THE REGULATOR'S PERSPECTIVE ON THE RIGHT TIMING FOR INDUCING INTEROPERABILITY

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The Regulator's Perspective on the Right Timing for Inducing Interoperability

Findings of a survey among Focus Group Members

Focus Group Technical Report

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The procedures for establishment of focus groups are defined in Recommendation ITU-T A.7. TSAG set up the ITU-T Focus Group Digital Financial Services (FG DFS) at its meeting in June 2014. TSAG is the parent group of FG DFS.

Deliverables of focus groups can take the form of technical reports, specifications, etc., and aim to provide material for consideration by the parent group in its standardization activities. Deliverables of focus groups are not ITU-T Recommendations.

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About this report

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[1] The views expressed herein are those of the authors and do not necessarily represent the ones from the Central Bank of Brazil nor the International Telecommunication Union.

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Executive summary

Interoperability has been understood as a relevant aspect in fostering the financial inclusion efforts made through the availability of digital financial services (DFS). Despite the fact that some consensus has been achieved and the regulator can now have an important role in inducing interoperability, the right timing for and scope of the regulator's actions is still an open discussion.

The present work provides insights shared by five regulators who participated in the DFS Focus Group WG on Interoperability. Although it is impossible to generalize conclusions from the survey, some similarities across the surveyed countries can be observed.

First, before addressing DFS interoperability, the financial and telco regulators need to define their roles and responsibilities among each other. Second, although regulators generally seem to consider interoperability an important element in the DFS ecosystem, the current state of interoperability in different countries varies substantially. Third, positive outcomes are reported—or at least expected—across countries, suggesting that current policies might persist for the time being. Fourth, authorities seem to be conscious of the fact that any intervention needs to be considered carefully and take place only when no market-driven solution is leading to interoperable services.

1 Introduction

Interoperability is deemed to be one of the crucial characteristics of financial and information and communications technology (ICT) infrastructures, and for the widespread availability of DFS, effectively supporting financial inclusion[2]. Whereas the widespread availability of digital solutions for savings, credit, and payments provides people with access to financial services, payments interoperability enables these targeted people to transfer their money to any other individual, without needing to have multiple transaction accounts.

While everyone should have the option to have more than one account, if she/he decides to do so, nobody should be required to open accounts due to a lack of interoperability, since this might involve costs coming from the existence of idle balances or from a higher incidence of fees to cope with their management. Since costs are often quoted as one of the most important reasons not to have an account, products that effectively meet a broad range of transaction needs of the targeted population (e.g. via interoperability) at little or no cost have a higher potential to increase access to and usage of transaction accounts[3].

Recent literature points out interoperability issues as a major obstacle to the implementation of DFS[4]. However, interoperability is not always considered as a desirable objective by service providers, especially not if they are dominant market players. This setting makes room for the rise of the willingness of governments seeking inclusion to induce interoperability.

Despite the fact that some consensus has been achieved and the regulator can now have an important role in inducing interoperability[5], the right timing for and scope of the regulator's actions is still an open discussion. On one hand, early intervention may adversely affect market development by raising entry barriers and removing first mover incentives. For example, innovative solutions may be unsuccessful with early interoperability induction because of the reduction of the potential revenue they would obtain in the case where they were provided as stand-alone solutions[6]. On the other hand, intervening too late might make it difficult – if not impossible – to establish a competitive, interoperable market. As a result, undesired outcomes, such as oligopolistic or even monopolistic structures, and market power concentration can arise. Changing these market structures once they are established is challenging and will likely draw opposition from incumbents, who fear the competition from potential new entrants and want to defend their current market position.

Thus, the question becomes: What is the right time for the regulator to intervene and induce interoperability in a country's DFS market? There is already extensive theoretical economic literature (which balances the benefits and costs of the government's intervention in the market[7]) that may provide insights for answering this question. When it comes to interoperability, although there is some anecdotal evidence, typically we find a lack of ex ante/ex post data. Thus, analyses is limited, and any conclusion about whether regulatory intervention has improved interoperability must be carefully considered.

The present work contributes to the topic providing insights shared by five regulators who participated in the DFS Focus Group WG on Interoperability.

