex network effects at work, with a combination of cross-side and same-side effects. These raise a range of competition and regulatory implications. As a critical link between the telecommunications and financial networks, the wholesale market for access to USSD and STK is at the centre of, and cannot be analysed separately from, the developments in the different networks and the interactions between them.

Such effects may be greatly exacerbated by market conduct, and where they become exclusionary, they may violate competition law. We discuss theories of harm in market conduct below in Section G.2 and evaluate market conduct in Kenya in Section G.3.

G.2 Theories of harm

In this subsection, we articulate the potential harm that lies behind these competition concerns. These theories of harm are derived from principles of competition law that are well recognised internationally and are consistent with competition law in Kenya. In Section G.3, we then evaluate the information made available in this inquiry regarding market conduct, USSD pricing and conditions of access in terms of whether they are exploitative or exclusionary and have constrained competition, with reference to competition law in Kenya.

G.2.1 Market conduct and dominance

Coupled with the sorts of structural limits on competition described above, conduct in the market may constrain competition. Behavioural competition issues can be broadly broken down into:

- *exploitative* conduct, where market power is exerted to earn supra-competitive returns from consumers; and
- *exclusionary* arrangements where actual or potential rivals are undermined whether through price discrimination, margin squeeze, refusal to supply or low quality of service, or a combination of these.

The pricing of USSD could be examined in competition law terms for the possible presence of excessive pricing, that is, the exertion of market power to earn supra-competitive rents (exploitative conduct). However, and perhaps more importantly for our purposes, the main groups of users we are concerned with here are other providers of mobile financial services and whether their ability to compete is being undermined (exclusionary conduct). High prices of access to USSD are alleged to have the effect of excluding mobile-centric banks (such as Equity Bank and Co-operative Bank) and non-MNO mobile money services providers (such as Mobikash and Tangaza Pesa) from supplying financial services using mobile channels. We consider whether the pricing of USSD is unfair in terms of differential pricing to groups of users and the impact of the pricing on competition. We further consider what cost-reflective pricing would be.

We also take into account non-price arrangements. These include integration of some wholesale USSD customers' mobile financial services in Safaricom's M-Pesa menu and access to Safaricom's customer data for credit profiling purposes. In addition, the lack of interoperability among mobile wallets offered by MNOs (and between these mobile wallets, on one hand, and

banks and mobile wallets of non-MNO mobile money services providers, on the other hand) is alleged to weaken the ability of mobile financial services providers to compete with Safaricom in the mobile money services market segment (Market #3).

The common theme in respect of these concerns is that they bolster Safaricom's market power in markets for mobile financial services, which in turn bolsters Safaricom's market power in markets for mobile telecommunications services because the former must be provided over Safaricom's mobile telecommunications network.

The structure and evolution of the relevant markets is such that the main competition concerns arise from the upstream position of Safaricom and its dominance in upstream and downstream markets. In particular, a basic competition question is whether Safaricom has abused its dominant position in any of the relevant markets. Indications of abuse of dominance under the competition and telecommunications legal and regulatory frameworks are thus an important line of inquiry.

It is widely established in competition law internationally that a dominant firm may not abuse its dominant position. An abuse of a dominant position involves recourse to methods different from those which condition normal competition.[146] In normal competitive markets, no single firm has substantial market power so that consumers or buyers have good alternatives to which they can turn if a supplier charges high prices or attempts to restrict supply or impose unwarranted conditions on the supply of a good.

Firms may become dominant for many reasons including:

- substantial scale economies (supply-side or demand-side, or both), which mean that there are few firms in a given market;
- being the first to develop a particular product or service and having established a lead position over other suppliers; or,
- state ownership and/or support which gave one firm an advantage over rivals.

A combination of factors is often at play as large firms are also typically well-placed to lobby for preferential treatment by the state. Dominance in itself, though, is not the problem. It is *abuse* of a dominant position that gives rise to concern, as discussed next.[147]

G.2.2 Theories of harm considered in this inquiry

Section 24(1) of the Competition Act prohibits "any conduct which amounts to the abuse of a dominant position in a market in Kenya, or a substantial part of Kenya." Section 24(2) states that, without prejudice to the general prohibition in Section 24(1), abuse of a dominant position includes:

> (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;
>
> [. . .]

[146] See, for example, Vickers, J (2005) 'Abuse of market power', *The Economic Journal*, 115, 244-261.

[147] See Fox, E (2002) 'What is harm to competition? Exclusionary practices and anticompetitive effect.' *Antitrust Law Journal* 70: 372–411; and Fox, E (2003) 'We protect competition, you protect competitors.' *World Competition* 26: 149–165. More recently on disagreements in Europe over the conduct of Intel see Wils (2014) 'The judgement of the EU General Court in Intel and the so-called 'more economic approach' to abuse of dominance', *World Competition*, Volume 37, Issue 4.

(c) applying dissimilar conditions to equivalent transactions with other trading parties;

The relatively general terms of these prohibitions makes it all the more important to ensure that evaluation of possible abuses of dominance are well anchored in the actual harm that the conduct may cause. We therefore explain in some detail in the next subsection the theories of harm that we consider when evaluating Safaricom's conduct as a dominant firm.

Below we set out three theories of harm that relate to possible abuse of a dominant position and are examined in this market inquiry. These are:

(1) *Excessive pricing by a dominant firm* (which would fall under Section 24(1)(a) of the Competition Act);

(2) *Price discrimination by a dominant firm* (which would fall under Section 24(1)(c) of the Competition Act); and

(3) *Exclusionary abuse of dominance* (which would fall under Section 24(1)(a) of the Competition Act and may fall under Section 24(1)(c) if exclusion is achieved through discriminatory pricing).

As will be seen in Section G.3, these theories of harm are related to one another. Excessive USSD pricing applied in a discriminatory manner appears to be at the root of exclusionary pricing.

G.2.2.1 Excessive pricing by a dominant firm

Excessive pricing, where prices are 'excessive' in the language of European Union (EU) competition law relates to the concept of 'economic value'.[148] Prices charged by dominant firms that are above 'economic value' are excessive ('unfair' in terms of the Kenyan and EU statutes). Such prices may be exploitative in not being related to costs or earning the dominant firm margins which are unfair or unjustified in that they are not a reasonable reward on investment and innovation made but are simply earned by virtue of its market power. The prices may also have an exclusionary effect in undermining rivals who require the service as an input (see Section G.2.2.3).

In this inquiry, when considering whether pricing is excessive (or exclusionary), it is necessary to consider the basis of Safaricom's possible market power including being the first mover in investing in a national network with high capital costs (see Section G.1.1), and having benefited initially as a subsidiary of the fixed line incumbent, Telkom Kenya. Also, Safaricom has at least in part built its position of market power through risk taking and innovation, in developing the M-Pesa service and building a large network of mobile money agents.

In general, competition authorities may be more inclined to intervene in excessive pricing complaints where the firm's market power was acquired through anticompetitive conduct or legal barriers to entry, rather than risk taking, investment and innovation. In the case of Safaricom, it is also necessary to consider the benefits that accrue from its large subscriber base

[148] See Padilla & O'Donoghue (2013), cited above.

in both mobile telecommunications and mobile money, and the related network effects (see Section G.1.2).

In order to undertake an assessment of whether prices are excessive, it is useful to consider available benchmarks for competitive or fair pricing against which to assess the prices in question.[149] Where the dominant firm charges prices substantially above those benchmarks, this may indicate the occurrence of excessive pricing. There is no universally agreed mark-up over competitive or fair prices that would constitute an excessive price. Nonetheless, courts in other jurisdictions have evaluated ranges of mark-ups that have been held to be excessive. For example, the Competition Appeal Court in South Africa, summarising jurisprudence in the EU, held that a mark-up of less than 20% over 'economic value' would not be excessive.[150] In addition, there have been a number of settlements where no finding was made but firms agreed to lower prices. It is also important to consider the mark-up in the context of the sector concerned. A range of measures of economic value, which is the price that would be expected under effective competition, should be evaluated. This includes benchmarking prices against markets which are understood to be competitive, and comparing prices to different measures of costs.

A range of benchmarks are available to this inquiry. International comparisons, especially with countries that have similar markets to that of Kenya are quite powerful. Another important benchmark is pricing over time. The fact that USSD charges have seen very large reductions suggests that prices in the past were excessive, assuming that USSD charges in recent periods still cover costs.

G.2.2.2 Price discrimination by a dominant firm

Price discrimination is not always anti-competitive. The incentives for price discrimination include the expansion of supply to those with lower willingness to pay which enhances economic efficiency, and the maximum exertion of market power to exploit higher willingness to pay which results in a transfer from consumer surplus to producer surplus without changing overall welfare. Discriminatory pricing and terms can also be part of reaching agreements with some customers and not others, in ways which might tie-up a significant part of the downstream market and undermine rivals.

The ability to lower prices to customers and expand supply, without undermining the prices to other customers, increases economic efficiency where under non-discrimination the firm would choose not to supply these customers. For example, a cinema can offer much cheaper tickets during the day to attract additional customers that would not come at the regular rates, where the lower prices only cover the variable costs and make some contribution to the fixed costs (such as building rental and head office costs). This is generally associated with end-customers and final demand. It also requires being able to ring-fence those with a lower willingness to pay. If others with a higher willingness to pay choose to 'buy-down' (go to the cinema during the day instead of the evening) then the effect is to reduce rather than expand revenues. In this case we are considering discriminatory pricing and terms offered by Safaricom to parties offering mobile financial services.

[149] This is not an exercise of pulling together all possible prices for the purposes of comparison, as some of these prices may also be excessive and thus not be appropriate benchmarks.

[150] See Competition Appeal Court, 2015, in the matter between Sasol Chemical Industries Limited and the Competition Commission, available here.

For dissimilar terms and pricing to constitute wrongful discrimination and an abuse of dominance, the transactions in question have to be equivalent. The Competition Act's formulation of discrimination (see Section E.3.5 above) is close to that of the Treaty for the European Union. The EU approach has treated 'equivalent transactions' as comparability of the goods and services. It is clear that the test for comparability does not mean that the products and transactions should be exactly the same.[151] For transactions to be equivalent the American and European standards are essentially that:[152]

a. *"The product sold to different customers must be comparable"*

b. *"The transactions as a whole must also be reasonably analogous"*

The standards of comparability of the products and reasonably analogous transactions have also been adopted in South Africa.

There may be discrimination where different, non-cost related, terms are imposed, or if the prices charged are the same but the costs are different.[153] In the former case, the question is whether the different terms are objectively justifiable, based on the costs of supplying the product or service. If there are cost differences, as there often are when there may be different volumes sold or different contractual terms, then the inquiry needs to assess the magnitude of the difference and the justifiability given for the difference. If the difference is due to the different degree of market power over one group of customers compared to another, then the price discrimination may relate to the exploitation of this market power in contravention of the competition law.

The formulation of the prohibition on discrimination in the Competition Act differs from that in the Treaty for the EU. The EU prohibits "applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage" while the Competition Act only prohibits a dominant firm from "applying dissimilar conditions to equivalent transactions with other trading parties." Kenya's prohibition is thus broader. At the very least, it suggests that it is all the more incumbent on a dominant firm in Kenya to be vigilant in not engaging in discriminatory practices. It should be all the more cognisant of its market power and responsibility that accompanies it.

G.2.2.3 Exclusionary abuse of dominance

Exclusionary abuse of dominance causes economic harm by excluding rivals, undermining competition and reducing choices to consumers. The dominant firm can thereby protect and/or extend its position and thereby maintain high prices to the detriment of consumers.

It is necessary to consider whether dominant firms impair effective competition by foreclosing their competitors in an anticompetitive way.[154] Anticompetitive foreclosure describes a situation where effective access of actual or potential competitors to supplies or markets is restricted as a result of the conduct of the dominant firm.

[151] See, for example, United Brands Co and United Brands Continental BV vs Commission, case number 27/76, para 204.

[152] Petersen, R. (2006). Discrimination and equivalence of transactions, lecture 3, SOURCE. Springer, U. (1997). *Borden and United Brands revisited: A comparison of the elements of price discrimination under E.C. and U.S Antitrust Law*. European Competition Law Review 18(1), 42-53.

[153] Whish (2003), cited above, p717.

[154] See EC Guidance on Exclusionary Abuse (2009), para 19.

Assessing possible exclusionary anticompetitive conduct should take into account:

- the *ability* of market participants to engage in exclusionary strategies, including the mechanisms by which rivals can be undermined, as distinguished from arrangements which support investment and the development of better services;
- the *incentive* to undertake such conduct; and
- the *effects* of the conduct, not just on individual competitors but on overall competition and economic outcomes.

G.2.2.3.1 Ability and effect

A vertically integrated dominant firm has the *ability* to engage in exclusionary conduct through supra-competitive pricing of a service or facility which is an important input, or through refusal to supply the input to competitors in downstream markets. Supra-competitive pricing may have the *effect* of squeezing rivals' margins (a form of raising rivals' costs) to undermine their ability to compete in such downstream markets. The pricing can be so disadvantageous that it is even akin to a refusal to supply. The provider of the key input may also integrate or reach exclusive agreements with firms in the related downstream market and/or engage in discrimination between them.[155]

Padilla & O'Donoghue identify five features of exclusionary abuse in the form of a margin squeeze in the European Union[156] (this is also the test adopted by the Competition Tribunal in South Africa for margin squeeze[157]):

(1) The supplier of the input is vertically-integrated;

(2) The input in question is in some sense essential for downstream competition (i.e., upstream dominance);

(3) The vertically integrated dominant firm's prices would render the activities of an efficient rival uneconomic;[158]

(4) There is no objective justification for the vertically integrated dominant firm's pricing arrangements; and

[155] Rey, P. and J. Tirole (2007) 'A Primer on Foreclosure', in M. Armstrong and R. Porter (eds) *Handbook of Industrial Organisation III.*

[156] See Padilla & O'Donoghue (2013), cited above.

[157] See Competition Tribunal decision in Competition Commission vs. Senwes Ltd., case NO: 110/CR/Dec06, available here.

[158] There is a debate as to whether the costs of an 'as efficient' competitor, or those of a 'reasonably efficient' competitor ought to be used. The 'as efficient' competitor test requires using the downstream costs of the vertically integrated dominant supplier of the upstream input. We do not have full information on the dominant firm's downstream costs, in this case Safaricom's. Nonetheless, in conducting our analysis we have used cost-related assumptions that are favourable to Safaricom, and that show a margin squeeze. Using Safaricom's actual costs might lead to different conclusions. Due to the lack of information, therefore, we do not conclusively find a margin squeeze. There may be good reasons to find a margin squeeze absent the use of Safaricom's own costs, applying the 'reasonably efficient' competitor test. Given the lack of information in this case and the nature of this report, which is a market inquiry and not the findings of an investigation, we do not reach any firm conclusions here as to which cost test ought to be used in this case.

(5) Proof of anticompetitive effects.

In addition, the downstream operation of the vertically integrated dominant firm needs to have some degree of market power in downstream markets, although not necessarily crossing a threshold of substantial market power and/or dominance. Essentially, the firm engaging in the margin squeeze needs to have some expectation that it will be able to win most of the sales of the downstream firm being excluded, and that downstream firms will not simply be able to pass on the costs of higher upstream prices.

In the case of access to USSD, high prices can serve as a barrier to entry into and growth in the mobile money market segment. If prices are high, a mobile money services provider (including in this case mobile-centric banking services, such as Equitel My Money and MCo-op Cash) may be forced to pass those costs onto customers (which may result in uncompetitive pricing) or absorb the costs (which may impact profitability). As a result, high USSD access prices have the potential to hinder competition in the mobile money services market segment.[159] Complaints of high prices have been noted in Kenya and Nigeria.[160]

In addition to high prices, such vertical foreclosure, may also be achieved through non-provision of USSD access entirely, or provision with poor quality of service.

Non-provision of USSD access refers to an MNO or MVNO simply refusing to grant USSD access on its network to competing mobile financial services providers. Denial of USSD access can foreclose a mobile financial services provider from the market because there is often no substitute communications channel available.[161] MNO's with larger market shares have greater power to foreclose competitors because the non-provision will deny access to larger subscriber networks.[162] Allegations of non-provision of USSD access have been made by mobile financial services providers in Senegal, Zimbabwe and Uganda.[163] Non-provision of USSD access is not currently an issue in Kenya.

Quality of service of USSD sessions refers to the reliability of USSD sessions, i.e., how often a session is 'dropped.' Dropped sessions result in multiple charges to customers (or mobile financial providers, depending on the payment model) and can erode customer trust.[164] Because the USSD channel is part of an MNO's network and largely under its control, it may be possible that an MNO can by action or omission affect the number of dropped sessions. However, it is unclear whether MNOs have the technical capability to selectively degrade the quality of USSD sessions for customers of particular mobile financial services providers.[165] Also, many external factors can also result in dropped sessions, so it is often difficult to determine the source of issues with quality of service.

[159] Singh, G. et al (May 2014).

[160] Singh, G. et al (May 2014) at 6.

[161] Singh, G. et al (May 2014) at 7

[162] Singh, G. et al (May 2014) at 10-11

[163] Singh, G. et al (May 2014) at 4.

[164] Singh, G. et al (May 2014) at 6.

[165] Singh, G. et al (May 2014) at 16-17 and Ftnt 24.

G.2.2.3.2 Incentives

The *incentives* of a vertically integrated firm dealing with competitors in the downstream market are not necessarily as simple as they may seem. If a market participant can attain the rewards from a position in one market (such as mobile telecommunications services), it is not clear that there is necessarily an incentive to leverage this power into a related market such as financial services. Instead, for example, vigorous competition in the related market might grow the overall demand for mobile telecommunications services, while excluding rivals in the related market may retard this growth.

In terms of incentives, the interest of a dominant firm in foreclosing rivals in a related market has been questioned by those associated with the 'Chicago School' (so named as many of those developing these positions were at the University of Chicago). With strong assumptions (including perfect information and contestable markets), there are models which show that the dominant market participant's incentives are simply to exert its market power in the market in which it has this position (in this case, telecommunications) and that it should support, rather than undermine, intense competition in the downstream or adjacent markets.

