Brazil - Interoperability of ATMs

Interoperability of ATMs
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Abbreviations

ASBAC  State-owned bank association
ATM    Automated teller machine
BC     Banking Correspondent
BCB    Banco Central Do Brasil
BIS    Bank for International Settlements
CPMI   Committee on Payment and Market Infrastructures
EMDEs  Emerging Markets and Developing Economies
EU     European Union
FI     Financial Institutions
FSAP   Financial Sector Assessment Programme
GPSS   Global Payment Systems Survey
IPS    Interoperable Payment System
LIFT   Laboratório de Inovações Financeiras e Tecnológicas
MDR    Merchant discount rate
NB PSPs Non-banks payment services providers
PCN    Payment Card Network
POS    Point of Sale
PSO    Payment System Operator
PSPs   Payment service providers.
RVA    Rede Verde e Amarela
SITRAF Near real time payment system
STR    RTGS operated by the BCB
TecBan Banco 24 Horas network
TPSP   Third-party service provider
WB     World Bank
Executive Summary

1. The joint World Bank-IMF Financial Sector Assessment Program (FSAP) of 2018 recommended for the Banco Central do Brasil (BCB) to pursue full interoperability of ATM networks in Brazil. Following the FSAP and the policy dialogue with BCB, this note aims to provide key policy options for BCB with respect to achieving interoperability for ATM transactions in Brazil\(^1\). The note presents: (i) the key concepts that impact interoperability of the ATM network; (ii) an overview of the regulatory framework and retail payment infrastructure in Brazil; (iii) cross-country examples of interoperable ATM networks; (iv) issues and challenges to be addressed for achieving interoperability; and (v) the possible policy options that the BCB could consider adopting in Brazil. It elaborates policy options with regards to: (i) interoperability of the ATM network – the feasibility of enforcing interoperability among all financial institutions, (ii) relevance of having an independent authorized ATM network, and (iii) whether to leave the pricing of ATM services to the market or should BCB consider regulating the same.

2. The note accordingly has recommendations on the possible options for pursuing ATM interoperability in Brazil and the steps that BCB could consider in this regard. The various policy options presented for consideration address the issues of: (i) the interoperability of infrastructure, (ii) access to infrastructure, and (iii) fees. In providing various policy options, the note flags the inefficiencies that would be encountered in having bilateral agreements between different networks, but it does not elaborate on the complex operational, technical and legal agreements that would need to be addressed in such arrangements, which are to be evaluated in detail by the BCB. As regards to setting up a new interoperable infrastructure, recognizing that BCB has embarked on setting up an interoperable fast payments solution, such infrastructure setup should also facilitate interoperability for POS, e-money, etc. and that the new infrastructure should also be enabled for faster payments.

2. The Committee on Payments and Market Infrastructures (CPMI) defines ‘interoperability\(^2\)’ as the technical or legal compatibility that enables a system or mechanism to be used in conjunction with other systems or mechanisms. Interoperability allows participants in different systems to conduct clear and settle payments or financial transactions across systems without participating in multiple systems.

3. The interoperability of payment systems/infrastructure is critical for positive network externalities and for facilitating financial inclusion. Interoperability allows for optimal use of the infrastructure deployed by enabling more transactions to be undertaken, leading to better

\(^1\) This note was prepared by a team consisting of Nilima Ramteke, Harish Natarajan, Dorothee Delort and Bujana Perolli (all from the World Bank’s Finance, Competitiveness and Innovation Global Practice).

\(^2\) CPMI glossary https://www.bis.org/cpmi/publ/d00b.htm?&selection=177&scope=CPMI&c=a&base=term
return on investment, and a reduction in transaction costs for all stakeholders. An interoperable payment infrastructure also provides a seamless payment experience to customers across service providers, in addition to providing convenience and efficiency, without requiring them to have accounts with the same institution.

4. Interoperability of ATM networks is of particular importance to support financial inclusion and ensure a universal level of access in countries with a lower penetration of bank branches, and an uneven distribution of ATMs combined with a high dependency on cash. Interoperability\(^3\) of ATM networks depends on a number of factors and is driven by: (i) standardisation, (ii) co-operation, either bilaterally or multilaterally, (iii) third party capabilities, (iv) operating rules and procedures, business models and governance arrangements, and (v) the legal and regulatory framework.