[2] According to the ITU Digital Financial Services Focus Group's glossary, interoperability is "the ability to exchange payments transactions between and among providers. This can be done by providers participating in a SCHEME or by a variety of bilateral or multilateral arrangements". "When payment systems are interoperable, they allow two or more proprietary platforms or even different products to interact seamlessly".

[3] See the Payment Aspects for Financial Inclusion report (CPMI and World Bank, 2016).

[4] See Albuquerque et al. (2014).

[5] For recent accordingly claims, see, e.g., David-West (2016); Bankable Frontier Associates (2012).

[6] There is a lack of quantitative assessment of these assumptions. According to Dahlberg et al. (2015), limited progress seems to have been made even if a large number of articles and notes have been published about digital payments.

[7] Indeed, the literature on market power and regulation and on contract theory and incentives is especially applicable to this topic. See, for example, Laffont and Tirole (1993), Laffont and Tirole (1999) and Aghion et al. (2016).

2 Methodology

A questionnaire was distributed among representatives from authorities of 18 countries attending the DFS Focus Group WG on Interoperability, eight from Asia, seven from Africa, and three from South America. Whenever possible, both the telecommunication and the financial regulators received the questionnaire.

Four regulators and one payment infrastructure answered the survey and their answers are reported on the next section. The questions are available in the Annex and addressed the areas summarized below:

- **Mandate of the regulator**
  DFS, especially mobile financial services, rely on the telecom infrastructure, as well as the financial infrastructure. In some jurisdictions, it might not be clear what the powers and responsibilities of the telecommunication regulator and financial regulators are when it comes to DFS, resulting in the question of: Which regulator would be responsible for addressing DFS interoperability? The possible overlap and conflict of regulations and jurisdictions is an additional potential risk to the effectiveness of the regulations, which Benson and Loftesness (2012) cite as crucial for the success or failure of the flourishing of a sustainable interoperable market. It is important to take the country-specific legal and regulatory framework into consideration when trying to understand the rationale for local decisions.

- **Relevant market**
  While the focus is on DFS, and specifically digital payments, the same electronic payment instrument (e.g. payment cards or mobile money) can be used for very different payment use cases. It is important to note that even within certain use cases, e.g. a person-to-person transfer, the challenges might be very different. For example, achieving interoperability in international remittances is typically considered to be even more complicated than interoperability for domestic remittances. Unique environmental conditions make it difficult to draw policy conclusions based on the experience of other markets. However, considering other markets' experiences is still considered important, even if it is not possible to draw generalized policy conclusions from them. It is important to consider the country-specific market environment if regulators consider taking action on interoperability.

- **State of interoperability**
  The regulator's perception about the current state of interoperability within the relevant state is key to understanding any decision made regarding this aspect. How important is interoperability considered for the country's financial system? How has the current level of interoperability of existing systems been achieved? Why does the regulator consider the current state of interoperability insufficient? It is important that the regulator is transparent on these aspects, so that its actions are predictable.

- **Desirable outcome**
  Regulators' actions to facilitate interoperability will obviously be taken with specific intentions, but the outcome may not always be the one expected. While authorities are typically cautious when it comes to admitting and/or discussing setbacks, a lot can be learnt from these lessons, and potential mistakes could ideally be avoided.. Outcomes of regulatory interventions should be evaluated.

In the next section, the approach chosen by the five respondents for these areas is presented.

3 Reported answers

Country: Brazil

Respondent: Central Bank of Brazil[8]