There are a range of 'Post-Chicago' models in which economists have identified situations where these assumptions are not met and where, consequently, it is possible for anticompetitive foreclosure to occur. The most relevant to this inquiry is probably the theory of defensive leveraging, first established by Carlton and Waldman (2002).[166] In this theory the incumbent monopolist is concerned that in the long term, a participant that enters one market successfully may try to integrate into the adjacent market, thus threatening the dominance of the incumbent market participant. This theory of harm can apply in either a vertical setting, where the incumbent is vertically integrated and holds a monopoly at one level of the supply chain, or in a horizontal setting, where the incumbent produces two complementary products and holds a monopoly in one of them. In this model, the incumbent may have an incentive to monopolise the complementary good market even when entry is costless provided there are network externalities.[167] According to O'Donoghue and Padilla (2006):[168]

> *"Carlton and Waldman show that tying the complementary good to the monopoly product gives the monopolist a head start in the race to become the standard in the market for the complementary good. This incentive exists because the incumbent sees its monopoly position in the primary good market subject to the threat of entry. Otherwise, it would prefer to have competition in the complementary good market, so as to ensure the adoption of the best standard and to appropriate the rents generated by that standard via a higher price in the primary product market."*

Applying this theory to this market inquiry, the primary market would be mobile telecommunications services (Market #1), while the mobile money market segment (Market #3) is the downstream (complementary) market. In order for Carlton and Waldman's theory to hold, entry into the tied market needs to be costly. There are variations on the models but the core insight is that a dominant telecommunications provider's incentive is for markets which use telecommunications to grow rapidly and with intense competition as this increases the

[166] Carlton, W. and Waldman, M., "The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries" (2002) 33(2) *RAND Journal of Economics* 194–220.

[167] O'Donoghue, R. and Padilla, J. (2006). *The Law and Economics Of Article 82 EC.* Hart.

[168] O'Donoghue & Padilla (2006), cited above.

demand for the main service in which it has market power. However, if there is a likely threat in their main market coming from participants in the related markets then there are incentives for the dominant firm to extend to related markets in order to defend its position.

As described in Section G.1.2, markets which are subject to network effects can tend towards 'tipping points' where the market evolves such that one product or service becomes the dominant standard. The defensive leveraging theory is particularly strong in industries with network effects as the possibility of market tipping in the downstream product market (in this case, the mobile money services market segment (Market #3)) provides a threat to the incumbent monopolist's position in the primary market (in this case, mobile telecommunications services (Market #1)), because a successful entrant in the downstream product market then could attempt to build market position in the primary market. In order to remove the threat to its monopoly position in the primary market, the incumbent then attempts to exclude competitors in the market for the downstream product so as to ensure that its product becomes dominant.

With a market share of more than 80% of mobile revenues in the mobile telecommunications services market (Market #1) and a market share of over 95% in the mobile money market segment (Market #3), Safaricom is in a strong position to have the ability to exploit these network effects. Subscribers may be reluctant to switch away from Safaricom to a smaller network. Similar competition problems have been noted in a number of countries in which MNOs have raised the costs of banks offering financial services through mobile channels.[169]

G.3 Market conduct in the Kenyan market

G.3.1 Excessive pricing

G.3.1.1 USSD pricing and terms in Kenya

G.3.1.1.1 Safaricom

We requested detailed information on prices and terms of access of USSD services, including contractual arrangements. While some information was provided, much of the information requested was not. For example, we requested specific contractual arrangements per USSD code and these were not provided. Nonetheless, certain items of relevant information were disclosed, and these do enable some analysis of the market and some conclusions, albeit incomplete.

Safaricom charges various set-up and connection-related fees for access to and use of its USSD services (Table 13 below). It allows third parties to use its USSD channel under three compensation methods: prepay, postpay and revenue share (prepay and postpay are usage based). The monthly access charge and usage charges vary for the two usage based methods.

[169] See Gateway Financial Innovations for Savings. (2013). 'Big banks and small savers. A new pathway to profitability. GAFIS Project report'. Available here.

Regarding the *prepay* usage charge, the prices provided to us by Safaricom in September 2015 were Ksh 5 for banking institutions and SACCO's, and Ksh 10 for general content and service (including non-MNO mobile money services providers, such as Mobikash and Tangaza Pesa), for a 180-second USSD session.[170] [CONFIDENTIAL][171] [CONFIDENTIAL] indicated in June 2015 that their end-users paid Ksh [CONFIDENTIAL].[172] Other submissions corroborate the reduction of prepay charges to Ksh [CONFIDENTIAL] for some banks.[173]

However, as at December 2015, this offer appears not to have been extended to all USSD users (including banks). For example, [CONFIDENTIAL].[174] Similarly, [CONFIDENTIAL] advised in December 2015 that Safaricom's price for a 180-second prepay USSD session is Ksh 10.[175] According to Mobikash, neither Safaricom's prepay charge of Ksh 5 per session for banking institutions and SACCOs, nor its new reduced prepay charge of Ksh 2 per session, were made available to it.[176] For premium rate service providers (PRSPs), such as those serviced by [CONFIDENTIAL], Safaricom's prepay rate is Ksh 10 per session.[177] The differential treatment raises questions of price discrimination which we address in Section G.3.2.

The *postpay* usage charges are shown in Table 14, supplied by Safaricom, and according to information provided to the inquiry are applied on a per 'hop' basis. Each USSD session comprises a series of messages, in which the mobile user is presented with a menu of options (the first hop), selects from that menu (second hop), and then is presented with the next menu (third hop), and so on until the transaction has been completed. Contradictory information was provided to the inquiry on whether postpay pricing is per session or per hop. [CONFIDENTIAL].[178] Accordingly, we remain uncertain on the cost of USSD under the postpay model.

[CONFIDENTIAL] provided us with a copy of its agreement with Safaricom for USSD services which contained the same postpay prices as are shown on Table 14.[179] [CONFIDENTIAL] separately provided a document containing the same postpay prices and the higher 'General content & service' prepay price of Ksh 10.

[170] Information provided by Safaricom in September 2015.

[171] [CONFIDENTIAL]

[172] [CONFIDENTIAL]

[173] [CONFIDENTIAL].

[174] [CONFIDENTIAL]

[175] [CONFIDENTIAL]

[176] [CONFIDENTIAL]

[177] [CONFIDENTIAL]

[178] [CONFIDENTIAL]

[179] The set-up fee of 75,000Ksh was also the same as shown on Table 7. The monthly access fee was higher, however, at [CONFIDENTIAL].

[CONFIDENTIAL].[180] This contradicts its own information about price reductions and from a number of banks that the charge per session was reduced by Safaricom to Ksh 2 in June 2015.

Table 13: Safaricom's USSD set up fees and related charges

Service	Operation	Costs
Initial set up	Connection fee	Ksh 75,000 + VAT + Excise
Test bed service	Connection to test environment for 30 days	Ksh 25,000 + VAT + Excise
Live USSD code on postpay	Customers are NOT charged to access code	Deposit: Ksh 18,500 + VAT + Excise Monthly fee: Ksh 18,500 + VAT + Excise
Live USSD code on prepay	Customers are charged to access code	Deposit: Ksh 100,000 + VAT + Excise Monthly fee: Ksh 100,000 + VAT+ Excise
Extension of test bed service	To extend the test environment beyond 30 days	Ksh 25,000 + VAT + Excise

Table 14: Safaricom's USSD prices – postpay (Ksh, understood to be on a per hop basis)

Number of Transactions / Month	0-50,000	50,001-100,000	100,001-250,000	250,001-500000	500,001-1,000,000	1,000,000+
Cost 1 Way (Tax Incl)	1.5	1.3	1.2	1	0.8	0.5
Cost 1 Way (Tax Excl)	1.19	1.03	0.95	0.79	0.63	0.40

Source: Safaricom response to information request, 6 August 2015

[CONFIDENTIAL][181]

In addition, Safaricom provided its [CONFIDENTIAL] (Table 15).[182] This allows for the calculation of an implied 'price' (revenue divided by volume, added on Table 15). However, the data [CONFIDENTIAL] and not merely use of USSD for third-party services such as banking and non-MNO mobile money services.[183] Furthermore, it is not clear whether the volume and revenue data provided is 'per session' or 'per hop'. The implied net average price [CONFIDENTIAL].

Table 15: [CONFIDENTIAL]

Table 16: [CONFIDENTIAL]

Revenue share is the third basis on which Safaricom generates income from its USSD platform. In such cases, third parties access Safaricom's USSD services without paying a usage charge at all, but rather by sharing revenue generated from the activities carried out across the USSD

[180] [CONFIDENTIAL]

[181] The set up charge in Appendix C (Annex 1 to the terms of reference for the inquiry) corresponds to the charge for prepay set up added to the test bed charge in the price information provided by Safaricom. The monthly recurring charge in that table corresponds to the prepay charge provided by Safaricom.

[182] This was provided in Safaricom's submission on 17 June 2015, and clarified (to some extent) in Safaricom's submission on 26 February 2016.

[183] According to Safaricom, in respect of a question on 'Your subscribers'/customers' USSD usage: [CONFIDENTIAL] See Safaricom response to question 5(b), in response dated 15 September 2015. At the same time, Safaricom indicated in its submission on 26 February 2016, in row 4, that "Distinct subscribers are those Customers who accessed billed USSD services in one year. It is therefore correct that the average annual USSD use per Safaricom subscriber is derived by dividing the numbers in 5(a) by the numbers in 5(b)." This refers to the second column in Table 15 and Table 16. It is therefore possible that the message count refers to billed USSD transactions (rather than free on-net transactions).

channel. Examples of this might include sale of ring tones and other value added services or premium rate service providers (PRSPs). In the case of mobile financial services, [CONFIDENTIAL].[184] [CONFIDENTIAL],[185] [CONFIDENTIAL]. [CONFIDENTIAL].[186]

Lastly, although we requested detailed USSD charges for each wholesale customer from Safaricom, these were not provided. Such information as was available suggests that content service providers are charged high prices compared with the prices paid by banks. For example, Safaricom charges Ksh 10 per USSD session to PRSPs. However, as PRSPs often have revenue share arrangements, USSD usage charges often do not apply (this appears to the case, for example, for many PRSPs using [CONFIDENTIAL] USSD service). It is thus unlikely to be reasonable to compare USSD prices charged to PRSPs with those charged to banks. Even if such comparisons were possible, the necessary detailed information is not available to this inquiry to enable us to conclude on pricing and terms offered by service and content providers.

G.3.1.1.2 Airtel

Airtel charges [CONFIDENTIAL] to set up a USSD service, and [CONFIDENTIAL] per 180-second USSD session.[187] [CONFIDENTIAL]

G.3.1.1.3 Orange

The data provided to the inquiry suggests (inconclusively) that Orange charges between [CONFIDENTIAL] per USSD session.[188] Orange also charges [CONFIDENTIAL] to set up the USSD service, and charges a monthly access fee of Ksh [CONFIDENTIAL].

G.3.1.1.4 USSD charges collated prior to the study

The terms of reference for the current project contained the USSD prices shown in Appendix C. As will become clear from the discussion below, this table appears to focus on 'prepay' prices, which are prices directly paid by consumers when they use USSD to access a bank account, mobile wallet, PRSP or other service provided over the USSD channel. The notable exception to this is 'Third party 3 - postpay' charged by 'MNO 1', which seems to (possibly incorrectly) reflect the price of a 180-second session rather than a 'per hop' price.

G.3.1.2 Costs of offering USSD

While development of a full costing model is not within our scope of work for this assignment, we asked market participants for information on costs. Despite having requested detailed information from individual operators, and despite requesting access to existing cost studies for

[184] [CONFIDENTIAL]

[185] [CONFIDENTIAL]

[186] [CONFIDENTIAL]

[187] [CONFIDENTIAL]

[188] [CONFIDENTIAL]

other services that may shed some light on network costs more generally, very little information on costs was provided to us. Safaricom stated that cost information for USSD services is not available.

Safaricom did report that [CONFIDENTIAL] of its network capacity for the last two years was used by USSD services.[189] Safaricom also provided its USSD 'hardware' costs (see Appendix B). These amounted to approximately [CONFIDENTIAL].[190] It is impossible to conduct a detailed costing exercise without the further information we requested. While one might assign a percentage of network related costs to USSD, we do not have Safaricom's network costs.[191] Even if such costing information were available, we do not have sufficient details on USSD usage volumes to arrive at a cost per USSD session (see discussion above in Section G.3.1.1.1). Lastly, the 4% network capacity figure provided by Safaricom is itself not clear and cannot be relied upon for even a rough cost allocation exercise.[192]

The data required to estimate the cost of USSD has thus not been provided to this inquiry. The capital and operating costs and per unit costs for USSD have not, to our knowledge, been studied publicly in other countries. (A USSD regulatory pricing proceeding carried out in India did reach a price but does not appear actually to have calculated costs.)

However, Safaricom's USSD prices can be put in context of the costs of SMS and voice services in Kenya. Determination No. 2 issued by the Communications Authority found that the Long Run Incremental Cost (LRIC) of an SMS in Kenya is less than Ksh 0.015,[193] a small fraction of the USSD session or hop prices.

According to industry experts, USSD services are less costly both in terms of capital expenditure and operating expenditure than SMS because SMS depends on a short message service centre (SMSC), an expensive switch, which is not required for USSD, which requires a less costly USSD gateway.[194]

Indeed, the basic capital cost of the USSD gateway is comparatively low. According to Safaricom, its USSD gateway cost USD [CONFIDENTIAL], far less than the cost of an SMSC which will typically run into the millions of dollars. This USSD gateway cost translates into a very low annual cost when financed over a period of, for example, 5 years. Safaricom reported

[189] This was provided in Safaricom's response in September 2015, in respect of question 4(b).

[190] The total costs, including 'standard' and 'spares', amounted to USD 250,681 converted to KES using Google on 13 December 2015.

[191] Safaricom provided its direct costs, operating costs, depreciation & amortization costs, net finance income / (cost) and forex gain (loss), as well as share of associate Profit (loss). There are costs that are joint and / or common to a number of different components within the Safaricom business, and it is therefore not possible to estimate the costs of offering USSD services from these.

[192] It is not clear whether USSD uses 4% of SS7 capacity, whether the SS7 channels on which USSD rides account for 4% of total network capacity, or whether USSD usage accounts for 4% of overall network capacity. It is also not clear what segment of the network the 4% is expressed in terms of: air interface, backhaul, core network transmission, switch capacity, etc., or all of the above.

[193] See Short Message Service (SMS) Interconnection Termination Rates: "Addendum to interconnection determination no. 2 of 2010."

[194] E.g., see Aricent, *USSD: A Communication Technology to Potentially Ouster SMS Dependency*, p9 and p11, available here: "…because the USSD platform sends messages directly without using SMSC, it is less expensive than SMS." "Because the USSD technology uses the existing SS7 protocols, significantly less investment is needed in the network. The USSD Gateway uses the same application programming interface as the SMSC, making it easier to port services based on SMS to utilize USSD as the bearer. In practice, only USSD specific modifications are needed for external applications. Hence, the capital expenditure (CAPEX) and operation expenditure (OPEX) are few."

a little over 155 million USSD sessions/hops in the 2014-5 year. Even when other capital costs and operating costs are taken into account (as they would be in a proper cost accounting exercise), it is evident that even Safaricom's current lowest Ksh 2 price per USSD session is likely multiple times the per unit cost. Considering that USSD volumes have sharply increased, the cost per unit of actual volumes will be declining further. Considering USSD volumes based on competitive market conditions would likely result in a far lower per unit USSD cost.

Similarly, the USSD price can be compared to the wholesale price of terminating a 60-second voice call in Kenya, which is Ksh 1 per minute. A USSD session uses far less network capacity than a voice call, even accounting for different durations. Again, this suggests that the cost of even a full 180-second USSD session (based on LRIC) is likely to be considerably less than Ksh 1.

Although the actual cost data is not available, these observations support a conclusion that Safaricom's current prices for USSD services are unfairly high and in prior years were even more excessive.

G.3.1.3 Comparative prices for USSD services in other countries.

USSD services are provided by many operators in African countries. It is difficult to draw reliable inferences and conclusions from international comparisons for telecommunications services because of differences in costs, institutional frameworks and levels of competition among countries (as discussed above in Section D.3.2). In particular, inferences about the reasonableness of the prices of services or of the costs of providing them can only be meaningfully drawn from international benchmarks where the benchmark prices are known to have been set based on costs, or there is some certainty that the level of competition in the market is sufficient to have driven prices towards marginal costs. Such benchmarks have become increasingly available for services such as retail voice and call termination rates, but not for USSD services.

Furthermore, in the case of content services supplied via USSD, many services operate on a revenue share basis rather than a usage fee model, meaning that comparable numbers are not available.

Altogether, any benchmark data must, then, be viewed very cautiously. Nonetheless, [CONFIDENTIAL] provided examples of USSD charging models in other African countries. While we have not been able to independently verify these alternative models, given that [CONFIDENTIAL], we have no reason to doubt the accuracy of the prices provided.

Having noted the various cautions above, some observations from the examples may be made. First, in several of the countries for which information has been provided, most if not all of the operators apply flat fees, including in Ghana, Tanzania and Zambia (see Table 17).

Secondly, where charges apply instead on a per session basis, it occurs where an operator has a market share of 50% or more, suggesting that the market is less than competitive (Botswana, Kenya, Uganda, Zimbabwe).[195] The one possible exception to this is MTN in Zambia, which

[195] See, for example, Independent Online. (2014). 'MTN overtakes Bharti in Zambia', available here.

has a market share approaching 50% and which charges relatively low flat monthly fees for USSD access, and which does not charge a usage fee. MTN's more competitive USSD pricing in Zambia might be due to a generally more competitive stance because it has had to compete to win market share from incumbent Airtel (formerly Zain) and has only recently matched Airtel's subscriber numbers.[196]

Table 17: USSD charging models in other African countries

Country	Operator	Market share (indicative)[197]	Fixed fee (USD)	Usage charge (USD)[198]
Botswana	Mascom	~ **50%**[199]		0.04 per transaction
Ghana	MTN	~ **50%**[200]	450 up to 150,000 transactions per month (0.03 per transaction)	0.02 per transaction after 150,000 transactions
	Airtel, Tigo, GLO		300 per month	**Free**
	Vodafone		450 per month	**Free**
Kenya	Safaricom	**~70% (or higher if based on revenue)**	980 once-off	Previously between 0.05 and 0.10, recently reduced to 0.02 per session
	Airtel		734 once-off	0.03 per session
	Orange		734 once-off, and 245 per month thereafter	[CONFIDENTIAL] per session
Tanzania	Tigo	~30%[201]		0.007 per session
	Vodacom	~35%[102]		**Free** (customers must have airtime)
	Airtel	~30%[102]	Clients are billed 2,225	**Free** to customers
	Zantel			**Free**
Uganda	MTN	**>50%**[202]	Payable to regulator (UCC): 250 application fee 10,000 per annum	0.06 per session (negotiable)
	Airtel			0.06 per session (negotiable)
	Africell			0.03 per session (negotiable)
Zambia	Airtel		1,500 per month	**Free**
	MTN	**~50%**[203]	1,500 per month	**Free**
	Zamtel			0.03 per transaction (paid by bank)

[196] See, for example, Independent Online. (2014). 'MTN overtakes Bharti in Zambia', available here.