5. The lack of interoperability for ATM transactions for debit cards in Brazil is not caused by gaps in the infrastructure, but by the rules, procedures and pricing governing the use of the infrastructure. The interoperability of ATM infrastructure in Brazil is limited due to exclusionary nature of ATM access. While credit cards of various financial institutions can be used by customers in ATMs other than those owned by their financial institutions, the same is not the case for cash withdrawals at ATMs using debit cards. Cash withdrawal at other financial institutions’ ATMs is limited and expensive to the customer and is available only in those cases where the financial institution owning the ATM has enabled its usage for the customers of other financial institutions. The existing agreements between the ATM owner and the network to which it is connected has been cited as one of the limiting factors in providing interoperable ATM usage using debit cards.

6. BCB could consider the following policy options to address the lack of interoperability of ATMs in Brazil:

i. **Policy Option 1:** As provided for in Law 12,865\(^4\), BCB could consider mandating and promoting full interoperability of the ATM infrastructure in Brazil, by requiring that FIs and ATM networks adopt transparent non-discriminatory access criteria. In doing so, the BCB should also consult all stakeholders, including the international card networks, to address the related issues of charges and fees including the interchange fee and other fees, if any, to be charged to the customer and

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\(^3\) Interoperability in a card-based payment system is the ability to use one’s payment card (credit, debit or prepaid) at an ATM, POS terminals, kiosks, ecommerce merchants affiliated with institutions other than the institution which has issued the card (issuer and acquirer are different institutions).

\(^4\) Law 12,865, of October 9, 2013, Article 7 III and IV “non-discriminatory access to infrastructures and services required for the functioning of the payment scheme” and “meet end-users needs, in particular with respect to freedom of choice, safety, protection of their economic interests, non-discriminatory treatment, privacy and personal data protection, transparency and access to clear and complete information about the service”
foster competition. Adoption of this option by BCB would facilitate achieving interoperability without disturbing the existing structure and operations of the ATM infrastructure in Brazil.

ii. **Policy Option 2:** BCB could authorize the existing ATM network/s as the IPS (ATM network/s). There are two options for ensuring that all financial institutions participate in the authorized IPS.

a. **Model 1:** The BCB could consider mandating all financial institutions to be part of the authorized IPS/ATM network/s and enable all ATM transactions to be domestically routed, cleared and settled. The mandate of being part of the domestic ATM transactions would accordingly make the ATM infrastructure interoperable.

b. **Model 2:** The BCB could consider mandating all financial institutions to be part of the authorized IPS, but not mandate routing, clearing and settlement. Although this would enable full interoperability of the ATM network, it would leave the option to the ATM acquiring bank to configure its routing priorities, including switching, clearing and settlement priorities, i.e. it would be left to the ATM acquiring bank to decide which would be its preferred network for clearing and settlement.

In this approach, all the switches/networks in Brazil would be required to interconnect to the authorized IPS. In the event that two or more IPS are authorized, one of the IPS (authorized ATM network) could act as the Apex IPS. This model is present in several markets\(^5\). Although overtime in many markets, the common switch (apex switch) becomes the only switch for domestic transactions, and the cards branded with international payment card brands get processed through the common switch. A variant of this approach could be to require settlement domestically in local currency but leave the decisions on routing, authorization and clearing processes to the market players.

iii. **Policy Option 3:** Using the tool of moral suasion, the BCB could make all financial institutions join a particular IPS, which would act as the apex ATM network in Brazil. Sanctions if any, could be resorted to by BCB, in the event that the FIs and the ATM networks exhibit any conflicting behavior to achieve the goal of interoperability.