Mandate	Concerning DFS, the Brazilian Central Bank (BCB) has the mandate to regulate DFS in general. The telecom regulator can regulate access to the mobile telecommunication infrastructure, which is clearly out of scope/mandate of the BCB. The BCB is also responsible for DFS interoperability. BCB's mandate was established in 2013, when Law 12,865 was enacted.
State of the market before authority's involvement	Even before BCB's mandate for DFS was established, banks and several non-bank payment service providers provided various DFS to the Brazilian market. Examples are: PayPal, Mercado Pago, PagSeguro (payment facilitators), Cielo, Rede (acquirers), Oi Paggo, MFS (mobile payments), Alelo, Ticket, and Sodexo (food stamp providers), among others. Banks also provided DFS, mainly through Internet banking and mobile banking solutions.
Relevance assigned to interoperability	Interoperability is a major principle in the law that regulates the payment services provision in Brazil, as it is seen to be necessary for innovation and increasing competition.
Reason to address interoperability	The Brazilian payment cards market was characterized by a high level of market concentration. The two largest payment schemes had a combined share of approximately 90 per cent of the payment cards market (both in transaction volume and value). The acquiring market was also dominated by two acquirers (namely Cielo and Rede). It was pointed out in the Report on the Brazilian Payments Card Industry (2010) that the verticalization of many services by the acquirers were a major barrier to the entry of other acquirers. Additionally, the highly concentrated financial market led to a concentration at the issuing side as well. Furthermore, the involvement of the main financial institutions in all sectors of the payments service provision chain (from scheme owners to payment facilitators) increased the challenges entrants must face.
Authority's approach	This is an ongoing process. In 2016, BCB decided to establish a working group with market participants to discuss and promote interoperability in the Brazilian market. In its first task on the operational side, the group discussed adjustments in the current interbank credit transfers standards to cope with non-bank payment service providers; besides that, all payment system providers guaranteed no technical obstacles for payment institutions to become participants, so that all authorized market participants should have access to this set of transfers as the adjustments are implemented.
Outcome	An internal report on the first phase achievements of the interoperability working group is to be finished by November 2016.

[8] Central Bank of Brazil was represented by Mr. Ricardo Teixeira Leite Mourão.

Country: Liberia

Respondent: Central Bank of Liberia[9]

Mandate	There has been no special agreement regarding the mandate on mobile payments between the Central Bank of Liberia (CBL) and the Liberia Telecommunication Authority. However, the Central Bank of Liberia mandated in its Mobile Money Regulation of May 14, 2014 that all authorized institutions licensed under its regulations should provide systems that are interoperable with systems of other authorized institutions.
State of the market before authority's involvement	Prior to having a functional regulatory approach for DFS provision, the CBL followed a bank-led model. As a result, mobile money was offered by two banks in cooperation with one mobile network operator (MNO). The unsatisfactory uptake of mobile money led to an amendment of the new regulatory framework of 2014. The new regulatory framework follows a functional approach and no longer requires companies licensed by the Central Bank of Liberia for the provision of mobile money services to do this in cooperation with banks. So far, two subsidiaries from the MNOs have been licensed as mobile money providers: Lonestar Cell MTN Mobile Money Inc. which is currently market leader; and Cellcom Technologies Inc., which recently received its license.
Relevance assigned to interoperability	Interoperability has been considered important, as proven by the explicit requirement in the mobile money regulation.
Reason to address interoperability	Customers show a keen interest to transact across providers so interoperability is important. So far, however, the major challenge has been the deployment of the national switch at the CBL, to enable interoperability on infrastructure level.
Outcome	The two licensed mobile money providers still need to establish interoperability, as required by the mobile money regulation.

[9] Bank of Liberia was represented by Ms. Erica R. Williams.

Country: Nigeria

Respondent: Nigeria Inter-Bank Settlement System[10]

Mandate	The Central Bank of Nigeria has the legal mandate for DFS in Nigeria, including enforcement of interoperability, through the Central Bank Act of 2007. The role of telecommunication operators is the provision of telecommunication services, enabling the delivery of DFS over USSD, STK, mobile app, and the web via various GSM data plans.
State of the market before authority's' involvement	The authority's focus on DFS prior to 2007 was limited. Financial institutions were the sole DFS providers before the legal mandate was enacted. Interoperability was mandated in 2008 among the two card payment processors (one with about 90 per cent and the other 10 per cent market share). Both were previously interested in interoperation, but they could not agree on business and commercial terms prior to 2008.
Relevance assigned to interoperability	Interoperability has been considered important.
Authority's approach	Since moral suasion did not lead to the desired interoperability outcome, it was enforced by the Central Bank. The Central Bank initiated the development of the Nigeria Central Switch and mandated the existing (private) switches to interconnect to it for interoperability purposes. Inducing interoperability and establishing a central switch might have facilitated the growth of DFS in Nigeria, as DFS providers were able to interoperate with all banks right from the commencement of operations.
Outcome (aimed)	More efficient resource utilization (there were silo implementations which were expensive to operate and none were able to achieve critical mass) and lowering the barrier to entry were the major aimed outcomes.
Outcome (actual)	The aimed outcomes were achieved. A high level of technical interoperability exists in Nigeria today, and many DFS devices and schemes are able to interoperate seamlessly. Entry barrier has also been lowered substantially. While technical interoperability has been achieved and service providers comply with technical interoperability as required by regulation, they do not promote interoperability services (i.e. from a business/commercial perspective, there is little interest in interoperability). Interoperability has mainly been achieved among and between banks and non-banks, but not among non-banks, e.g. mobile money operators and microfinance banks.