[197] See also Evans & Pirchio (2015). Cited above.

[198] Where currency conversion was required, Google was used for currency conversions on 14 December 2015

[199] Source: Botswana Communications Regulatory Authority (2014), Annual report, available here.

[200] Source: National Communications Authority (Ghana) (2015), Month over month mobile voice subscription trends Jan-Aug 2015, available here.

[201] Source: Malanga, A. (2015). 'Tanzania: Vodacom, Tigo Speak Out on New Telecoms Competitor'. Available here.

[202] Source: Olouch, E. (2015). 'One Network reduces MTN Uganda cash flow'. Available here.

[203] Source: Lusaka Times. (2015). 'MTN share offer raises dust, CEO summoned by LuSE'. Available here.

Country	Operator	Market share (indicative) [197]	Fixed fee (USD)	Usage charge (USD)[198]
Zimbabwe	Econet	**>50%**[204]	1,500 one-off fee; 50 annual fee paid to POTRAZ (regulator)	0.05 for all non-airtime

The terms of reference for this study supplied USSD prices in India, Indonesia, Nigeria and South Africa (see Appendix C). Prices in Nigeria vary considerably, from USD 0.01 per session to USD 0.06 per session.[205] South Africa's charges appear to be high, though there are considerable competition problems there, where Vodacom has a market share greater than 50%.[206] USSD usage charges are free, at least for one operator, in Indonesia. Finally, USSD usage by the banks has only recently been introduced in India, amid some controversy due to the high prices charged there.[207]

In the competitive (or more competitive) markets discussed here, therefore, there are often no usage fees applicable for USSD services. This suggests that USSD charges in Kenya, a country which falls within the group of countries having an operator with a market share of more than 50%, are high relative to other African countries. While caution is appropriate in treating benchmark data, such information as is available does align with the other data to support the view that Safaricom is charging relatively high prices for USSD services in Kenya.

G.3.1.4 Evaluation of USSD prices

It will be plain from the discussion of pricing in Section G.3.1.1 that there is a lack of clarity about what prices Safaricom charges to different parties for prepay and postpay USSD services, and possibly even the basis of charging per session or per hop in the case of postpay. This is largely due to lack of detailed information provided to the inquiry by Safaricom and to a lesser degree other parties.

Despite this lack of clarity, Safaricom's USSD prices appear to be unfairly high when compared to fixed monthly usage fees in countries with more competitive mobile markets, where the per session fee is zero. The information provided to the inquiry indicates that Safaricom's charges to a mobile financial services provider for USSD access services (at between Ksh 2 and Ksh 5 per prepay session and more, depending on the number of 'hops' and the per hop charge (if that is the applicable basis for pricing) in the case of postpay) are considerably higher than Airtel's charges of Ksh [CONFIDENTIAL], and Orange's charges of less than Ksh 1 per session.

This reinforces the evidence of Safaricom's market power, demonstrated in its ability to charge prices independently of customers and competitors. It suggests that Safaricom may be exerting this market power in charging unfairly high prices. The fact that Safaricom has, even during the course of this inquiry, lowered charges for some parties to Ksh 2 per session from Ksh 5, further supports an inference that at least the higher historic prices were unfair and, to the extent they are still charged, remain so today. Safaricom itself [CONFIDENTIAL] (discussed in Section G.3.2.1 below), although it did not maintain that offer.

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[204] Source: Postal and telecommunications regulatory authority of Zimbabwe (POTRAZ), (2015). 'Postal and telecommunications sector performance report (abridged)', available here.

[205] We note that MTN in Nigeria has a market share in excess of 40% Source: Nigerian Communications Commission, (2015). 'Industry Overview', available here.

[206] Source: Hawthorne, R., Bonakele, T., Cull, D. & Lewis, C. (2015). 'Review of economic regulation of the telecommunications sector', available here.

[207] Source: Shetty, M. (2015). 'Banks bury USSD on high charges by telcos'. Available here.

Although it can only be determined with certainty through a cost accounting or benchmarking exercise, the information obtained in the inquiry suggests that Safaricom's USSD pricing (at between Ksh 2 per session for certain banks and Ksh 5 per session for others) are multiple times the incremental costs of providing the service.

Indeed, unless and until alternative information is supplied by Safaricom and properly tested through commonly accepted regulatory cost accounting methodologies, it is reasonable to work on the basis that the cost of a USSD message is likely a fraction (probably a small fraction) of a Kenyan shilling. In relation to costs, then, the prices seem to be unfairly high.

Lastly, while Airtel's [CONFIDENTIAL] price per session also appears to be well above costs, this is most easily explained as sheltered by Safaricom's high USSD pricing rather than by any market power of Airtel independent of its competitors.

The differential pricing applied to different parties may also be considered to be discriminatory, and the effect of the higher prices may be deemed to be unfair in being exploitative. The prices may also undermine competition to the extent that they harm the ability of downstream firms, such as mobile money services providers and banks, to offer a competitive service as their margins are squeezed as a result. We consider these issues in Sections G.3.2 and G.3.3, respectively.

G.3.2 Price discrimination

G.3.2.1 Negotiation of USSD pricing and terms

The prices of USSD services vary depending on the customer. [CONFIDENTIAL].[208] In the case of different banks and other financial service providers, Safaricom clearly applies dissimilar conditions:

- CBA, for which the M-Shwari product is accessible through STK, incurs no separate STK charge;
- KCB, for which its KCB M-Pesa product is accessible through USSD,[209] incurs no separate USSD charge;
- Equity Bank's Eazzy 247 product, which is accessible through USSD, incurs Ksh 4 charges per USSD session;
- Other banks accessible through USSD appear to incur prepay charges at either Ksh 2 per session from June 2015 or Ksh 5 per session or more in the case of postpay (depending on the number of hops); and
- Non-MNO mobile money services providers (e.g., Mobikash and Tangaza) incur higher prepay charges than banks and, to shield customers from the charge, opt to pay on a postpay basis.

Differences between prices among customers are likely to be the outcome of a bargaining process. [CONFIDENTIAL]

[208] The following question was emailed to Safaricom on 22 October 2015: "Items 4(h)(iii) & (vi): Historical pricing for these items for the last 5 years, and confirmation that the pricing was applied uniformly to all financial service providers during those 5 years (with an explanation if it was not applied uniformly)." [CONFIDENTIAL]

[209] After this report was completed, KCB M-Pesa also became available on the Safaricom STK menu

Table 18: [CONFIDENTIAL]

We understand that this specific offer was later withdrawn, despite [CONFIDENTIAL] Pricing schedules also indicate that operators are willing to negotiate based on volumes, though ultimately the success of these negotiations depends on the market power of the supplier and the degree of countervailing bargaining power. While it has been possible for banks [CONFIDENTIAL] other than as part of Safaricom's CBA M-Shwari and KCB M-Pesa partnerships.

M-Shwari and KCB M-Pesa provide important examples of where Safaricom has provided access to its network on different terms as part of [CONFIDENTIAL]. As discussed above, there are no usage based charges for USSD services used when interacting with the KCB M-Pesa platform, i.e., they are zero.

As with other issues in this inquiry, the ability to evaluate the terms of the M-Shwari arrangement is hampered by the lack of information provided in response to our requests. CBA and Safaricom declined to provide information on the arrangements between them.[210] Nevertheless, some speculation about the nature of the negotiations is possible. In entering a partnership with CBA, Safaricom opted for a corporate bank with few individual account holders and no branch network. It could be that Safaricom elected to negotiate with a party with relatively weak bargaining power (unlike Equity Bank, for instance, which has a large number of customers and branches), or perhaps CBA was more opportunistic than other banks in valuing the chance of rapid access to the mass market without the expense of branches.

The arrangement with CBA may be contrasted with Safaricom's pricing of USSD access for non-MNO mobile money services providers like Tangaza Pesa.[211] [CONFIDENTIAL]

G.3.2.2 Discriminatory conduct

There is not enough information before the inquiry to conclude whether the different arrangements offered to KCB M-Pesa and CBA's M-Shwari and to other banks and mobile money services such as Mobikash and Tangaza Pesa amount to discriminatory pricing under Kenyan law.

KCB and the other banks using USSD were granted access to the same USSD platform on different terms, with [CONFIDENTIAL] and the other banks on a usage charge basis. Still, the KCB M-Pesa arrangement also [CONFIDENTIAL]. One might attempt to disaggregate Safaricom's provision of USSD access from the KCB M-Pesa arrangement to compare with USSD offered to others, but it is not obvious that the transactions are equivalent.

In turn, CBA's M-Shwari arrangement has close analogies to KCB M-Pesa even if it differs in that it runs across STK. In the case of CBA, our ability to determine whether there is discriminatory treatment in favour of CBA is further hampered by the non-provision of the necessary information. [CONFIDENTIAL]

Although additional information would be needed to settle on a confident finding of discriminatory pricing amounting to abuse of dominance under Kenyan law, the information available to this market inquiry does suggest a recognisable pattern of market conduct.

[210] [CONFIDENTIAL]

[211] Source: interview with Tangaza Pesa, 25 June 2015.

Safaricom's incentives are to maximize the earnings from the investment in its network, leveraging off its telecoms network and subscriber base, in particular, while also undermining actual and potential rivals. Where this involves expansion of services (value-add to telecoms services) then there are likely to be substantial consumer gains. However, higher charges of an intermediate service such as USSD can undermine rivalry in a related market such as mobile money and serve to keep consumer prices higher than they would otherwise have been.

In this case, the strongest rivals appear to have been charged the highest prices for USSD which is consistent with an anticompetitive effect, given that these higher prices are not related to volumes, nor to the costs of providing the service. Moreover, the different terms apparently offered to KCB and CBA may have distorted competition as this has attracted a large number of customers not simply to mobile banking products in general, but to the products of these banks – and only these banks – in particular.

The indications are thus that, where Safaricom has been able to participate in the financial rewards from a mobile financial services product (such as M-Shwari or KCB M-Pesa), it has provided zero or very low usage based prices for access to its network. In contrast, it appears that where Safaricom faced competition from a rival mobile financial services product (such as Mobikash, Tangaza Pesa or Equity Bank), it attempted to impose prices that would exclude the rival entirely, whether by outright refusal of access to its network or by raising its rival's costs through charging high prices for USSD services. This leads to the question of exclusionary behaviour, which is considered below in Section G.3.3.

G.3.3 Exclusionary abuse of dominance

We considered two potential forms of exclusionary market conduct:

- problems in the supply of USSD access, whether through outright refusal or supply at a low quality of service (discussed in Section G.3.3.1); and
- pricing practices that impose a margin squeeze (discussed in Section G.3.3.2).

The inquiry uncovered evidence only of the latter.

G.3.3.1 Refusal to supply and poor quality of service

No suggestion was made in the inquiry that Safaricom has a practice of denying requests for USSD services. The question has been raised whether it provides USSD services at a lower quality to wholesale users, thereby putting its competitors at a disadvantage.

The inquiry did not receive significant information on the quality of USSD sessions from the MNOs, despite requesting this. [CONFIDENTIAL] provided us with sample data on dropped USSD sessions, which shows significant variation among customers. It appears as though a significant proportion of dropped sessions may be unrelated to network quality or the conduct of the mobile operators. While two out of the five customers for which data was provided have success rates of more than 98%, two of the other three customers have success rates of less than 60% (see Table 19 and [CONFIDENTIAL]

Table 20 below). [CONFIDENTIAL] also indicated a 95% success rate for its USSD sessions on [CONFIDENTIAL] network.[212]

[212] [CONFIDENTIAL]

Table 19: [CONFIDENTIAL]

Table 20: [CONFIDENTIAL]

According to [CONFIDENTIAL], there are a variety of possible reasons for these dropped sessions, including that the customer timed out the session due to business rules, the session failed due to other business rules (such as a customer commencing the USSD session and later dropping it if the user is not authenticated), poor connectivity with the MNO, problems with the application, transaction spikes (such as concurrent bulk SMS blasts by multiple customers), and finally server/database connectivity problems.

There are therefore a wide variety of factors that might cause a USSD session to drop that are unrelated to conduct by MNOs. While we are unable to conclude on this issue given the lack of data from MNOs, it does not appear that the quality of USSD sessions ought to be a significant area of focus for any reforms to the way in which mobile financial services providers are able to access USSD services.

G.3.3.2 Margin squeeze

Returning to matters of pricing, as USSD is effectively an input for the provision of mobile money services, a common concern is whether the MNOs are raising the costs of their competitors in this market. An MNO may charge its mobile money competitor (including rival mobile centric banking services, such as Equitel MyMoney or MCo-op Cash) a wholesale price for USSD services (an input into the mobile money market segment, Market #3) that, when compared to the retail price for money transfers and payments, does not leave enough margin to make the supply of such downstream retail services commercially viable. This is known as a 'margin squeeze' and may be part of a strategy of raising rivals' costs. In effect, the resulting margin squeeze may amount to a constructive refusal to supply in that the pricing effectively prevents actual and potential rivals from using the wholesale input at the wholesale price at which it is offered.

We set out Padilla & O'Donoghue's five features of a margin squeeze in Section G.2.2.3.1 above. We examine in this subsection whether Safaricom's conduct corresponds to a margin squeeze using their framework. The fifth feature, the anticompetitive impact, is addressed in Section G.3.3.2.5.

G.3.3.2.1 Vertical integration

Safaricom's USSD/STK services (Market #2) are vertically integrated into downstream mobile money services through its proprietary M-Pesa service (Market #3).

The joint venture type arrangements and revenue sharing Safaricom agreed with CBA and more recently with KCB means in economic terms that Safaricom also participates, [CONFIDENTIAL], in downstream savings and loan services (Market #4).

G.3.3.2.2 Essential input for downstream competition:

The input in question, the wholesale supply of USSD/STK services (Market #2), is an essential input for downstream competition in mobile money services (Market #3). The potential alternatives available to mobile financial services providers, and Safaricom's dominance in this market, have been assessed above in Section F.2.1.

G.3.3.2.3 Pricing rendering a rival uneconomic (Market #3)

The impact of the pricing and terms of USSD access on the ability of mobile money services providers (such as Mobikash and Tangaza Pesa) and mobile banking providers to compete in money transfers and payments using mobile channels is one of the more significant areas of possible concern.

The effects of Safaricom's high USSD charges depend on the target market of the mobile money services provider concerned, and the transactions involved. For banks that target high-income consumers, high USSD charges may not be an important feature of the bank's ability to attract customers. For those targeting the mass market, however, such as Equity Bank, high USSD charges may reduce the competitiveness of the bank's products.

In order to understand the impact of the USSD charges, it is necessary to consider the main transactions involved, and the value of those transactions. The main use of mobile money is currently cash deposits, withdrawals and money transfers (see Section D.3.2, and Figure 30 below). Two-thirds of the value of transactions on the M-Pesa platform, for example, is for person-to-person transfers, and the bulk of funds cashed in are subsequently cashed out (see Section D.3.2).

Figure 30: [CONFIDENTIAL]

The average transaction value across mobile payment platforms in Kenya (total value divided by total volume, as reported by CBK) is over Ksh 2,500 (see Figure 26 in Section F.1.4).[213] That this arithmetic mean is so surprisingly high is probably due to a relatively small number of extremely large transactions, which may include payments to and from agents as they manage their 'float.' Median statistics (the point at which there are as many payments below the value as there are above it) are likely more useful in this context. The median person to person transfer received electronically in the Financial Diaries study was 230 Ksh.[214] This is over 10 times the median transaction value for electronic payments of Ksh 20 among Financial Diaries Study participants, but 86% of which were for airtime.[215] As noted above in Section D.3.2, 41% of airtime purchases on the Safaricom network take place via M-Pesa. The low median transaction value likely arises because of the zero charge to top up Safaricom airtime from an M-Pesa account, and the small top up amounts available for airtime. We can infer from this that the bulk of airtime transactions among participants of that study were in fact for Ksh 20 or less. Further evidence that average airtime transaction values are low is the low total monthly airtime value purchased via M-Pesa, relative to deposits, transfers and withdrawals (see Figure 30 above), despite the very large volumes of airtime purchases via M-Pesa.

In light of this information on consumer behaviour, we assess the impact of USSD charges on a stream of typical transactions that might be carried out by an M-Pesa user in order to see the impact on margins of adding the USSD charge (summarised on Table 21 below):

[213] The total value of M-Pesa deposits and withdrawals reported by Safaricom in its half-year results to September 2015, Ksh. 1,390, match almost exactly the total value of deposits and withdrawals in the six months between March 2015 and August 2015 reported by the Central Bank of Kenya.

[214] See Zollman & Cojacaru (2015), cited above.

[215] See Zollman & Cojacaru (2015), cited above.

1. *Cashing in between Ksh 50 and 2,500.* This is favourable to Safaricom, since larger deposits, which are free to end-users, would result in higher agent commissions and a deeper margin squeeze.
2. *An airtime purchase of between Ksh 20 and 30*. Analysing this range is favourable to Safaricom, since it allows a higher margin from airtime commission, and thus a more muted margin squeeze, than what is likely since median airtime top-ups are likely less than Ksh 20.
3. *Checking a mobile wallet balance once.* Again, it is at least possible that consumers check their balance, which costs only Ksh 1 on the M-Pesa platform, more than once before funds are cashed out, which would result in a deeper margin squeeze.
4. *Transferring between Ksh 50 and 500 to one other person.* Given the low median transaction value for transfers of Ksh 230, this should capture a significant proportion of money transfer transactions.
5. *Cashing out between Ksh 50 and 2,500.* Safaricom charges consumers Ksh 10 for withdrawal values of Ksh 50 – 100, and Ksh 27 for withdrawal values of Ksh 100 – 2,500 using M-Pesa. We do not know what the median cash-out value is. Significantly higher cash-out values are unlikely given the low value of median money transfers, which are mainly cashed out.