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\(^5\) Please see Annex 3. France, Germany, India, United Kingdom, etc.
iv. **Policy Option 4: Build a new infrastructure** - In the event BCB does not want to consider the above options, but wants to setup a new infrastructure, such new infrastructure should not only provide interoperability for the ATM transactions, but also facilitate interoperability for POS, e-money, etc. The business viability of setting up a new infrastructure and its operation for facilitating interoperability of only ATM transactions, compliant with international standards and best practices, would have to be carefully considered. The new infrastructure should also be enabled for faster payments, which is a path being taken by a number of jurisdictions. This would be a step in the direction of moving towards digital payments vis-à-vis cash. This would generate a sufficient volume of transactions for sustaining the switch operations and provide services at reasonable cost to all stakeholders.

The ownership of such an infrastructure could be decided in consultation with stakeholders. The IPS could be a “public good” and available for all eligible institutions to leverage for offering payment services. The new interoperable infrastructure would comprise of the technical infrastructure, operational framework and rules, standards, associated clearing and settlement arrangements, risk management framework, dispute resolution arrangements, membership rules, branding and pricing model. The new institution/infrastructure so setup, should also work in close coordination with LIFT, to enable new entrants to have a seamless interface for innovative payment systems/services to the IPS.

v. **Policy option 5: Pricing intervention** - In the specific context of promoting interoperability of the ATM infrastructure in Brazil, BCB should examine the extant interchange fee\(^6\) and customer charges\(^7\) as part of its coordinated policy strategy. For such a policy measure to be successful, the BCB should carry out a cost study on the deployment of ATMs and other related cost issues. The findings of such a study should be shared with all stakeholders with a view to ensuring buy-in of BCB’s policy stance of rationalizing interchange fees and customer charges for promoting interoperability. BCB could use moral suasion as a tool to achieve the above objective, failing which, BCB should exercise its statutory powers and issue necessary instructions on rationalizing the fee structure for ATM transactions.

For all the various policy options (policy options 1-5) indicated above, BCB as an overseer should ensure that an appropriate governance framework, fair access to the infrastructure

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\(^6\) The interchange fee is the fee which the issuing bank pays to the acquiring FI when its ATM is used by the customer of the issuing FI.

\(^7\) The issuing bank charges its customers for using its own ATMs or ATMs belonging to other FIs.
to all stakeholders, including access to FinTech, and risk management rules are put in place.

7. In conclusion, it is recommended that BCB takes a series of policy measures starting with using the tool of moral suasion to encourage the stakeholders towards achieving full interoperability of the ATM infrastructure in Brazil. While all the options provide a menu of possible policy and institutional changes to support interoperability, the authorities would need to weigh the pros and cons of each option in order to determine the one best suited to the country’s needs. For instance, Policy Option – 1, i.e. exercising its statutory powers to mandate FIs and IPS (ATM networks) to adopt transparent non-discriminatory access criteria, could have some advantages over other options, if the objective is to achieve interoperability with the least disturbance to the existing structures and operation of networks. Further, this could be a good starting point for initiating a dialogue with the private sector on interoperability of ATMs in Brazil.

8. In the event BCB considers other options, the choice of the appropriate model, should be done in consultation with the stakeholders. Adopting either a bilateral switch or a common switch model should not prove to be a disincentive to the existing infrastructure or for the deployment of new infrastructure. Also, before deciding on the charges, BCB should carry out a detailed cost study to arrive at rationalized interchange fee and customer charges that protect the interests of all stakeholders in the market. Moral suasion on pricing – interchange and customer charges- is an option which should be exercised. BCB should also be willing to use its statutory powers to mandate interoperability, as well as intervene in the pricing structure, to promote interoperability of ATM transactions, based on its statutory powers (as was done in the case of interchange fees for debit card transactions at POS terminals).

9. As an overseer BCB should ensure that an appropriate governance framework, fair access to the infrastructure to all stakeholders, including access to FinTech companies, and risk management rules are put in place, irrespective of the policy option adopted. The current infrastructures and any new infrastructure setup should have to be fully under the oversight of BCB. BCB as part of its oversight function should: (i) ensure that the IPS (ATM networks) are compliant with international standards and best practices; (ii) review the governance and risk management framework, including management of operational risk, cyber security, fraud monitoring, etc. on an ongoing basis; (iii) review the pricing structure to ensure that it is non-discriminatory; and (iii) encourage competition to foster innovation.
Section A: Background

1. There are 21 ATM networks in Brazil, mostly single bank networks. The interoperability between ATM networks is accordingly quite low, with the exception of the Banco 24 Horas network owned by TecBan and Saque&Pague. TecBan\textsuperscript{8} provides services to financial institutions not having a proprietary network and integrates some proprietary networks as well. Saque&Pague network is small and has <1000 ATMs.