[10] Nigeria Inter-Bank Settlement System was represented by Mr. Niyi Ajao.

Country: Philippines

Respondent: Bangko Sentral ng Pilipinas[11]

Mandate	DFS is within the mandate of the Bangko Sentral ng Pilipinas (central bank), specifically for products and services that would meet established regulatory criteria. Telecommunication operations, on the other hand, remains with the telecom regulator.
State of the market before authority's involvement	Even without interoperability being mandated, the industry players were able to interoperate among themselves (with some encouragement from the central bank) in the following instances: 1. In 2005, the three ATM networks in the country interconnected, allowing an ATM cardholder to transact at any ATM in the country; 2. In 2010, the same ATM networks opened up their POS services to allow any ATM cardholder to transact at any POS device in the country; 3. In the first quarter of 2016, two of the largest e-money issuers launched a pilot to interoperate their e-money products. It is set to be launched to the public in late 2016.
Relevance assigned to interoperability	The relevant authorities have considered interoperability an important issue.
Reason to address interoperability	The decision to promote interoperability across DFS was aligned with the objective of encouraging and promoting electronic payments. Despite the increase in the number of institutions offering DFS and the increased use of DFS, a diagnostic study conducted in 2013 revealed only one per cent of the 2.5 billion payment transactions in an average month are effected electronically. The development of the national retail payments system (NRPS) hopes to address some barriers to entry in the existing set-up, including concerns on efficiency and affordability.
Authority's approach	In the Philippines, interoperability is being strengthened with the NRPS initiative. NRPS is a policy and regulatory framework, which aims to establish a safe, efficient, reliable, and affordable retail payment system in the Philippines. Discussions across various groups are facilitated by the central bank to gather inputs and establish buy-in from the participants. It is an on-going process with planned policy and regulatory issuances.
Outcome	The process is still on-going but positive results are expected, based on the results of preliminary discussions.

[11] Bangko Sentral ng Pilipinas was represented by Mr. German S. Constantino Jr.

Country: Uganda

Respondent: Bank of Uganda[12]

Mandate	Currently, the Central Bank is responsible for the approval and regulation of mobile money services, which are the predominant form of DFS in Uganda. An informal cooperative arrangement between the Central Bank and the telecom regulator exists, which will likely soon be formalized by means of a Memorandum of Understanding (MOU). The Central Bank issued mobile money guidelines with one of the requirements stating that systems need to be interoperable. Also, there is a requirement that mobile money service providers should not have exclusive contracts with Agents. The Guidelines were passed in 2013.
State of the market before authority's involvement	Before the guidelines were passed, six mobile money providers were operating in the market, with two of them having a combined market share of over 80 per cent. Mobile money services are offered in partnership between financial institutions and telecom companies, and between financial institutions and third-party service providers.
Relevance assigned to interoperability	The relevant authorities consider interoperability an important policy issue.
Reason to address interoperability	Six participants on the market, with two of them having a combined market share of over 80 per cent. However, there was no evidence of collusion and no noticeable barrier to entry.
Authority's approach	In regard to the non-exclusivity of Agents, all services providers were required to remove exclusivity clauses from their contracts with Agents following the issuance of the mobile money guidelines in 2013.
Outcome (aimed)	Agents are able to serve customers of the various service providers.
Outcome (actual)	Currently agents service customers of different service providers and this has increased the uptake of mobile money services.