Table 21: Transaction values examined for analysis of impact of USSD charges

	Financial diaries study median transaction value (Ksh)	**CBK mean transaction value (Ksh)**	**M-Pesa transaction value range used below (Ksh)**
Cash deposit, cash withdrawal		2,636	50 – 2,500
Money transfer	230		10 - 500
Airtime purchase	<20		20 - 30

In order to evaluate whether the vertically integrated dominant firm's (Safaricom's) prices would render the activities of efficient rivals (mobile money services providers and mobile-centric banks) uneconomic, we use Safaricom's USSD charges (including VAT and the excise duty) and retail M-Pesa prices (excluding the excise duty).[216] We also use Safaricom's average airtime commissions in 2013/2014 of approximately 9%.[217] In order to analyse postpay USSD charges, we used [CONFIDENTIAL] data on USSD hops for each of the transactions, and Safaricom's postpay charges, including VAT and the excise duty.[218] We analysed all three of the prepay charges applied to banks:

1. Ksh 2, the new charge applicable to most banks;
2. Ksh 4, the charge applicable to [CONFIDENTIAL]; and

[216] We included the input excise duty payable and input VAT, since this is not recoverable by downstream mobile money services providers. We understand that financial transactions in Kenya are VAT-exempt, and therefore this is why input VAT is not recoverable by mobile money businesses. There is a 10% excise duty on mobile money transactions, which we exclude from retail prices in order to calculate net prices charged by mobile money services providers for transactions. See the Value Added Tax Act, 2013 published in the Kenya Gazette Supplement No. 119 (Acts No. 35, see the First Schedule, Part II Services, section 1) and the Excise Duty Act, 2015 published in the Kenya Gazette Supplement No. 181 (Acts No. 23, First Schedule, Part II).

[217] Airtime commissions were Ksh 9.6bn, while mobile voice, data and SMS revenues were approximately Ksh 109bn in the year to March 2014. This means that average airtime commissions were approximately 9%.

[218] See footnote 216 above.

3. Ksh 5, the historical charge to banks & SACCOs, and current charge to some market participants (see Section G.3.1.1.1).

In some cases, including Mobikash and Tangaza Pesa, the available prepay charge to the customer is Ksh 10 per session, but Mobikash and Tangaza Pesa elect to use the postpay per hop method instead, bearing the charge in order to encourage customer usage. The equivalent price per session varies depending on the number of hops in a given session, and indeed the price per hop varies depending on aggregate volume of hops. (As discussed in Section G.3.1.1, we have been unable to confirm definitively whether postpay pricing is 'per hop' or 'per session'; however, we use 'per hop' for this analysis.)

We have used agent commissions paid by Safaricom.[219] [CONFIDENTIAL] and Safaricom's agent commissions are compared in more detail on

[219] These were provided by Safaricom in its submission on the 26th of February, 2016.

Table 28 in Appendix A. We do not have any other downstream costs, such as administration of the mobile money business, and therefore the margins that we calculate on Table 22 below are likely overstated.

The low value transaction stream yields a gross margin of 13% before USSD charges, due to the low retail prices relative to agent commissions. This means that margins on low value transactions are particularly sensitive to USSD charges.

Margins on the higher value transaction stream are small but positive on the postpay (9% of retail) and Ksh 2 prepay (19% of retail) models but continue to be negative on the Ksh 4 and Ksh 5 prepay models. However, even where margins are positive on the higher value transaction stream for the postpay and Ksh 2 prepay models, USSD charges account for 36% and 26% respectively of the total retail charges for the stream of transactions. This suggests that Safaricom's USSD charges raise the costs of mobile money and mobile-centric banking providers significantly.

Table 22: Margin squeeze (postpay & prepay) (Ksh, where applicable)

		Cash in	Airtime purchase	Check balance	Money transfer	Cash out	Total	Total as % of retail charge
Transaction value	Low	50 - 100	20		10-49	50 - 100		
	High	1,511 - 2,510	30		101 - 500	101 - 2,500		
Retail price / Merchant charge (excl. 10% excise)	Low	0	1.7	0.9	0.9	9.1	12.7	
	High	0	2.6	0.9	10.0	24.5	38.1	
Agent commission (Safaricom)	Low	[CONFIDENTIAL]				[CONFIDENTIAL]	-11	
	High	[CONFIDENTIAL]				[CONFIDENTIAL]	-21	
Margin inc. agent commission	Low	[CONFIDENTIAL]	1.7	0.9	0.9	[CONFIDENTIAL]	2	13%
	High	[CONFIDENTIAL]	2.6	0.9	10.0	[CONFIDENTIAL]	17	45%
USSD hops ([CONFIDENTIAL])		[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	29	
USSD charge - post-paid	Low	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-15	115%
	High							38%
USSD charge - 2Ksh pre-pay	Low	Ksh -2.0 per transaction					-10	79%
	High							26%
USSD charge - 4Ksh pre-pay	Low	Ksh -4.0 per transaction					-20	158%
	High							53%
USSD charge - 5Ksh pre-pay	Low	Ksh -5.0 per transaction					-25	198%
	High							66%
Gross margin - post-pay	Low	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-12.9	-102%
	High	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	2.5	7%
Gross margin - pre-pay 2Ksh.	Low	[CONFIDENTIAL]	-0.3	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-8.4	-66%
	High	[CONFIDENTIAL]	0.6	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	7	18%
Gross margin - pre-pay 4Ksh.	Low	[CONFIDENTIAL]	-2.3	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-18.4	-145%
	High	[CONFIDENTIAL]	-1.4	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-3	-8%
Gross margin - pre-pay 5Ksh.	Low	[CONFIDENTIAL]	-3.3	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-23.4	-185%
	High	[CONFIDENTIAL]	-2.4	[CONFIDENTIAL]	[CONFIDENTIAL]	[CONFIDENTIAL]	-8	-21%

Source: Safaricom retail prices provided in its submission dated 17 June 2015, Safaricom's USSD prices provided in its submission in September 2015, Safaricom agent commissions provided on 26 February 2016, and [CONFIDENTIAL] postpaid hop data provided [CONFIDENTIAL].

The actual mix of transactions on the M-Pesa platform may differ from the analysis on Table 22. Table 22 excludes higher value cash-out, airtime purchase, and money transfer transactions on which higher profits might be made, though it also excludes higher value cash-in transactions on which greater losses are made, due to higher agent commissions. This means that our results are not conclusive. Nonetheless, the stream of transactions analysed on Table 22 reflects evidence of actual consumer use of the M-Pesa platform. The analysis suggests that downstream rivals to M-Pesa have significantly higher costs as a consequence of Safaricom's USSD charges.

We have used a number of conservative assumptions that mean that the margins shown on Table 22 are likely higher than those in reality. The first is that we have not included any mobile money-related costs downstream other than agent commissions and USSD services. These costs are likely to be considerable, and reduce the profit margins on Table 22 significantly. An important additional cost not included in our analysis is SMS confirmations for transactions, which Safaricom's mobile money competitors must pay for separately. These would reduce the margins, per SMS for the transactions shown on Table 22 (and there may be more than 1 SMS per transaction, to sender and recipient of funds, for example), by between Ksh [CONFIDENTIAL] and Ksh [CONFIDENTIAL], depending on bulk SMS volumes purchased.[220]

A further conservative assumption is that we use the lowest available postpay charge (Ksh 0.5 incl. VAT and excise tax) for the postpay analysis. For lower transaction volumes, postpay margins would be lower than those shown on Table 22.

In addition, there are likely many more low-value airtime transactions than are shown on Table 22, racking up losses from USSD charges on each top-up. As mentioned above, 41% of Safaricom airtime top-ups are made via M-Pesa. In the same vein, [CONFIDENTIAL].[221]

Furthermore, Table 22 does not include additional charges resulting from dropped sessions, and from additional transactions that might be made before funds are cashed out including further balance enquiries (Safaricom charges Ksh 1 for this M-Pesa service) and PIN changes (free to M-Pesa customers).

The effects are quite significant. [CONFIDENTIAL].[222]

In the case of Equity Bank, its My Money service does not charge end-users anything for transfers to other My Money, Orange Money or Equity Bank accounts. Safaricom's excessive upstream charge to Equity Bank of [CONFIDENTIAL] for a USSD session would represent a negative margin for Equity Bank's My Money service, reducing further the overall margins from the streams of transactions shown on Table 22. This suggests that high USSD charges would raise Equity Bank's costs for the My Money service significantly.

Note that we have sought, as far as the data allow, to use Safaricom's own retail prices and input costs (the main cost other than USSD being agent commissions). Smaller rivals likely have higher input costs, as they have lower volumes and therefore do not benefit from economies of scale to the same extent that Safaricom does.

In summary, an analysis of Safaricom's retail prices for a reasonable mix of transactions based on actual usage behaviour, average Safaricom airtime commissions and evidence of airtime top-up behaviour, together with Safaricom's agent commissions, suggests that Safaricom's USSD charges raises rivals' costs significantly. Even if we do not have enough evidence to conclusively show a margin squeeze, the signs do suggest that Safaricom's USSD charges are exclusionary. These effects are all the more exclusionary when considered together with the approach to interoperability discussed in Section G.3.4.

[220] These bulk SMS rates were provided by [CONFIDENTIAL].

[221] [CONFIDENTIAL].

[222] [CONFIDENTIAL]

G.3.3.2.4 No objective justification

Safaricom has not provided enough information to the inquiry to support any justification for any of its pricing practices. It is thus impossible at this time to identify any objective justification. Given the economic impact on rivals' ability to provide a competitive downstream service using Safaricom's USSD services at the prices it charges, Safaricom should explain and supply evidence that justifies them. Safaricom's opportunity to explain and supply evidence for its pricing practices would naturally be allowed during an investigation.

G.3.3.2.5 The impact of Safaricom's market conduct

Harm to competition arises where the owner of an essential input or bottleneck good or service (being one that cannot be cost-effectively duplicated) constrains its competitors' access to it. It forecloses competition in the related, downstream market. The owner of the essential input may integrate with one or more firms in the downstream market or enter into exclusive agreements with them. The firm may refuse to deal with other firms or offer prices which squeeze the margins to such an extent as to make it commercially unattractive, and/or discriminate in pricing and other terms.[223] It is this last version of exclusionary behaviour that appears most prevalent in the mobile money market segment.

In summarizing the analysis of Safaricom's conduct with regard to USSD pricing and terms of access we consider its *ability* to exclude, the *incentive* to do so, and the *effects* of its conduct on competition.

G.3.3.2.5.1 Ability to exclude

The ability of Safaricom to impose prices and terms on other parties appears clear. Safaricom's position in the mobile telecommunications services market and in the mobile money services market segment is that of a dominant operator.

Safaricom's market share is much greater in terms of revenues and volumes rather than merely registered subscribers. That a large proportion of Airtel subscribers also hold a Safaricom SIM card (discussed above in Section D.2.2) indicates the 'must-have' nature of the Safaricom network which is linked with the 'ubiquity' of M-Pesa.[224] From the retail customer's perspective, there are no satisfactory alternatives to M-Pesa, a situation which is partly produced and greatly reinforced by the absence of account-to-account interoperability, as discussed in Section G.3.4. As a result, from the perspective of the wholesale customer who seeks to reach those retail customers, again, there is no satisfactory alternative to using Safaricom's STK or USSD channel.

In these circumstances, Safaricom is able to impose prices and terms on other parties that reduces or excludes their ability to compete on commercially viable terms in mobile money.

G.3.3.2.5.2 Incentive to exclude

Having established the key network for mobile telecommunications and mobile money services, Safaricom has a dual incentive to (a) increase the demand for these services including

[223] See Rey and Tirole (2007), *cited above*, at footnote 155.

[224] Cook, T. and C. McKay. (2015). 'How M-Shwari Works: The Story So Far'. *Access to finance forum*. No. 10. CGAP and FSD Kenya. Available here.''

through value-adding applications and (b) protect its position from actual and potential rivals. The challenge is to distinguish between these and to assess conduct in terms of competition on the merits as opposed to that which distorts competition and undermines economic efficiency.

In addition to having an incentive to maintain and extend its market position in mobile money services (which in turn maintains Safaricom's position in the mobile telecommunications market), Safaricom further has an incentive to use its market positions in mobile telecommunications and mobile money services to build a strong market position in mobile banking services. Mobile banking services involve bringing together an MNO, an agent network for cash-in and cash-out and KYC, and a licenced bank with capabilities to evaluate credit-worthiness (which need to reside in the partnership but not necessarily in the bank itself). The MNO network and the banking services are each a means to an end. A bank can deliver branchless mobile services through mobile telephony, as is the case with internet banking over smartphones. Equally, an MNO can partner with a bank to ensure compliance with the law, while the financial products are essentially offered by the MNO with a mere 'back-office' banking function. This may be more the case where the critical capabilities to offer the product, such as the information for credit scoring and loan evaluation, is in the hands of the MNO. The more valuable this data is for such purposes, the stronger the bargaining power, and likely higher the revenue share, that the MNO may enjoy, while the bank may incur greater financial risk.

The competition questions relate to the ability to offer services to consumers and the bargaining over the rents that derive from limited competition. The high levels of concentration and the network effects at work mean that the competitive dynamics are about bargaining over how services are offered and over the pricing to capture the value that has been created.

In this context, an MNO has a strong incentive to impose arrangements which ensure that other firms act in effect as its agents, channelling demand to the services it supplies over its network. It has a strong benefit from making its mobile money service the one through which the majority of transfers and payments will pass. In addition, as newer, related services with potential large returns become possible, an MNO has an incentive to leverage its existing infrastructure and services to secure a share in such newer services, and potentially to limit the competition they will face. Altogether, this both secures growing revenues for the service and in turn subscribers for its mobile telecommunications services.

The arrangements entered into between MNOs and banks, and MNOs and other providers are most naturally understood in these terms. In particular, while Safaricom has innovated and offered services that are attractive and useful for consumers, its incentive goes beyond this, extending to protecting it from the ability of rivals to compete, and securing itself a central position in a related market.

G.3.3.2.5.3 Effect of exclusion

The information before this inquiry suggests that Safaricom has succeeded in the mobile money services market segment (Market #3) not just by competing on the merits, i.e., by providing a superior product. The network effects, which appear to have been engineered and then exaggerated through pricing practices amounting to abuse of dominance, make this market very difficult, if not impossible, for a rival to penetrate.

Consumers have enjoyed great benefits from the rise of mobile money services, and now a broader range of mobile financial services. However, that Kenyan consumers have benefited

from these services more than if they had not developed as quickly or as widely is not the competition question in issue. Rather, it is whether and how competition in the market is constrained by market conduct, and indeed through abuse of market power. Whether or not network effects may be a natural and necessary element for mobile financial services to ignite, pass a tipping point and enjoy explosive growth,[225] and whether competition may be more 'for the market' than 'in the market',[226] Safaricom's conduct appears to have surpassed competition on the merits and been actively exclusionary.

While not refusing USSD access, the USSD rate charged by Safaricom in respect of mobile wallet transactions at the very least raises the costs of its bank and non-MNO mobile money rivals targeting the mass market, if not eliminating their margins altogether. In some cases, unfairly high USSD charges are placing Safaricom's mobile money rivals in a full margin squeeze. This appears to be at least one of the causes of [CONFIDENTIAL], and Equity Bank's decision to launch its own MVNO instead of relying upon Safaricom's USSD access to reach customers.[227]

Furthermore, there does appear to be harm to consumers in the mobile money market segment, where consumers are charged high prices for services in Kenya, at least compared to Tanzania (discussed in Section G.3.1.3). Tanzania's greater levels of competition may produce prices that are closer to marginal cost.

There have been evident gains to consumers from the extension of mobile financial services. However, the prices charged appear to be high relative to benchmarks of fair pricing. In particular:

- USSD charges per session at Ksh 4 to 5 are far above the less than 1Ksh which appears to be a fair price, having been considered by Safaricom for large volumes of transactions then withdrawn, while Airtel charges Ksh [CONFIDENTIAL] and USSD is free in other countries.
- Even higher USSD charges for other providers are unfair and appear to be based on these parties being potential competitors.

The effect of high prices and limited competition in Kenya is also that, despite M-Pesa's success, only a small proportion of person-to-person transfers among Financial Diaries study participants in Kenya are electronic (15% by volume and 32% by value).[228] While Safaricom has innovated, other potential competition-driven innovation may have been lost by preventing competitors from being commercially viable in the first place.

The high prices may explain why USSD usage per subscriber is very low indeed, at less than [CONFIDENTIAL] messages per subscriber per year (even though the data seem to include USSD transactions on the Safaricom network). This suggests that USSD services are considerably underutilised. This might be a consequence of high charges for using USSD for non-Safaricom services. The USSD usage count does not, of course, include use of M-Pesa, which runs across Safaricom's STK platform.

[225] See Evans, D. and A. Pirchio (2015) (footnote 254).

[226] See Bourreau, M. and Valletti, T (2015) (footnote 145)

[227] See Mas, I. & Staley J. (2014) 'Why Equity Bank Felt It Had to Become a Telco – Reluctantly,' CGAP blog post, available here.

[228] See Zollman & Cojacaru (2015), cited above.

The data suggest a substantial growth in USSD session use in 2014 and 2015, where for the 2015/16 financial years just two months' use was equivalent to more than [CONFIDENTIAL] of the whole of the previous year (see Table 15; Table 16 shows the same trend). There is recent substantial growth in the average number of USSD messages per subscriber ([CONFIDENTIAL] in 2015 compared to [CONFIDENTIAL] in 2014), suggesting growing demand for services using USSD. No reason has been provided for this growth, and whether it reflects development of services relying on USSD or USSD price reductions in 2014 and 2015 or has other causes.

The wider effects on competition are to undermine potential rivals in the form of banks (aside from CBA and KCB) and non-bank intermediaries seeking to provide mobile banking solutions. However, even CBA and KCB cannot provide mobile banking products which simply use Safaricom as a mobile interface and allow money transfers to be made through the banking system, including between banks' interoperability.

There is a further effect of the various arrangements on competition at the MNO level. As a bank such as Equity Bank has the ability to support rivalry in mobile telecommunications through its MVNO which uses the Airtel network, there is an added impact of Safaricom in undermining rival offerings and in integrating its own offerings with select banks on specific apparently restrictive terms which have not been revealed. The growth of mobile banking under Safaricom has coincided with a decline in Airtel's market share in telecommunications in revenue terms. This appears to reflect Safaricom's higher share in mobile money based on M-Pesa, than in mobile telecommunications, and the lack of interoperability in mobile money and between M-Pesa and bank accounts, which implies powerful network effects reinforcing its dominance, discussed below in Section G.3.4.

G.3.4 Intensification of network effects and impact on mobile savings and loans

Sections G.3.1, G.3.2 and G.3.3 discussed excessive pricing, discriminatory pricing and exclusionary margin squeeze pricing, respectively, in the USSD market (Market #2) and the impact in the mobile money services market segment (Market #3).

These may be viewed as part of a larger picture that takes in Safaricom's approach to account-to-account interoperability with mobile wallet providers and banks, its pricing of transfers between bank accounts and M-Pesa, and its positioning in the arrangements with M-Shwari and KCB M-Pesa. We turn to these below.

G.3.4.1 Interoperability with mobile wallets

Safaricom allows account-to-account interoperability between bank accounts and M-Pesa, but does not allow any interoperability between M-Pesa and other mobile wallets such as Airtel Money, Orange Money, Mobikash and Tangaza Pesa.