2. Cards are the predominant payment instrument used in Brazil, with the card market being the 2\textsuperscript{nd} largest in the world. In 2010, in order to expand the acquiring infrastructure, BCB opened the market to new acquirers, but the acquiring remains concentrated with the top two acquirers representing 69\% of the market, although it has declined over the years.

3. Despite improvement over the years, there is a low level of interoperability among networks of ATMs in Brazil, contributing to high operational costs for the banking sector and increased costs for customers\textsuperscript{9}. The existing agreements between the ATM owner and the network to which it is connected, has been cited as one of the limiting factors in providing interoperable ATM usage using debit cards. The limited interoperability among ATMs contributes to high operational costs of the banking system, as positive network effects are not fully realized by the exclusionary nature of ATM access. Debit card usage at ATMs of other banks and networks is limited and expensive for customers in all cases where interoperable arrangements are in place. In the case of credit cards, however, these limitations are not evident, although the charges for using credit cards for cash withdrawal purposes are higher.

4. The legal framework (Law nº 12,865, of October 9, 2013) provides for regulation of payment schemes and payment institutions, including issuing payment instrument, acquiring payment instrument, e-money, etc. These initiatives include the implementation of Open Banking and the development of an Instant Payments Ecosystem, which are clear stimuli for the development of new financial products and services.\textsuperscript{10} These new entrants may need access to the ATM network, as access channels for the systems operated by them.

\textsuperscript{8} Tecban is controlled by the 5 largest banks, who also holds the largest ATM networks.
\textsuperscript{9} POS transactions are currently fully interoperable, merchants can already accept all payment cards
\textsuperscript{10} https://www.bcb.gov.br/content/publications/financialstabilityreport/201910/FSR201910-fsrSection2_5.pdf
Section B: What does interoperability in the context of ATMs mean?

5. Interoperability is the ability to use one’s payment card (credit, debit or prepaid) at an ATM, POS terminals, kiosks, ecommerce merchants affiliated with institutions other than the institution which has issued the card (issuer and acquirer are different institutions). In this context, it is necessary to precisely define and understand the terminologies that are associated when discussing issues related to interoperability of ATMs. Accordingly, the various terminologies are described below, followed by laying down the necessary parameters for achieving interoperability.

6. ATM networks differ between countries both in terms of how they operate, the number of different networks involved, and in terms of the different operators within the different networks. Interoperability between different ATM networks is important in order to ensure a common and universal level of access across a market or markets both for the purpose of convenience, and for supporting financial inclusion. Some countries are more challenged than others in terms of providing universal reach solely given their size and demographics, which may require specific steps regarding interoperability.

7. Terminologies used in the card network: The standard terminologies used in the context of interoperability of ATMs are described below. In addition, in Annex 1 other relevant terms are also included for reference purposes.

i. **Stakeholders:** The stakeholders in a card payment transaction involve three institutions: – the institution that issued the card (Issuer); the institution that facilitates a merchant to accept cards or operates an ATM (acquirer); and, the payment system that interconnects the issuer and acquirer – popularly referred to as a four-party scheme. In some cases, like in American Express, the issuer, acquirer and the payment system could be the same entity, known as a three-party scheme (please see Annex 1\(^\text{11}\) for some of the terms used).

ii. **Payment Card Network (PCN):** The payment system interconnecting issuers and acquirers is referred to as the PCN\(^\text{12}\). The PCN comprises the technical infrastructure

\(^{11}\) Please see additional details of the physical infrastructure, the cost and revenue of providing ATM services and access to the ATM network in Annex 1.