[12] Bank of Uganda was represented by Mr. Ivan Ssettimba.

4 Final remarks

Although it is impossible to generalize conclusions from the survey, some similarities across the surveyed countries can be observed. These aspects may be considered when discussing the timing for intervening for interoperability.

DFS, like other financial services, are typically the responsibility of financial regulators, often the Central Bank. The provision of financial services through mobile networks and/or the provision of DFS by mobile network companies (or their subsidiaries), might make it difficult for MNOs to determine their relevant regulator for their different service offerings. Financial regulators traditionally seek financial stability through safeguarding public confidence (Khiaonarong 2014). Telecom regulators focus on access to, and competition in the telecommunication services (Blackman e Srivastava 2011). Without a clear definition and understanding among regulators, there might be a regulatory overlap or gap. Thus, the financial and telco regulators need to define their roles and responsibilities among each other before addressing DFS interoperability.

Typically, the financial regulator takes care of the service financial aspect, while the telco regulator is concerned with the telecommunication infrastructure aspects of the service provision. The establishment of different legal entities has been a way to deal with this topic – within the same business group, one entity provides the financial service and is under the financial regulation, whereas the other entity – the MNO – provides the data transfer service under the telecommunication authority's regulation.

Regulators generally seem to consider interoperability as an important element in the DFS ecosystem, though the current state of interoperability in the different countries varies substantially. Even though these results were expected, this survey contributes to stress and reveals this policy perception.

While the Philippines reports some market-driven interoperable solutions, the reports from Nigeria reveal that, even with early attention to the topic, moral suasion was not enough to drive the market players to interoperate. As expected, regulators tend to act when the market is not developing towards a scenario that is considered to provide the best welfare results. Yet, the related strategies include not only normative rulings, but also moral suasion and general policies disclosures. Authorities should be transparent on their interoperability strategy to give market participants planning security.

Positive outcomes are reported – or expected – across countries. This condition suggests that the current policies are going to persist for the time being in those countries. Unfortunately, publically available data is limited and these positive outcomes are mainly confirmed by the increase of interoperable systems over time. Without appropriate counterfactuals, no further inference can be made.

Authorities seem to be conscious that any intervention needs to be carefully considered and take place exclusively when no market-driven solution is leading to interoperable services. However, they should not fail to consider inducing market participant behaviors in order to guarantee the system's soundness and efficiency[13].

[13] See Bossone (2016) for a discussion on interoperability and the oversight of payment systems.

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Annex

Questionnaire

1 How is the mandate over digital financial services (DFS) split between the Central Bank and the telecom regulator? Who (if any) has a legal mandate to induce interoperability? Please describe the legal mandate and when it was ruled out.

2 Can you describe if there were DFS available prior to when your legal mandate was enacted? If so, describe the market conditions of the most relevant DFS available (number of players, market share, and economic sector – i.e. financial institution, telecom company or other categories of DFS providers).

3 Considering the most relevant DFS, have the relevant authorities considered interoperability an important issue in terms of policy?

   a. If so, what were the market conditions that raised the issue and when did it happen? (How many participants were in the market? Which market share did they have? Was there any evidence of collusion among the participants? Any kind of barriers to entry, either horizontal or vertical?)

   b. If not, why was interoperability not an important issue in that market?

4 For those cases in which interoperability was considered an issue in the previous question:

   a. Have you acted in any way to induce interoperability? For these cases, how was the induction implemented? (Moral suasion, enhance industry code, non-regulatory policy issuance, regulation, etc.)

   b. If you have not acted, why did you choose this strategy? Do you expect to take any action in the future (on what conditions)?

5 Regarding the outcomes:

   a. Which were the aimed outcomes when the inducement was implemented?

   b. Which were the actual outcomes observed from the inducement? Could you describe the new market conditions? Were the unplanned outcomes positive or negative?

6 In cases where the regulator's inducement was implemented before, would you expect the outcome to be different (better/worse)? And, if it were implemented later, what would you expect? Please elaborate.

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