The lack of interoperability between M-Pesa and other mobile wallets is a major factor in the competitive dynamic of the mobile money services market segment. Although payment systems providers are required by CBK to ensure that their systems are *capable* of interoperability, interoperability between mobile wallets has not actually been established in Kenya. So, when an M-Pesa user sends money to an Airtel Money, Orange Money, Mobikash or Tangaza Pesa customer, the recipient does not receive the funds in his or her mobile wallet. Rather, he or she receives an SMS 'voucher' containing information on the funds transfer, and must take this to an M-Pesa agent to receive the funds within a limited period of time.

At least three aspects of this affect the desirability of M-Pesa's rivals' services:

- First, having to locate and visit a physical agent, wait for availability and rely upon the agent having sufficient cash creates significant inconvenience compared to the recipient receiving the funds directly to a mobile money account.
- Secondly, the recipient must cash the voucher within a short timer period and so does not have the choice to store the funds in a mobile money account other than by another cash-in transaction to his or her account with another provider. This reduces the mobile money functionalities available to users that are not M-Pesa subscribers.
- Thirdly, the charges (between Ksh 44 and Ksh 303) for M-Pesa's remittances using this SMS-based service are considerably more expensive for the sender than for M-Pesa to M-Pesa transactions (see Appendix A).
- Lastly, this reduced SMS-based service is not available for transfer values below Ksh 101, or above Ksh 35,000 (registered M-Pesa users can transfer as little as Ksh 10 and as much as Ksh 70,000), making it less convenient than transferring between M-Pesa accounts.

Registering and using an M-Pesa account (which in turn requires a Safaricom SIM card) is thus necessary for consumers to benefit from the convenience of sending funds to another person's mobile wallet, the lower price for M-Pesa to M-Pesa transfers, and the greater flexibility in the amounts that can be transferred.

These price and non-price barriers to transfers, which arise from the lack of interoperability between mobile wallets, drive and entrench network effects whereby the value of a mobile money service depends on the number of consumers using that service. Where a provider becomes dominant, such network effects reinforce and protect its dominance.

This effect is likely a reason why many subscribers to Airtel or Orange will also hold a Safaricom subscription (dual SIM usage is discussed above in Section D.2.2). Such network effects can only hinder growth in Orange and Airtel's network usage and revenues, impeding their ability to compete in mobile telecommunications services. Such network effects will impede the ability of MNOs and other financial service providers to compete in the mobile money services market segment.

G.3.4.2 Interoperability with bank accounts

In contrast with mobile wallets, Safaricom does allow interoperability between bank accounts and M-Pesa. Still, in addition to raising its banking rivals' costs by imposing a margin squeeze in respect of USSD services (as discussed in Section G.3.3), tariff-mediated network effects appear to be present in Safaricom's comparatively high prices for receiving money into M-Pesa accounts from the banks. This is particularly important for mobile-centric banks, which offer a service akin to a mobile wallet, such as MCo-op Cash and Equitel My Money.

The costs of transferring money between M-Pesa accounts (see Appendix A), particularly for low value transactions, are significantly lower than the costs of transferring money from a non-M-Pesa service, such as for example an Equitel My Money account, to an M-Pesa account (see Table 23). This in turn limits the bank's ability to expand in the retail transfer and payments market, including in competing in the mobile money services market segment (Market #3), which in turn also limits the bank's ability to expand in the mobile savings and loans market segment (Market #4).

Table 23: Equitel My Money charges for sending money to other accounts

Transaction range (Ksh)	Send to Equitel / Orange money (Ksh)	Send to Airtel Money/M-Pesa (includes Airtel/M-Pesa charges)		
		Charges by Equitel (tax incl) (Ksh)	Charges by other networks (tax incl) (Ksh)	Total charge (Ksh)
50 – 100	0	1.10	33.00	34.10
101 - 500	0	5.50	33.00	38.50
501 - 1000	0	11.00	33.00	44.00
1,001 - 1,500	0	16.50	33.00	49.50
1,501 - 35,000	0	27.50	33.00	60.50

Source: http://equitel.com/rates

In some cases, the banks may absorb these charges. For instance, Cooperative Bank does not charge customers to transfer funds from their bank accounts to their M-Pesa accounts.[229] On the other hand, Stanbic Bank charges customers Ksh 70 to transfer funds from their bank accounts to their M-Pesa accounts.[230] Unless the banks absorb such charges rather than passing them through to the customers, Safaricom's charges may have the effect of driving customers to use the M-Pesa service even further.

Depositing cash into an M-Pesa account through an agent is free to customers, though it does have a cost to Safaricom in that it pays the agent a commission for the transaction. Safaricom should therefore be willing, in principle at least, to pay banks on the same basis for sending money into M-Pesa accounts (as if they were agents facilitating customer deposits to M-Pesa accounts). Instead, Safaricom charges banks for this.

Where the banks bear the transfer charges, the result is to increase the cost to banks of transfers to M-Pesa in addition to the USSD charge. Where the banks pass the charges through to consumers, this may discourage consumers from using bank accounts seamlessly with M-Pesa for mobile transfers. In either case, the charges act as a barrier to banks' participation in the mobile money services market segment.

Thus it appears that Safaricom's approach to interoperability has been to reject it for mobile wallet providers, and to allow it for banks but on terms that protect M-Pesa's position in the mobile money services market segment.

Furthermore, in some cases Safaricom allows account-to-account transfers without a usage based charge. Where it does so, this appears to favour banking products in which Safaricom itself has a direct interest. In particular, there are no charges for transfers between M-Pesa wallets and M-Shwari or KCB M-Pesa accounts, [CONFIDENTIAL]. Conversely, Safaricom also further secures M-Pesa's centrality in the market by ensuring that M-Shwari savings and loan and KCB M-Pesa loan accounts are only accessible through M-Pesa. KCB M-Pesa savings account balances can only be withdrawn through M-Pesa. The arrangements prevent even direct transfers between M-Shwari accounts (but not KCB M-Pesa accounts) without first going through M-Pesa mobile wallets.[231] The details of the partnership between CBA and Safaricom

[229] See Co-operative Bank's tariffs here.

[230] See Stanbic Bank's tariffs here.

[231] See Cook and MacKay (2015), cited above.

have not been made available to this inquiry.[232] [CONFIDENTIAL].[233] These requirements illustrate M-Pesa's firm handle on transfers that Safaricom apparently seeks to keep.

While important service innovations have been made, this means that sending money to, and receiving money from, M-Pesa accounts is an important requirement for any rival mobile money service (Market #3) and increasingly, due to the success of M-Shwari and KCB-M-Pesa, for rival savings and loan providers (Market #4).

G.3.4.3 Effects on the mobile savings and loans market segment

There can be little doubt that the success of M-Pesa as a transfer service has laid the grounds for extending banking services on a much wider scale. This is evident in the growth of mobile banking and the usage of mobile channels.

A striking feature of how the market has evolved is the growth of M-Shwari and the associated number of CBA accounts (see, for example, Figure 31 below). In the case of CBA, the partnership with Safaricom to offer M-Shwari has led to it growing to become the largest bank by number of account holders in just two years. M-Shwari was only launched in November 2012 and has enjoyed a privileged position on the STK.

Figure 31: [CONFIDENTIAL]

KCB M-Pesa entered the mobile lending market three years later.[234] The growth of KCB M-Pesa since its launch in March 2015 further indicates the fact, as one bank indicated, that 'M-Pesa is key transaction for mobile banking'.[235]

While Safaricom's M-Shwari and KCB M-Pesa partnerships rely on CBA and KCB respectively for the banking activities and the banks assume the credit risk on the loans extended, Safaricom supplies the data used for the credit scoring algorithm. Credit scoring is a key element of any banking transaction as it allows the lender to assess the level of risk presented by the customer, and so to manage that risk better in terms of credit approvals, loan amounts, loan durations and other conditions. It is central to the profitability of the banking business.

Safaricom has made available its customer data to CBA and KCB for the M-Shwari and KCB M-Pesa products. [CONFIDENTIAL].[236] The details of the data sharing arrangement between CBA and Safaricom were not made fully available to this inquiry, [CONFIDENTIAL] M-Shwari was initially launched using credit-scoring based on repayment of Safaricom's Okoa Jahazi airtime advance loans.[237] According to Cook & McKay (2015):

> *"The credit-scoring algorithm consists of a set of telecommunication variables from Safaricom's data related to airtime, airtime credit, M-PESA, and length of time as a customer."*

[232] [CONFIDENTIAL]

[233] [CONFIDENTIAL]

[234] See Cook and MacKay (2015), cited above.

[235] [CONFIDENTIAL]

[236] [CONFIDENTIAL]

[237] See Cook & McKay (2015), cited above.

This information on Safaricom's customers is not available for customers to scrutinize themselves and is not available on an open-access basis. This may mean that rival savings and loan providers may be significantly disadvantaged when competing with the M-Shwari and KCB M-Pesa products. To the extent that rivals already have data on existing customers, they may be able to profile these, but they do not have access to the relatively extensive, current data that Safaricom has on the vast majority of the population and which can be useful in assessing customers as potential borrowers.

At present, then, only two banks, CBA and KCB, have access to Safaricom's customer data, and it may be that a lack of competition with these is the source of very high charges relative to costs. M-Shwari charges a 7.5% service fee for the first 30 days and a further 7.5% fee on the outstanding balance for extension. Similarly, KCB M-Pesa lends for 30 days at 6% per month, for 90 days at 5% per month and 180 days at 4% per month. These rates are much higher than interest rates offered by banks. Despite these very high interest rates, both products are growing rapidly. M-Shwari grew total loans, measured by value, by 159% per year between April 2014 and September 2015 (see Figure 31 above). This suggests that there is a lack of competition for their products. According to Cook and MacKay, the main competition to M-Shwari comes from informal savings groups and banks.

M-Shwari is undoubtedly providing consumer benefits. M-Shwari loans are predominantly for short-term ups and downs, being for 30 days, automatically extended for a further 30 days. Consumers have apparently become regular borrowers of M-Shwari. They value it for being easy and accessible, secure, and perceive it to be relatively cheap, although this may be a misperception due to confusion between these monthly rates and annual interest rates charged by banks.[238]

The M-Shwari and KCB M-Pesa savings and loan products are doubtless important innovations and are extending financial services in Kenya. Nevertheless, it appears that the lack of access to Safaricom's customer data combined with the lack of interoperability between M-Pesa and other services and high USSD charges present barriers to entry for rival mobile savings and loan providers. It appears, then, that Safaricom has participated with CBA and KCB in establishing a new market in services for which there is clearly demand, but is able to limit competition from developing while profiting from a share in their revenues.

Further study of the competition issues raised in the mobile savings and loans market segment is beyond the scope of this inquiry, but it does appear to be warranted, including to verify the degree to which other banks actually might gain such interoperability and access to customer data but have declined to take it up.

G.3.5 Summary

The information available in this inquiry suggests that Safaricom appears to be engaging in conduct that, whether a direct abuse of dominance or the result of a combination of commercial strategies, appears to constrain competition at several levels.

First, Safaricom raises the costs of bank and non-MNO mobile money services providers through unfairly high USSD charges and price discrimination. By doing so, Safaricom impedes its financial services rivals' ability to compete with M-Pesa in the mobile money services market segment. In an industry characterized by network effects, this in itself likely has a major impact in protecting M-Pesa from competition. [CONFIDENTIAL] has been unable to become

[238] See Cook and MacKay (2015), cited above.

profitable in Kenya, and Equity Bank has set up its MVNO to avoid dependency on Safaricom's exclusionary pricing.

On the information available to this inquiry, this strategy appears to be in direct violation of the Competition Act. An investigation, in which further data would be obtained, would allow a fuller verification of the degree to which, and manner by which, Safaricom is engaging in abuse of dominance, as well as an opportunity for Safaricom to make representations in its defence.

Second, Safaricom's strategy for account-to-account interoperability embeds M-Pesa further. Refusing account-to-account interoperability with other mobile wallets intensifies the network effects from which M-Pesa benefits, unconstrained by competition. By charging high prices for sending money from bank accounts to an M-Pesa account, Safaricom limits competition risk from interoperability between M-Pesa and bank accounts (especially mobile-centric bank accounts, such as MCo-op Cash and Equitel My Money) and maintains M-Pesa as the more desirable money transfer service.

The combination of the first and second sets of market conduct above makes M-Pesa a 'must-have' product and, since it is only available on a Safaricom SIM card, Safaricom secures its position as a 'must-have' network. Together, these make M-Pesa impregnable to competition on the merits of the services themselves. This is illustrated by the volumes and values of flows through M-Pesa compared to rival platforms. While Safaricom's subscriber market share is around 70%, Safaricom's share of mobile money transactions by number and value is likely above 95% (see Section F.2.3).

Lastly, M-Pesa's market power in the mobile money services market segment appears to be having an impact also in the adjacent mobile savings and loan market segment. Safaricom is able to offer advantages to lending products in which it has an interest. M-Shwari and KCB M-Pesa enjoy interoperability of accounts with M-Pesa without usage charges. More importantly, by providing privileged access to Safaricom's customer data for these products, Safaricom appears to be limiting a key input to the mobile savings and loan market segment. While it has joined with CBA and KCB in developing innovative services for which there is clearly demand and which provide benefits to consumers, there are questions as to whether it is constraining competition in this market to a duopoly whose revenues it shares. Indeed, Safaricom's stake in these ventures may amount in effect to a tendency towards monopoly in the mobile savings and loan market. Further inquiries and investigations of this last area necessary to verify the degree to which constraints on competition are in play.

This Section G.3 has identified concerns with market conduct by the dominant firm, Safaricom. Without further information explaining and detailing Safaricom's charges and any possible efficiencies, it appears based on the information available to this inquiry that there are no efficiency gains that outweigh the anticompetitive effects of Safaricom's conduct. Indeed, at least in part, the concerns identified appear to amount to abuse of dominance. Under Kenyan competition law, restrictive practices that harm competition may be exempted from the Competition Act's prohibitions in certain cases. Similarly, in merger review, efficiency and other considerations may allow consolidation and increase of market power despite likely harm to competition. However, justifications for behaviour that amounts to abuse of dominance are not allowed for.

As mentioned in our analysis, the inquiry has not had the benefit of full information access. Access to full information in an investigation might strengthen, refine or otherwise alter the analysis of market conduct. Just as importantly, Safaricom would be allowed an opportunity to explain its practices. Such a process might be able to consider whether there are any efficiency

or other justifications, or whether the conduct restrains trade or amounts to abuse of a dominant market position.

H. CONCLUSIONS AND RECOMMENDATIONS

H.1 Scope of conclusions and recommendations

This market inquiry examines the pricing and conditions of wholesale USSD access offered by MNOs to third-party mobile financial services providers in Kenya. As we describe in Section F.1.3, the market for wholesale USSD access is part of a dynamic ecosystem of markets that includes the markets for retail mobile telecommunications, banking and consumer payments. These related markets are implicated when evaluating potential constraints on competition as well as potential remedies to address these complaints.

That said, we have been careful to maintain a focus of this inquiry on the wholesale market for USSD. When evaluating potential constraints on competition, we have considered these markets primarily with a view to understanding the wholesale market for USSD access. When considering remedies, we focused on interventions that target the wholesale market for USSD access. However, we believe our evaluation would be incomplete if we did not also consider remedies that address the larger ecosystem. Indeed, and in particular, the remedy of interoperability should, if thoughtfully applied, address a number of the underlying problems that arise from the problems in the USSD market. Accordingly, we have considered at a high level some potential remedies for addressing competition issues in related markets that would potentially improve competition in the wholesale market for USSD access, or at least mitigate the harmful effects of the lack of such competition.

Similarly, we have focused our consideration of consumer protection to those concerns that arise directly out of the use of USSD for mobile financial services. A broader look at consumer protection in mobile financial services, which encompasses telecommunications, banking and payment services, is a wide subject, beyond the scope of this inquiry, and could potentially be the subject of one or more future inquiries.

Finally, we note that at present there are data outstanding which would likely impact on the confidence of the conclusions. The conclusions and recommendations are thus **provisional** in the sense that fuller data (e.g., in an investigation) might lead to alternative conclusions and recommendations.

H.2 Potential constraints on competition

Based on the assessment of markets and market power, Safaricom was found to be dominant in the market for retail mobile telecommunications services, the wholesale provision of USSD access, and the mobile money services market segment. It is the market power of Safaricom in these three markets, and the extent to which it is enabled by current legal and regulatory policy and practice, that underlies the constraints on competition in the wholesale market for USSD access and the harm that arises from such constraints.

In the subsection below we set our conclusions on constraints on competition in the wholesale market for USSD access relating to (1) access, (2) quality of USSD sessions and (3) pricing of USSD access.

H.2.1 Access to USSD

In this inquiry we evaluated whether wholesale access to USSD (i.e., excluding price and quality of service barriers to access) by mobile financial services providers was a constraint on competition in downstream markets. MNOs and MVNOs control access to their USSD networks. In addition, USSD short codes are only assigned by CA to MNOs or MVNOs. Content Service Provider licensees must then receive a secondary assignment of a USSD code from an MNO or an MVNO.

None of the banks and non-MNO mobile money services providers nor the aggregator that we interviewed viewed access to USSD as a concern: USSD is available to them without great difficulty. Further, none identified the two-step assignment of USSD short codes, either in terms of pricing or process, as a barrier to access. As we mentioned in Section E.2.2, other studies have reached different conclusions on this issue.

H.2.2 Quality of USSD sessions

Concerns have been raised by some parties about the quality of USSD sessions, specifically the number of sessions being dropped. Dropped sessions result in duplicate sessions (and therefore duplicate charges) for a given transaction, a problem exacerbated by high charges. They also result in poor consumer experience, which may prejudice a consumer against a particular service provider's service for which he or she uses USSD.

However, the inquiry did not find evidence of a disparity between the quality of USSD sessions for third parties and for an MNO's own services. This is, again, a provisional finding because very little quantitative data was provided, or even appears to be available, to allow such a comparison.

Also, it appears as though a significant proportion of dropped sessions may be unrelated to network quality or the conduct of the MNOs. Two out of the five customers for which data was provided reported USSD session success rates of more than 98%, while two of the other three customers reported success rates of less than 60% (see Section G.3.3.1). This suggests that either the cause of the dropped session is unrelated to the MNO, or the MNO is selectively degrading USSD sessions of particular wholesale customers. One study has questioned whether MNOs have the technical capability to selectively degrade USSD sessions and acknowledge that dropped sessions are often a result of unrelated technical issues outside the MNOs control.[239]

In addition, the most important point of comparison would be for the experience of using M-Pesa with mobile financial services of third parties, yet the former runs across Safaricom's STK while the latter run on USSD. Thus even if quality of service complaints arose, it would be difficult to know whether they are discriminatory or merely poor quality. In any case, we did not encounter significant concerns that a poor quality of USSD service is provided for third-party service providers. While we are unable to conclude on this issue given the lack of data from MNOs, it does not appear that the behaviour of MNOs with respect to the quality of USSD sessions is a constraint on competition in downstream markets.

[239] Singh, G. et al (May 2014) at 16-17 and Ftnt 24.

H.2.3 Pricing of USSD

H.2.3.1 Discriminatory pricing

The impression given from piecing together the market history is that Safaricom initially negotiated pricing in an *ad hoc* way and then charged higher USSD prices to parties who could be in competition with M-Pesa. This was suggested by information provided by [CONFIDENTIAL].

In 2015 Safaricom had a three-tier pricing system with (from around June 2015) charges per session of Ksh 2 for most banks, Ksh 5 for other mobile financial services providers and Ksh 10 for non-financial institutions. Prior to 2015 the prices appear to have been substantially higher. These charges are on a prepay basis (i.e., charged to the end-user rather than the bank or non-MNO mobile money services provider). Postpay charges (i.e., paid by the bank or non-MNO mobile money services provider rather than the end-user) remain high, at least for non-MNO mobile money services providers, which continue to use them in preference to exposing their customers to the high prepay USSD charges.

There appears to be a zero usage charge for KCB's account holders using USSD sessions to access their new accounts under the KCB M-Pesa agreement. Instead, [CONFIDENTIAL].[240]

H.2.3.1.1 Are the prices generally discriminatory?

The differential pricing has undermined the ability of rivals, including some banks and particularly non-MNO mobile money services providers such as Mobikash and Tangaza Pesa, to be effective competitors to Safaricom. This was the case in 2015 and to a greater extent before 2015 when the USSD charges to third parties were higher. The differential in 2015 remained substantial and it appears that competition would be enhanced if the differential was reduced to one which is objectively justified by costs. The offer made to Equity Bank and then withdrawn of [CONFIDENTIAL] per session, conditional on minimum volumes, is an indicator of more appropriate pricing. We consider more indicators of what would be a fair cost reflective price in Section H.2.3.2.

In the Competition Act, the test for abuse of dominance is whether the transactions are equivalent. If they are equivalent, then the differential pricing may be an abuse of dominance if it results from the unilateral exertion of market power and could not be sustained under conditions of effective competition. An investigation is required to make a finding under the Competition Act.

We note that equivalence is generally taken to mean that the product or service being supplied in each case is comparable and the transactions are reasonably analogous. As discriminating requires segmenting customers, it is likely that the contractual terms will be different. The impact of anticompetitive price discrimination also implies that parties' purchases of the services will be different *as a result* of the conduct. Unless and until further information is provided, we conclude that the transactions between third parties are likely to be equivalent and that the differences in USSD pricing offered to banks and non-bank financial service providers have not been adequately justified.

[240] [CONFIDENTIAL]

H.2.3.1.2 Are the KCB M-Pesa and M-Shwari ventures discriminatory?

Whether the arrangements with KCB for KCB M-Pesa on the one hand are equivalent to those with the banks and non-MNO mobile money services providers on the other hand is a more complex question. The KCB M-Pesa arrangement [CONFIDENTIAL] and there is no USSD charge. Of course, the attraction of the arrangement to KCB depends on the alternative, being the standard USSD arrangements. The level of USSD prices thus affects the relative value [CONFIDENTIAL]. There is, thus, a relationship between the terms on which KCB has access to USSD for KCB M-Pesa and the terms that other banks and alternative providers are paying. However, using the information available, we are unable to disaggregate the value of KCB's USSD access [CONFIDENTIAL]. Far more information than was provided to the inquiry would be needed to determine whether there is discrimination in play or not.

The arrangement with CBA pursuant to which CBA services are accessed through the STK platform rather than USSD is obviously differential treatment from the other banks and financial service providers. We understand that the leading services, in particular M-Shwari, are the result of the joint venture between Safaricom and CBA and cannot be interpreted as a CBA service simply being accessed via the STK. Integration in the M-Pesa menu and use of Safaricom customer data make it partly a joint project rather than mere provision of STK access. This is notwithstanding the licencing requirements meaning that the bank accounts are CBA accounts. The possible competition issues relate to the exclusivity of the arrangement between Safaricom and CBA and whether similar terms were offered to other banks, and if so, how those negotiations progressed before Safaricom elected to deal with CBA. Neither CBA nor Safaricom was willing to provide the terms of the [CONFIDENTIAL] that governs M-Shwari.[241] Accordingly, far more information than was provided to the inquiry would be necessary to reach a finding of discriminatory dealing in USSD access.

H.2.3.2 Excessive and exclusionary pricing

International benchmark prices for USSD and major reductions in USSD pricing in 2015 are strong indications that earlier USSD pricing was considerably above competitive levels and likely resulted from unilateral exertion of market power. In the absence of cost-related justifications, the continued prepay pricing of USSD sessions at Ksh 10 and Ksh 5 to some parties while others are charged Ksh 2 or lower is also likely to be above competitive levels. In addition, the benchmarking and consideration of costs we have been able to undertake with the limited information made available indicates that fair and competitive pricing of USSD would be below Ksh 1 per session, and probably a fraction of that.

H.2.3.2.1 Is the pricing of USSD excessive?

The assessment of excessive pricing under the Competition Act has not yet been tested. We have thus discussed different approaches drawing on international authorities and cases.

Benchmarks of pricing under effective competition where the costs can be reasonably assumed to be similar are one avenue to determine if prices are likely to be excessive. We have only been able to make limited comparisons which indicate that USSD prices in a number of other African

[241] [CONFIDENTIAL]

countries are zero with just a relatively low monthly fixed fee. This includes Vodafone and Vodacom pricing in Ghana and Tanzania.

In the absence of detailed cost data and given the complexity of allocating common costs it is possible to draw inferences from the pricing of other services which have similar or higher costs. For example, a 60 second voice call is priced at only Ksh 1. A USSD session uses considerably less network capacity and is likely to have lower costs than a voice call. Similarly, the Communications Authority has found that the Long Run Incremental Cost (LRIC) of an SMS is less than Ksh 0.015. While a USSD session remains open over its duration and is thus different from an SMS, it is doubtful that the USSD sessions costs would be more than 66 times that of an SMS (and thus be more than Ksh 1).

H.2.3.2.2 Is the pricing of USSD exclusionary?

The main question assessed in terms of the possible exclusionary implications of Safaricom's USSD pricing is whether it has subjected other competing parties to a margin squeeze. We conclude that margins have been negative based on the higher USSD prices that have prevailed and the prices for downstream services. Where the USSD price, as an input cost, is higher than the price of the downstream service then even without considering any other costs and a reasonable return the USSD price renders rivals commercially unviable. The impact of USSD charges on margins for a variety of usages is shown in Table 21 on page 114.

The incentive for undertaking exclusionary conduct are much greater if there is possible market power in the downstream markets for the services, as the dominant firm is able to attract the customers of the excluded rivals. In the mobile money market segment, Safaricom clearly has dominant market power. In the market for savings and loans that is developing over mobile networks, while Safaricom itself does not have a banking licence, it directly derives revenues from the extent to which KCB is advantaged by rivals' costs being raised. The [CONFIDENTIAL][242] would generate higher revenue for Safaricom where CBA's rivals are excluded. This is also likely the case for the [CONFIDENTIAL] between CBA and Safaricom.

There is a second advantage in the link between downstream mobile financial services and channelling users to Safaricom's M-Pesa. This also has exclusionary effects in protecting and reinforcing Safaricom's dominant position in mobile telecommunications and mobile money services from rivals at this level.

The magnitude of the effect depends on the extent to which the negative costs can be absorbed where rivals are providing the specific services using USSD as part of a wider basket, such as financial services being offered to a bank customer who accesses their account and undertake transactions from time-to-time using USSD. This assessment of the magnitude depends on the different users. More competitive market outcomes means attention to the impact on smaller users with less wide-ranging services, as well as large entities such as the major banks.

H.2.4 Summary of constraints on competition

Competition in telecommunications markets, and so the market for wholesale USSD access, are necessarily constrained to some extent by the capital intensive nature of the business coupled with limits on the number of radio spectrum licences. There are only three networks operating USSD in Kenya. Telecommunications and financial services are also both

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characterised by network effects, which can lead to explosive growth but also risks to competition.

Beyond the nature of such markets, however, market conduct appears to have intensified such network effects and built an impregnable position of dominance. The information available in this inquiry suggests that Safaricom appears to be engaging in conduct that constrains competition at several levels:

- First, Safaricom appears to be raising the costs of bank and alternative mobile money services providers through unfairly high USSD charges and price discrimination. By doing so, Safaricom impedes its financial services rivals' ability to compete with M-Pesa in the mobile money services market segment. This appears to be an unlawful abuse of dominance.

- Secondly, Safaricom's strategy for account-to-account interoperability embeds M-Pesa further. Refusing account-to-account interoperability with other mobile wallets while allowing it with bank accounts (albeit still on pricing terms that draw usage to M-Pesa) intensifies network effects that protect M-Pesa from competition.

The combined impact of these makes M-Pesa a 'must-have' product and, since it is only available on a Safaricom SIM card, Safaricom secures its position as a 'must-have' network. Together, these make M-Pesa impregnable to competition on the merits of the services themselves.

- Thirdly, M-Pesa's market power in the mobile money services market segment appears to be having an impact also in the adjacent mobile savings and loan market segment. Safaricom is able to offer advantages to lending products in which it has an interest, including interoperability of accounts without usage charges, co-branding and privileged access to Safaricom's customer data for these products. Safaricom appears to be limiting a key input to the mobile savings and loan market segment, possibly constraining competition in this market to a duopoly of banks whose revenues it shares. Indeed, Safaricom's stake in these ventures may amount in effect to a tendency towards monopoly in the mobile savings and loan market.

A statutory investigation into USSD pricing, in which further data would be obtained, would allow a fuller verification of the degree to which, and manner by which, Safaricom is engaging in abuse of dominance, as well as an opportunity for Safaricom to make representations in its defence. Further inquiries and investigations of interoperability and the mobile savings and loans market would be necessary to verify the degree to which Safaricom's conduct is indeed constraining competition.

H.3 Recommendations for addressing competition constraints

We discussed the regulatory framework in Section E, including powers to address dominant market power and its abuse, and powers to regulate *ex ante*. Certain measures have already been introduced to liberalise the Kenyan mobile money market, such as enforcement action taken by CAK against agent exclusivity and a prohibition on the same introduced by CBK in the NPS Regulations in 2014.

In light of the markets and high levels of dominance identified in Section F and competition problems and market conduct identified in Section G, we consider here the most important regulatory steps that should be explored with a view to improving competition in the sector and

improve consumer welfare. In some cases, the existing laws and regulations appear to be sufficient and only need to be applied more in practice. In other cases, the existing laws and regulations are insufficient. In some cases, we believe a formal investigation would be an appropriate path forwards.

H.3.1 Reviewing markets

Under December 2015 amendments to the IC Act, CA must now apply the dominance test under the Competition Act in consultation with CAK (see Section E.3.3). While not necessarily opting for the better economic notion of dominance, this harmonization of the tests for dominance should make coordination between these agencies more transparent and consistent. Under the 2015 amendments to the IC Act, CA is now required to consult with CAK on a dominance determination. In turn, CAK is generally duty-bound to coordinate with other agencies, as described in E.3.1.4, and is powerless to apply *ex ante* remedies (discussed in Section H.3.3) and therefore must engage and coordinate with CA. The two agencies signed a Memorandum of Understanding in 2015 regarding cooperation and coordination. Thus the prospects of tackling dominance issues appear favourable.

Despite Safaricom's extraordinary level of dominance, it has never been designated as dominant in a relevant market either by CA under the IC Act or CAK under the Competition Act. This naturally hampers the ability to address structural problems in the market through *ex ante* regulation as well as market conduct that harms competition through both agencies' *ex post* regulatory powers. Regardless of the historical reasons for this, a competition review of relevant markets in telecommunications and in mobile financial services and the interaction between them is long overdue.

How such competition review would be organised requires taking into account several factors:

First, CAK has carried out this present market inquiry under its own auspices. It has not been a joint exercise with CA. As a result, the inquiry has not had the benefit of full alignment of the respective institutions' perspectives, sharing of information, and coordination of information-gathering from sector participants.

Secondly, this market inquiry, while looking at issues in Kenya's mobile financial services market, is nevertheless focused on the USSD channel. A fully effective competition review would be more holistic, looking in greater detail at the mobile financial services market and a fuller review of the mobile telecommunications market.

Third, and further to the second point, we understand that CA is in the process of engaging consultants for a market review of telecommunications. To meaningfully inform CA's development of an effective regulatory approach to dominance in the telecommunications market, it will be essential that this take into account the interactions of cross-side network effects in both telecommunications and financial services discussed in Section G. In particular, network effects and dominance in the mobile money services market segment appears to be an important part of the dynamic in the market in mobile telecommunications services. There is a significant risk that lack of in-depth study of the mobile money markets, even in the context of

the retail banking sector, will lead to a suboptimal review of telecommunications market and potentially even mistaken findings and regulatory decisions.[243]

All of this points to the crucial importance of effective coordination between CAK and CA to analyse markets and identify dominance, as well as further coordination with CBK (e.g., regarding interoperability), so that all three authorities are able to develop suitable policies and regulatory interventions.

H.3.2 Addressing abuse of dominance

The constraints on competition arising from market conduct identified in Section G include potential violations rooted in abuse of a dominant position.

As discussed in Sections E.3.5 and E.3.6, both the Competition Act and the IC Act prohibit abuse of a dominant position and provide significant powers to investigate potential abuses of dominance. These frameworks, either alone or in combination, have sufficient tools to investigate a potential abuse of dominance and impose remedies, including for excessive pricing, discriminatory pricing and exclusionary pricing.

Both the competition and telecommunications frameworks include broad regulatory powers to remedy abuses of dominance. If used in a coordinated fashion, the remedies allowed are likely sufficiently broad and open ended to encompass application by CAK or CA of any of the three remedies discussed in Section H.3.3 as *ex post* remedies for violations.

The different powers of investigation include useful powers of production, evidence gathering and search and seizure powers for both CAK and CA. CAK has powers to impose interim relief during an investigation, impose penalties and reach settlements. However, financial penalties for abuse of dominance are limited to fines of up to Ksh 10 million. While CA's powers are limited to the information and communications sector and do not fully extend to financial services, the IC Act's financial penalties go far further as a disincentive to anticompetitive behaviour than the Competition Act, extending to 10% of turnover.

Thus under the current regulatory frameworks, in some cases CAK has more explicit powers than CA (e.g., to impose interim relief pending an investigation). In others, greater reliance may be necessary on provisions under the IC Act that are not present or as powerful in the Competition Act (e.g., financial penalties). This suggests that cooperation between these agencies in the area of *ex post* investigations and enforcement will be crucial. Generally, coordination between the authorities is essential to avoid duplicative or conflicting action in any investigation or crafting of remedies to address abuse.

Various amendments to these statutes would help make them more effective. For instance, the penalties under the Competition Act are particularly weak, leaving something of a gap that is not filled by the IC Act to the extent violations are found to be carried out beyond that Act's scope and CA's jurisdiction. Thus the Competition Act would benefit from strengthening. Both the Competition Act and IC Act would benefit from improving the harmonised definition of

[243] The Ugandan Communications Commission (UCC) recently carried out a market review and found cross-side network effects similar to those discussed here in Kenya. While the UCC did not look in detail at mobile financial services, it did consider these, and it will be important for CA to do so in Kenya. The UCC has not yet determined what regulatory action it will take, but it has defined markets and dominance and theories of harm. There is good reason to think that despite the benefits from innovation in Kenya, the levels of dominance and competition problems are all the more problematic. The UCC's market review reports are available here.

dominance away from bright line percentage market share tests towards more substantive economic tests.

Similarly, bringing CBK into regulatory coordination on competition matters is also crucial because it has powers over licensing and regulating of most financial services. While a fully concurrent competition mandate for CBK may be duplicative and even counterproductive, it will be important that CBK have responsibility for ensuring that financial sector regulation promotes competition, and that CBK will cooperate and coordinate with CAK and other relevant agencies towards this end.

H.3.3 Price regulation

There has been considerable caution among commentators about regulatory intervention in matters relating to mobile money. Conscious of the challenge of enabling and encouraging mobile money services to ignite and go through explosive growth, there is a tendency to recommend against intervention, at least in the early years.

Many commentators are especially cautious regarding price regulation, as it is (correctly) perceived as an intrusive remedy, and one that might be best applied only when all others have failed. Yet both the maturity of Kenya's mobile financial services market and the degree of market power enjoyed by Safaricom over provision of key infrastructure services necessary to deliver mobile financial services and the impact on downstream mobile financial services market makes USSD price regulation a very normal remedy.

The evidence indicates that Safaricom, a dominant firm, has priced USSD services *excessively*, considerably above costs, and significantly above prices for similar services charged elsewhere in Africa. It has also done so in a *discriminatory* manner. The outcome of this is that Safaricom's conduct, together with charges for sending funds into a Safaricom account, is having an *exclusionary* effect on rivals.

A key premise of competition law is that dominant firms have a special responsibility not to abuse this position. One implication of this is that the actual or potential threat of competition from the wholesale customer cannot be a basis on which excessive, discriminatory, exclusionary pricing is applied, as appears to have been the case here.

In considering how best to tackle this, it is helpful to think about the objectives of regulatory intervention in the short term and over the longer term.

H.3.3.1 Short term pricing objectives

A key immediate objective must be to bring the prices down to levels where the harmful impact on competition is removed. Given the likely very low cost of carrying USSD messages, this might be achieved by reaching prices that, while still significantly above Safaricom's costs, are below price sensitivity of the customers – the banks and other mobile financial services providers and the end-users where they bear them directly.

Data on the sensitivity to USSD pricing of consumers of mobile financial services would be a complex customer behavioural study in itself, which is further complicated by the lack of price transparency of USSD charges to consumers (discussed in Section H.3.5). However, the stakeholders we interviewed appeared to believe that prices below Ksh 1 for a USSD session (and to the extent applicable, priced per hop at a level intended to provide an equivalent amount per session given the multiple number of hops in an average USSD session) would not have the

harmful impact on competition currently experienced. Several indicated that at such a price, they would revert to the prepay model where the end-user bears the charge because they did not believe the end-users would regard that charge as a disincentive to use the service. A price below Ksh 1 per session (or if charged per hop, a price reaching the equivalent result) would, then, be a reasonable goal for short term implementation pending fuller regulatory intervention.

The differential in prices charged and other terms on USSD for mobile financial services should be transparent such that parties are aware that different levels of usage correspond to different pricing brackets, if appropriate. The differential between banks and non-financial institutions should be removed if no objective justification is provided.

This target short term price is higher than [CONFIDENTIAL] and is therefore more than likely to cover Safaricom's costs. This is also considerably higher than international benchmark usage prices for USSD sessions, which are often free in more competitive markets.

CAK has undertaken this market review, and so is well positioned to take a position on Safaricom's USSD prices. We described CA's price regulation powers in Section E.7, and these appear sufficient for CA to act quickly to address problems of excessive pricing. CAK and CA are thus both well equipped to signal to Safaricom the importance and urgency of making such pricing changes. Such a signal is far more effective if made together, but unity at the price of inaction is not a good compromise given the harm to the market.

In the absence of rapidly introduced voluntary changes to USSD pricing for mobile financial services along the lines indicated above, we recommend that CAK move quickly to initiate a statutory investigation into abuse of dominance in USSD pricing and related practices in the mobile financial sector. Such an investigation could reach a firm finding on what would be a reasonable price above which Safaricom is regarded as engaging in excessive pricing. In addition to imposing any penalties, the determination of excessive pricing should have the effect of setting a ceiling on pricing.

Such an investigation would naturally consider the past conduct. A finding from an investigation would provide a basis for fines under the Competition Act and the large fines under the IC Act. It would also provide a basis for claims by parties harmed by the conduct.

H.3.3.2 Price regulation over the longer term

Price regulation of telecommunications services is typically a matter which the sector regulator, here CA, would address using its price regulation powers. For instance, further to a finding of dominant market power, CA could regulate the prices of wholesale USSD access for mobile financial services charged by any MNO or MVNO that is dominant in this market.

Price regulation can take a number of forms, including requiring cost accounting, 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. Safaricom has an extreme level of dominance in the market, and developing an *ex ante* price regulation for the USSD service would ordinarily appear appropriate. It may seem counterintuitive to do so for a relatively small service when almost none of Safaricom's prices have been regulated to cost, but the major flow-through impact on the mobile financial services sector merits eliminating problems arising from USSD pricing.

However, again, before embarking on a huge resource consuming cost accounting process for USSD, it will be worth assessing whether even if USSD prices are significantly above their cost, a lack of customer price sensitivity below the Ksh 1 level might solve the main concern in

the short term. Timing factors should also take into account the development of the smartphone market in Kenya. Declining prices and increasing penetration of smartphones, together with availability of mobile applications over the Internet that are more attractive than legacy STK and USSD systems, should eventually remove the dependency on USSD as a bottleneck, and thus its potency as an exclusionary mechanism. An extensive cost accounting may simply not be necessary if the problem is largely solved through pricing at less than Ksh 1 per session until such market developments change the ecosystem.

H.3.4 Accounting and other forms of separation

Various forms of separation are used as *ex ante* regulatory remedies for certain forms of discriminatory conduct. Accounting, functional and structural separation are used to enable detection of discrimination, or even remove the incentive to discriminate.

Accounting, functional and structural separation typically address the risk that the vertical firm favours its own downstream operation over its competitors. Combined with non-discrimination obligations, it can be a remedy to reduce risk of a margin squeeze, which is a problem we have identified.

It is unlikely that any form of separation will address the main concerns of discriminatory pricing identified in Section G.3.2. These concerns relate primarily to discriminating between USSD charges applied to non-MNO mobile money services providers and USSD charges applied to banks – rather than a vertically integrated operator discriminating between implied charges for self-provision and actual charges applied to third parties. Whether separation could be useful at all depends on how the remedy would work, as discussed in the remainder of this section.

CA has explicit powers to impose *accounting separation* under the IC Act, as discussed in Section E.6. It could require accounting separation for Safaricom's M-Pesa services from the rest of Safaricom's operations, or for all MNOs and MVNOs or only those that are dominant. By enabling proper accounting of USSD services, accounting separation could be useful to verify that USSD access prices charged to third parties for the downstream service are not exclusionary or excessive.

However, accounting separation is unlikely to assist with detecting or discouraging discriminating between self-provision and provision to third parties. Accounting separation works to ensure parity of pricing treatment where the vertically integrated firm's downstream operation is the same as the competitor's. Here they are not, for M-Pesa runs across STK and its competitors run across USSD, which each have different network elements and associated costs. Even if they are 'equivalent' in many ways, they will not be accounted for as the same.

Another remedy that is applied with significant frequency internationally is *functional separation*. This is a more intrusive remedy than accounting separation. Functional separation requires the vertically integrated firm to separate particular business lines. Different degrees of separation may be employed depending on the need to police and remove the disincentive towards discriminatory conduct. For instance:

- Creation of a *wholesale division* for the service in question (here, the provision of USSD access).

- *Virtual separation* that redefines the transaction boundary for the given service in order to achieve full equivalence in the services offered to internal (Safaricom) and external customers without any physical separation of networks, equipment and other assets.
- Various forms of *business separation*, which involves reworking the underlying business practices, segregating particular assets and other inputs within a separate business unit when doing business with internal and external customers under identical processes that are verifiable. This can be extended to provide incentives to managers that are aligned with the separate unit, creational of a separate governance board and other mechanisms.
- Separation into *distinct legal entities*. While these entities may remain under common ownership, they would have to conclude transactions through contracts that could be examined. This heightened level of separation reduces the risk of gaming of accounts that may persist in accounting separation.

One form of functional separation could, for example, separate M-Pesa and its related services from Safaricom's telecom network services, including provision of STK and USSD. This could be combined with strong open access obligations requiring Safaricom to provide non-discriminatory access to its STK and USSD networks. Together, such obligations might help secure for competitors the same right to use STK as Safaricom offers to its own M-Pesa and M-Shwari services as well as the same right to use USSD as Safaricom offers to KCB (although this latter is not particularly helped by separation).

However, it would be important to avoid disproportionate remedies. For instance, full business separation or distinct legal entities may be very intrusive given the small scale of the actual USSD business (notwithstanding its strategic importance).

There is no overt or obvious authority in the IC Act or the regulations for CA to impose full separation into distinct legal entities as an *ex ante* remedy, and it is not clear whether CA would have the power under the IC Act to impose even the other forms of functional separation. An amendment of the IC Act or promulgating new regulations derived from a more general authority to regulate competition may be required for CA to obtain this power.

However, CAK has broad powers under Section 36 of the Competition Act to take action and grant appropriate relief where an investigation has uncovered abuse of dominance. It is worth considering further whether, if the USSD pricing problems are not solved as suggested in Section H.2.3, and if Safaricom were found in an investigation to have engaged in the sorts of abuse of dominance identified in Section G, a form of functional separation might be an appropriate remedy. On the face of it, at least, it does appear to be one.

H.3.5 Interoperability

H.3.5.1 Introduction

Interoperability of mobile financial services "enables users to make electronic payment transactions with any other user in a convenient, affordable, fast, seamless and secure way via

a single transaction account."[244] Interoperability could have a significant impact on the constraints on competition we have identified. By "interoperability," we mean account-to-account interoperability, sometimes called platform interoperability. This enables "transfers between customer accounts at different mobile money schemes and between accounts at mobile money schemes and accounts at banks."[245] (We are not referring to sharing of agents, whereby an agent may perform cash-in and cash-out transactions for multiple MNOs and other mobile wallet providers. Nor are we referring to network neutrality whereby customers can access the same mobile financial services through different MNOs.[246])

Currently M-Pesa and other mobile wallets are not interoperable. Transfers from M-Pesa to another mobile wallet (whether Airtel Money, Orange Money, Tangaza Pesa or Mobikash) require that the transferee visit an M-Pesa agent to receive the funds. M-Pesa also applies charges for transfers out of M-Pesa that are punitive for small transfers.

H.3.5.2 The benefits of interoperability

Account-to-account interoperability has the potential to reduce the network effects that contribute to market power in the markets for mobile financial services. It becomes possible for an end-user to send money from any mobile wallet to any other mobile wallet without incurring additional charges that would dis-incentivize such a transfer. As a result, an Airtel Money or a Mobikash mobile wallet holder can participate in the mobile money market as freely as an M-Pesa customer. By allowing customers to complete transactions across networks conveniently and affordably, the barriers between networks that create network effects and protect a dominant position are reduced (see Section G.1.2). This increases the incentive for each mobile wallet provider to compete to attract customers and usage on the merits of the service itself through quality, price, agent availability and innovation.

As a result, barriers to end-users enjoying mobile money service alternatives to M-Pesa will be reduced, and so the harmful impact of Safaricom's current USSD pricing practices will be significantly reduced. Indeed, as competition among mobile financial services increases, the ability of an MNO to host mobile financial service providers that are attractive to end-users may result in a general competitive incentive to reduce USSD prices, as Airtel has done in the market already. It may take time for such competitive pressure on USSD prices to grow, and so it is unlikely that interoperability will solve the problems quickly, but it may shorten the time period during which more intrusive forms of regulation, such as price regulation, discussed in this Section H.3 need to apply.

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[244] Aylward, C. et al. (September 2015), 'Review of Interoperability and Regulations of Mobile Money, EPAR Request No. 313,' Evans School Policy Analysis and Research (EPAR), Evans School of public Policy and Governance, University of Washington at 2, (citing ITU Focus Group on Digital Financial Services (2015), Output Document, International Telecommunications Union.)

[245] Clark, D and Gunnar C. (February 2014), 'A2A Interoperability, Making Mobile Money Schemes Interoperate,' GSMA at 4, available here.

[246] Kumar, K and Tarazi, M. (January 2012), 'Interoperability in Branchless Banking and Mobile Money,' CGAP blog post, available here.

Importantly, interoperability will take time and effort to negotiate and implement, and should not distract from addressing immediately addressable problems such as excessive, discriminatory pricing and margin squeeze.

H.3.5.3 Voluntary and mandated interoperability

Early in the evolution of a market for mobile financial services, the network effects that manifest are likely to lead to fierce competition as rivals try to establish a leading position.[247] It is suggested by some commentators that mandated interoperability is likely to reduce the incentives for innovation and investment. However, in more developed markets, these same network effects can become a barrier for entry, as a new entrant is unlikely to attract customers.[248] Where one service provider is dominant, these network effects can crowd out competition and entrench the current market structure.

The lack of interoperability is an important factor reinforcing Safaricom's market power in the market segment for mobile money services. Arguments against interoperability rest on the incentives required for investment as lack of interoperability means the returns can all be appropriated by the firm. This argument becomes weaker as the market becomes more mature and the lead firm earns the returns to recoup its investment. In a more balanced market such as Tanzania, operators can decide to interoperate to increase the overall attraction of the services to consumers. By comparison, the lack of interoperability is a choice by the dominant firm to restrict growth of the services but protect its own revenues on lower usage.

In developed markets, such as mobile financial services in Kenya, interoperability appears to be a primary and essential mechanism for alleviating harmful network effects. However, large MNOs with extensive infrastructure and upfront investment in mobile money networks such as Safaricom in Kenya have little incentive to voluntarily interoperate with smaller MNOs and other mobile financial services providers.[249] In addition, interoperability may impose additional costs on service providers to allow for compatibility between diverse technologies and systems.[250]

For these reasons, it appears that voluntarily negotiated account-to-account interoperability between Safaricom's mobile financial services and other mobile wallets and bank accounts is unlikely to be achieved in current market conditions. In addition, to date there has been little regulatory interest in imposing interoperability.

Kenya's NPS Regulations merely require that payment systems be *capable* of being interoperable (see Section E.5). How to achieve interoperability, and whether it can be encouraged and negotiated voluntarily among market participants, as has occurred in Tanzania, for example, or whether it must be mandated, depends on the incentives of the market

[247] See Bourreau, M. and Valletti, T (2015) (footnote 145).

[248] Bourreau, M. and Valletti, T (2015) (footnote 145) at 14.

[249] Aylward, C. et al. (September 2015) at 2.

[250] Clark, D and Gunnar C. (February 2014) at 5.

participants. They have incentives to grow or protect their shares of the market. Accordingly, it seems necessary to introduce mandatory interoperability by regulation.

H.3.5.1 Interoperability models

Interoperability can be implemented in various ways[251], including:

- bilateral agreements between each account provider (analogous to interconnection in telecommunications, and the MNO-bank interoperability currently operating between MNOs and banks in Kenya today);
- relying upon a processor that switches payments for each account provider (MNOs, banks and non-MNO mobile money services providers), which might be a third-party commercial processor or be owned by the various account providers;
- a combination of the above, for example, relying upon bilateral interoperability among mobile wallet providers which interface with the banks through a processor;
- by arranging for each account provider to partner with a bank which is connected with an Automated Clearing House (ACH) that settles the payments; and
- direct connection by all account providers to the national ACH.

Each of these options involves different costs, negotiation complexities, and risks, and these factors must be weighed differently depending on the degree to which the process is negotiated among stakeholders or imposed by a central authority. The optimal choice will also depend on the starting point, which today includes existing partnerships between MNOs and banks, and existing and planned clearing and settlement systems.

H.3.5.2 Introducing interoperability

We will not comment further here on the merits or demerits of the various models, save to say that a high priority should be placed on simplicity of negotiation, speed of implementation, and the core regulatory policy concern, which is to address an extreme imbalance in the market. As discussed in Section F.2.2.1, Safaricom has a market share in excess of 70% of all mobile money subscribers and close to 100% in terms of the value of mobile money deposits and transfers, i.e., usage. Safaricom is also dominant in the larger market for retail money transfer and payment services. Accordingly, in Kenya, the approach to interoperability should be focused on interoperability between M-Pesa and Safaricom's other mobile financial services products on one hand and third-party services on the other.

Given the genuine risk that regulation may cause harm to the market's growth, interoperability will be achieved through commercial negotiations. However, the extreme imbalance in bargaining leverage between Safaricom vis-à-vis other MNOs and non-MNO mobile money services providers such as Mobikash and Tangaza Pesa (and possibly many banks) suggests that commercial negotiations may not yield results that allow for effective competition. The ability of the regulator to arbitrate failures to agree, such as apply in the case of telecommunications under the Dispute Resolution Regulations under IC Act, is likely important. In this case CBK must presumably play a key role, but the competition issues at the heart of such interoperability negotiations make it likely important to ensure that CAK and even CA will be consulted or involved.

[251] See Clark & Gunnar, referred in footnote 245 above.

To achieve the desired goals, technical interoperability alone is likely to be insufficient. Even if end-users can make transfers to and from accounts on different networks, the disincentive for end-users to do so will remain strong if substantial charges apply. In that case, the network effects discussed in Section G.1.2 can be expected to continue to prevail. Thus careful attention to the charges for making such transfers will be important, and indeed they likely require to be regulated as are termination rates for telephone calls. The situation is analogous to interconnection termination rates where, over many years, regulators learned the importance of regulating interconnection prices towards the cost of providing the interconnection. Here, in the case of the dominant provider, addressing the harmful network effects may require regulation both of retail charges to customers for making and receiving mobile money transfers, as well as any wholesale charges between the mobile payment systems themselves.

H.3.5.3 The necessity of interagency cooperation

Lastly, it will be evident that this is clearly an area where CBK would naturally play a significant role, coordinating with CAK on the impact of the interoperability models on competition in the financial services sector. It will be important to ensure that there is open consideration of the trade-offs among the different interoperability models. A desire to ensure a perfect national interoperable system should not be allowed to become so complex to negotiate or costly to impose that it significantly delays the high priority of addressing the important competition problems in Kenya's mobile financial services and telecommunications markets.

H.3.6 Consumer protection

H.3.6.1 Introduction

In this subsection we discuss consumer protection concerns that arise from the use of USSD for mobile financial services. Consumer protection and competition issues are closely interrelated. Effective consumer protection policies can promote comparability of services which puts competitive pressure on providers in terms of price, quality and choice of products.[252]

In this inquiry we limited our examination to those consumer protection concerns that arise specifically out of the use of USSD as an access channel for mobile financial services. A broader look at consumer protection concerns in the retail market for mobile financial services (e.g., transparency of transfer fees, disclosure of credit terms, the ability of consumers to compare services) is outside the scope of this inquiry. If useful, it could be the subject of another inquiry.

The principal consumer protection concern that we encountered was a lack of transparency in charges to the consumer for USSD sessions for mobile financial services. Where prices are at levels significant enough to inform consumer decision-making, price transparency is important to ensuring a competitive market. Transparency encourages competition on the basis of price as well as differentiation of different levels of quality and innovation in exchange for different

[252] Mazer, Rafe and Rowan, P. (2015), 'Competition in Mobile Financial Services, Lessons from Kenya and Tanzania,' CGAP, at 5.

prices. Price transparency also makes it easier for consumers to identify prices, and so to apply competitive pressure on providers in the market.

H.3.6.1 Price transparency in mobile financial services and USSD

Research suggests that many customers remain confused about charges that apply to transfers to other mobile wallets and payments to utilities and businesses,[253] let alone when they are bearing a USSD charge for the use of the telecommunications network. When accessing third-party mobile financial services providers, a customer is often unaware of which charging model is applicable or the amount of any charges to customer. Some providers will inform the customer of the charge after the transaction. Airtel, for example, sends a message to the customer to inform him or her of the charges after transferring funds. M-Pesa does not.

The lack of price transparency in USSD is evident from the discussion in Section G.3.1.1. Pricing of USSD for mobile financial services is not straightforward. The most common models for USSD session pricing used in Kenya are:

(1) MNOs charge the third party and the customer nothing for a USSD session and the third party charges the customer nothing. This is the model used by KCB M-Pesa which is governed by a revenue sharing agreement between KCB and Safaricom.

(2) MNOs charge the third party nothing but charge the customer for each session through a reduction of airtime. The charge is negotiated between the MNO and the third party. This is the 'prepay' model used by Safaricom.

(3) MNOs charge the customer nothing but charge the third party either per session, per 'hop' or a fixed monthly access fee. The charges are negotiated between the MNO and the third party. This is the 'postpay' model used by Safaricom. Third-parties may then opt to recover the USSD charges from their customer accounts, but we have not examined these charges in this inquiry as they are beyond the scope of the use of the USSD channel.

Some mobile telecommunications providers, including Airtel, do inform the customer after the usage as to the charge. At time of writing, Safaricom does not. Some of the third-party providers do disclose the charges the customer may face, including Safaricom's USSD charge to the customer on a prepay basis. However, the majority of customers have no indication of the charge prior to initiating or during the USSD transaction. Where the USSD usage could amount to a significant cost, particularly as a proportion of a small amount transferred or in case of account balance checking, this may leave consumers uncertain and unprotected.

It is not clear yet how price sensitive consumers would be to the USSD charges, or to other charges that apply to transfers and payments, balance inquiries and other services. However, it is clear from our interviews from mobile money services providers that they typically opt to bear the USSD charge on the postpay model rather than leave the customer to bear it on the prepay model because they judge the charge to be too high for customers to use their services. It was also clear from our findings in Section G.3 that the excessive USSD pricing has presented a significant problem for competition in the market among mobile financial services providers when they are bearing the charge (postpay). Thus the signs are that consumers would be

[253] See Mazer, Rafe and Rowan, P. (2015), referred to in footnote 252.

sensitive to pricing at the levels currently prevailing in the market, and thus that price transparency would be an important element in bringing competitive pressure to bear.

These concerns can be expected to become more important as more sophisticated services, such as savings and loans, insurance and others, are increasingly offered in the market over mobile telecommunications networks.

H.3.7 Coordinating regulatory authorities

It is important to keep in mind that the issues with USSD pricing as a particular issue arise in the context of the wider development of markets where one participant is so much larger than the others. If the dominance and market power which we conclude Safaricom has at the MNO level were addressed, then the conduct in USSD would also be positively impacted.

In a recent study,[254] Evans and Pirchio considered whether mobile money schemes established by MNOs naturally tend to monopolies as a result of scale economies and positive feedback results. They found that this was not the case, but rather the evolution of the mobile money business tends to track the evolution of the mobile telecommunications business. When there is a dominant MNO, as in Kenya, that MNO establishes a dominant mobile financial services business. When there are several competing MNOs, such as in Tanzania, each of them is able to establish a competing mobile financial services business.

There are two critical implications of this finding. First, dominance of one MNO in mobile financial services is not inevitable. Second, competition in mobile financial services is inextricably linked to competition among MNOs. In order to address dominance in the market for mobile financial services, in addition to direct interventions in that market, regulators must consider also addressing dominance in the market for mobile telecommunications services.

We discussed in Section E.3.1.4 the need and the mechanisms for coordination between the competition roles and activities of CAK and CA. This is clearly crucial. As seen in this Section H.3, each of CA, the CBK and CAK have important roles in addressing the competition problems facing Kenya's mobile money market. CA and CAK have direct statutory authority to tackle several of the issues. Competition is not a statutory priority for CBK, though its ability to regulate matters such as interoperability make it crucial for competition issues.

In addition to possible *ex post* enforcement, USSD pricing may be addressed through regulation by CA and interoperability by CBK. Rather than alternatives, the *ex post* and *ex ante* measures can be understood as complementary. The evaluations undertaken by CAK through competition investigations can provide important indications of the main competition constraints and bottlenecks which are the rationale for regulation by the other two agencies.

The problems uncovered in this inquiry, provisional though its conclusions may be, will only be fully addressable through a strong will for the three authorities to work together to agree on the problem and coordinate its solution. Such collaboration would appropriately begin with a senior-level meeting among CAK, CA and CBK during which the consultants would present the findings and the recommendations for action in this report and facilitate further discussion.

[254] Evans, D. and A. Pirchio (2015) 'An Empirical Examination of Why Mobile Money Schemes Ignite in Some Developing Countries but Flounder in Most', Coase-Sandor Institute for Law and Economics Working Paper no 723 at 28.

Appendix A: Mobile money charges and agent commissions

Table 24: M-Pesa to other M-Pesa

Transaction Range (Ksh)		March 2010			March 2012			February 2013			Current		
Minimum	Maximum	Charge	% of transaction value		Charge	% of transaction value		Charge	% of transaction value		Charge	% of transaction value	
			Minimum %	Maximum %		Minimum %	Maximum %		Minimum %	Maximum %		Minimum %	Maximum %
10	49	N/A			3	6.1%	30.0%	3	6.1%	30.0%	1	2.0%	10.0%
50	100	10	10.0%	20.0%	5	5.0%	10.0%	5	5.0%	10.0%	3	3.0%	6.0%
101	500		6.0%	29.7%	25	5.0%	24.8%	27	5.4%	26.7%	11	2.2%	10.9%
501	1000		3.0%	6.0%	30	3.0%	6.0%	33	3.3%	6.6%	15	1.5%	3.0%
1001	1500		2.0%	3.0%	30	2.0%	3.0%	33	2.2%	3.3%	25	1.7%	2.5%
1501	2500		1.2%	2.0%	30	1.2%	2.0%	33	1.3%	2.2%	40	1.6%	2.7%
2501	3500		0.9%	1.2%	30	0.9%	1.2%	33	0.9%	1.3%	55	1.6%	2.2%
3501	5000		0.6%	0.9%	30	0.6%	0.9%	33	0.7%	0.9%	60	1.2%	1.7%
5001	7500	30	0.4%	0.6%	50	0.7%	1.0%	55	0.7%	1.1%	75	1.0%	1.5%
7501	10000		0.3%	0.4%	50	0.5%	0.7%	55	0.6%	0.7%	85	0.9%	1.1%
10001	15000		0.2%	0.3%	50	0.3%	0.5%	55	0.4%	0.5%	95	0.6%	0.9%
15001	20000		0.2%	0.2%	50	0.3%	0.3%	55	0.3%	0.4%	100	0.5%	0.7%
20001	25000		0.1%	0.1%	75	0.3%	0.4%	82	0.3%	0.4%	110	0.4%	0.5%
25001	30000		0.1%	0.1%	75	0.3%	0.3%	82	0.3%	0.3%	110	0.4%	0.4%
30001	35000		0.1%	0.1%	75	0.2%	0.2%	82	0.2%	0.3%	110	0.3%	0.4%
35001	40000		0.1%	0.1%	75	0.2%	0.2%	82	0.2%	0.2%	110	0.3%	0.3%
40001	45000	50	0.1%	0.1%	75	0.2%	0.2%	82	0.2%	0.2%	110	0.2%	0.3%
45001	50000		0.1%	0.1%	100	0.2%	0.2%	110	0.2%	0.2%	110	0.2%	0.2%
50001	70000	60	0.1%	0.1%	100	0.1%	0.2%	110	0.2%	0.2%	110	0.2%	0.2%

Source: Analysis of M-Pesa charges from Safaricom submission, provided on 17 June 2015.

Table 25: M-Pesa to non-registered

Transaction Range (Ksh)		March 2012*				February 2013				Current			
Minimum %	Maximum %	Charge	Mark-up over M-Pesa registered charge	% of transaction value		Charge	Mark-up over M-Pesa registered charge	% of transaction value		Charge	Mark-up over M-Pesa registered charge	% of transaction value	
				Minimum %	Maximum %			Minimum %	Maximum %			Minimum %	Maximum %
101	500	60	140%	12.0%	59.4%	66	144%	13.2%	65.3%	44	300%	8.8%	43.6%
501	1000	60	100%	6.0%	12.0%	66	100%	6.6%	13.2%	48	220%	4.8%	9.6%
1001	1500	60	100%	4.0%	6.0%	66	100%	4.4%	6.6%	58	132%	3.9%	5.8%
1501	2500	60	100%	2.4%	4.0%	66	100%	2.6%	4.4%	73	83%	2.9%	4.9%
2501	3500	80	167%	2.3%	3.2%	105	218%	3.0%	4.2%	110	100%	3.1%	4.4%
3501	5000	95	217%	1.9%	2.7%	143	333%	2.9%	4.1%	132	120%	2.6%	3.8%
5001	7500	130	160%	1.7%	2.6%	171	211%	2.3%	3.4%	163	117%	2.2%	3.3%
7501	10000	155	210%	1.6%	2.1%	220	300%	2.2%	2.9%	201	136%	2.0%	2.7%
10001	15000	200	300%	1.3%	2.0%	237	331%	1.6%	2.4%	260	174%	1.7%	2.6%
15001	20000	215	330%	1.1%	1.4%	275	400%	1.4%	1.8%	282	182%	1.4%	1.9%
20001	25000	250	233%	1.0%	1.2%	275	235%	1.1%	1.4%	303	175%	1.2%	1.5%
25001	30000	250	233%	0.8%	1.0%	275	235%	0.9%	1.1%	303	175%	1.0%	1.2%
30001	35000	250	233%	0.7%	0.8%	275	235%	0.8%	0.9%	303	175%	0.9%	1.0%

** Safaricom did not submit prices for non-registered customers for the period prior to the March 2012 period.*

Source: Analysis of M-Pesa charges from Safaricom submission, provided on 17 June 2015.

Table 26: Withdrawal from M-Pesa agent

Transaction Range (Ksh)		March 2010			March 2012			February 2013			Current		
		Charge	% of transaction value		Charge	% of transaction value		Charge	% of transaction value		Charge	% of transaction value	
Minimum	Maximum		Minimum %	Maximum %		Minimum %	Maximum %		Minimum %	Maximum %		Minimum %	Maximum %
10	49	N/A											
50	100	15	15.0%	30.0%	10	10.0%	20.0%	10	10.0%	20.0%	10	10.0%	20.0%
101	500	25	5.0%	24.8%	25	5.0%	24.8%	27	5.4%	26.7%	27	5.4%	26.7%
501	1000		2.5%	5.0%	25	2.5%	5.0%	27	2.7%	5.4%	27	2.7%	5.4%
1001	1500	25	1.7%	2.5%	25	1.7%	2.5%	27	1.8%	2.7%	27	1.8%	2.7%
1501	2500		1.0%	1.7%	25	1.0%	1.7%	27	1.1%	1.8%	27	1.1%	1.8%
2501	3500	45	1.3%	1.8%	43	1.2%	1.7%	49	1.4%	2.0%	49	1.4%	2.0%
3501	5000		0.9%	1.3%	60	1.2%	1.7%	66	1.3%	1.9%	66	1.3%	1.9%
5001	7500	75	1.0%	1.5%	75	1.0%	1.5%	82	1.1%	1.6%	82	1.1%	1.6%
7501	10000		0.8%	1.0%	100	1.0%	1.3%	110	1.1%	1.5%	110	1.1%	1.5%
10001	15000	145	1.0%	1.4%	145	1.0%	1.4%	159	1.1%	1.6%	159	1.1%	1.6%
15001	20000		0.7%	1.0%	160	0.8%	1.1%	176	0.9%	1.2%	176	0.9%	1.2%
20001	25000	170	0.7%	0.8%	170	0.7%	0.8%	187	0.7%	0.9%	187	0.7%	0.9%
25001	30000		0.6%	0.7%	170	0.6%	0.7%	187	0.6%	0.7%	187	0.6%	0.7%
30001	35000		0.5%	0.6%	170	0.5%	0.6%	187	0.5%	0.6%	187	0.5%	0.6%
35001	40000	250	0.6%	0.7%	250	0.6%	0.7%	275	0.7%	0.8%	275	0.7%	0.8%
40001	45000		0.6%	0.6%	250	0.6%	0.6%	275	0.6%	0.7%	275	0.6%	0.7%
45001	50000		0.5%	0.6%	250	0.5%	0.6%	275	0.6%	0.6%	275	0.6%	0.6%
50001	70000	300	0.4%	0.6%	300	0.4%	0.6%	330	0.5%	0.7%	330	0.5%	0.7%

Source: Analysis of M-Pesa charges from Safaricom submission, provided on 17 June 2015.

Table 27: Withdrawal from ATM

Transaction range (Ksh)		March 2010			February 2013			Current		
		Charge	% of transaction value		Charge	% of transaction value		Charge	% of transaction value	
Minimum	Maximum		Minimum %	Maximum %		Minimum %	Maximum %		Minimum %	Maximum %
200	2500	30	1.2%	15.0%	33	1.3%	16.5%	33	1.3%	16.5%
2501	5000	60	1.2%	2.4%	66	1.3%	2.6%	66	1.3%	2.6%
5001	10000	100	1.0%	2.0%	110	1.1%	2.2%	110	1.1%	2.2%
10001	20000	175	0.9%	1.7%	193	1.0%	1.9%	193	1.0%	1.9%

Source: Analysis of M-Pesa charges from Safaricom submission, provided on 17 June 2015.

Table 28: Safaricom and Mobikash agent commissions compared

Transaction range*		Deposits		Withdrawals	
		Safaricom (registered users)**	Mobikash**	Safaricom (registered users)**	Mobikash**
10	49	4		N/A	
50	100	8	6-8	3	6-8
101	500	9	6-8	9	6-8
501	1000	10	7-10	9	8-12
1001	1500	11	9-11	9	10-14
1501	2500	12	10-12	9	12-18
2501	3500	14	11-17	16	25-30
3501	5000	20	11-17	21	25-30
5001	7500	28	20-27	26	35-40
7501	10000	40	20-27	35	35-40
10001	15000	55	35-42	51	40-50
15001	20000	71	45-52	56	60-64
20001	25000	87	55-62	60	64-66
25001	30000	103	65-72	60	70-72
30001	35000	119	85-92	60	90-92
35001	40000	135	100-107	88	105-107
40001	45000	150	125-135	88	130-135
45001	50000	190	125-135	88	130-135
50001	60000	190	155-165	105	160-165
60001	70000	190	175-185	105	180-185
70001	80000	N/A	195-205	N/A	200-205

Transaction range*		Deposits		Withdrawals	
		Safaricom (registered users)**	**Mobikash****	**Safaricom (registered users)****	**Mobikash****
80001	90000	N/A	215-225	N/A	220-225
90001	100000	N/A	225-235	N/A	230-235

* Note that Safaricom's transaction range for deposits has slightly higher boundaries than for withdrawals. The deposit range diverges from the withdrawal range from Ksh 501, where the deposit range begins at Ksh 511. The next change is from Ksh 20,001, where the deposit range begins at Ksh 20,021.

** Mobikash in some instances has a wider transaction range (such as 50-500, 2,500-5,000) than Safaricom does in several instances. Safaricom has a wider transaction range for the range Ksh 50,000 – 70,000 than Mobikash does. Safaricom, in turn, does not allow transactions above Ksh 70,000, while Mobikash's transaction limit is Ksh 100,000.

Appendix B: [CONFIDENTIAL]

Table 29: [CONFIDENTIAL]

Appendix C: USSD prices in terms of reference

Table 30: ANNEX 1: Preliminary scoping of USSD pricing in Kenya

	MNO 1		MNO 2		MNO 3		MNO 4	
Provider	Cost (Kshs)	Duration (seconds)	Cost (Kshs)	Duration (seconds)	Cost (Kshs)	Duration (seconds)	Cost (Kshs)	Duration (seconds)
Bank 1	5	180	Monthly access fee		Monthly access fee		Monthly access fee	
Bank 2	4	120	1	180	Not used		No charge to customer	
Bank 3	5	180	No charge		Not used		Not used	
Bank 4	5	180	3	180	Not used		Not used	
Bank 5	5	180	Not used		Not used		Not used	
Bank 6	5	180	Not used		Not used		Not used	
Third party 1	5	180	3	180	3	180	2	180
Third party 2	10							
Third party 3 - Prepaid	10	180	3	180	3	180	2	180
Third party 3 - Postpaid	0.5-1.5	180	3	180	3	180	2	180
Set-up costs	100,000		75,000		30,000		50,000	
Monthly costs	100,000		50,000		10,000		20,000	

Table 31: ANNEX 2: Preliminary scoping of international USSD pricing

Country	Operator	USSD price per session (USD)
India	All	USD 0.02
South Africa	MNO 1	USD 0.06-0.50
South Africa	MNO 2	USD 0.06
Nigeria	MNO 1	USD 0.01
Nigeria	MNO 2	USD 0.02
Nigeria	MNO 3	USD 0.06
Nigeria	MNO 4	USD 0.05
Indonesia	MNO 1	USD 0.05-0.10
Indonesia	MNO 2	USD 0.00

Appendix D: Significant information requested but not provided

As discussed in Section B.2, as part of this inquiry we submitted detailed information requests to MNOs, banks and non-MNO mobile money services providers, and made follow-up calls and emails to the same. Yet a significant amount of information requested was not provided, in some cases preventing us from making definitive findings.

Table 32 below sets out the most significant information requested but not provided and the impact on our analyses and findings, listed in order of materiality to this inquiry. ToR items referenced below are set out in full in Table 1.

Table 32: Significant information requested but not provided

No.	Information requested	Parties	Impact
1.	Current and historical pricing of USSD sessions to third parties, including: • Postpay pricing for the last 5 years. • An explanation of the discrepancies in reported postpay pricing of USSD sessions. Specifically, [CONFIDENTIAL] • An explanation addressing concerns over reported average pricing of USSD sessions [CONFIDENTIAL].	Safaricom	Failure to provide this information materially inhibited our ability to conduct a comprehensive audit of USSD pricing, as specified in ToR items (b) and (c). This further impacted our analysis of discriminatory, excessive and exclusionary pricing.
2.	Copies or descriptions of contractual arrangements (current and historical) between MNOs and third parties for USSD access, including prices charged to the third party and prices charged to consumers.	Safaricom, Orange Airtel	Failure to provide this information materially inhibited our ability to conduct a comprehensive audit of USSD pricing, as specified in ToR items (b) and (c). This further impacted our analysis of discriminatory, excessive and exclusionary pricing.
3.	Costs of providing USSD and other services.	Safaricom, Orange Airtel	Failure to provide this information materially inhibited our ability to provide a competitive USSD pricing benchmark that gives some measure of unit economic cost and make a recommendation on the optimal pricing of a USSD session, as specified in ToR items (j) and (k). This further impacted our analysis of excessive pricing and exclusionary pricing.
4.	Documents and correspondence between MNOs and third parties relating to negotiation of the cost of USSD access for mobile financial services.	Safaricom, Orange, Airtel	Failure to provide this information materially inhibited our ability to determine how different sized players negotiate the cost of USSD sessions with MNOs, as specified in ToR item (d). This further impacted our analysis of discriminatory pricing.
5.	Data on the quality of USSD sessions, including volume of dropped sessions.	Safaricom, Orange Airtel	Failure to provide this information materially inhibited our ability to draw definitive conclusions on USSD quality of service and any cost implications of degraded quality, as specified in ToR item (f).
6.	Description of the revenue sharing arrangement between Safaricom and CBA with respect to M-Shwari.	Safaricom, CBA	Failure to provide this information impacted our analysis of discriminatory pricing.
7.	For each of M-Pesa, M-Shwari, KCB M-Pesa, Lipa na M-Pesa, current and historical charges to third parties for transfers in and out of their mobile financial services.	Safaricom	Failure to provide this information impacted our analysis of the impact of network affects associated with mobile financial services.

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