\(^{12}\) If the issuer and acquirer are the same institution, in general the PCN has no direct role in the transaction processing, but the product and branding rules of the associated PCN might still need to be followed. The same entity can perform both roles like in the case of international card networks, or by different entities which is the case with domestic switching infrastructures processing international card network transactions. As an example – Visa and MasterCard are a PCN, but their schemes can be used in another switch. In many countries even when there are domestic switches the Visa and MasterCard schemes are used. This is because the same card is used both domestically and internationally and the banks for domestic transactions use the domestic infrastructure (switch) and follow the same rules but with different pricing and use the Visa and MasterCard scheme and switch for international transactions.
(commonly referred to as the “Switch”), and governance framework covering the business and operating rules and procedures (commonly referred to as the “Scheme”). The “Scheme” or governance arrangement comprises the operational framework and rules, standards, associated clearing and settlement arrangements, risk management framework, dispute resolution arrangements, membership rules, branding and pricing model, which provide the ground work for the conduct of card transactions through various channels, like Point of Sale (POS) terminals, mobile phones, ATMs and the internet.

iii. **Interoperable Payment System (IPS):** IPS is the term often used to identify an infrastructure which processes all or most of the card payments (ATM and POS transactions, or only ATM transactions, or only POS transactions), irrespective of the scheme to which the card is affiliated. Increasingly IPS are also developing capabilities to handle mobile payment transactions, interconnect agents and become the infrastructure for interconnecting different mobile money schemes. The ownership of such an infrastructure may vary and could be owned by: (i) a consortium of banks, (ii) the central bank or some other public authority, or (iv) in some cases it could actually be a set of individual infrastructures that are interconnected (the so-called switch of switches). The IPS is expected to be a “public good” available for all eligible institutions to leverage it for offering payment services. While multiple schemes can function on an IPS, at times IPS comes with its own scheme. Increasingly, the IPS of various countries are getting interconnected to offer seamless cross-border transactions and funds transfers to the nations’ residents and commercial establishments. In most cases the availability of IPS raises the level of interoperability in the country, though it is not essential. In some countries interoperability is achieved through infrastructure of international card networks.

**What is required for inter-operability?**

8. As indicated above, interoperability is the ability to use one’s payment card (credit, debit or prepaid) at an ATM, POS terminals, kiosks, ecommerce merchants affiliated with institutions other than the institution which has issued the card (issuer and acquirer are different institutions).

9. An ATM network consists of physical infrastructure (the ATM terminal and the Switch), which is governed by rules, regulations, access and fee for accessing the services (the “Scheme”). Interoperability of ATM networks depends on a number of factors and is driven by: (i) standardisation, (ii) co-operation, either bilaterally or multilaterally, (iii) third party capabilities, (iv) business models and governance arrangements, and (v) the legal and regulatory framework. As the card-based payment instruments and infrastructure are based on international standards, any technical requirements/ barriers would be minor, if any.
10. **Interoperability is possible even in the absence of any domestic switch, as long as the card transactions are under a common scheme and has wide participation of issuers and acquirers.** A typical example of this is the international card networks, which (in the absence of any shared domestic infrastructure) would license acquiring banks or a third-party service provider (TPSP) to provide acquiring, routing and clearing and settlement of card transactions.

11. **Interoperability could also be achieved either through bilateral linkages or through a common switch arrangement.**

   - **Bilateral linkage model:** In a bilateral linkage model\(^{13}\) all the switches are required to be connected to the other switches in the market bilaterally or through another infrastructure. Figure 1 depicts a typical bilateral linkage model established by network providers for facilitating interoperability. In the example provided below, interoperability is achieved through the bilateral linkages that each of the switches has with the respective card schemes. In addition, there are also bilateral linkages between the card schemes governing inter-scheme transactions. Further, the two switches in the example are also connected to each other bilaterally.

   ![Figure 1: Bilateral linkage model](image)


   - **Common switch arrangement:** In this approach a switch is developed or designated as the common switch to which all the other switches in a country are required to be connected. Figure 2 depicts a typical common switch\(^{14}\) arrangement in which Switch 1 acts

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\(^{13}\) This requires the switches to establish the required technical interfaces and in addition establish some form of co-ordination arrangement for administering the technical standards, pricing and dispute resolution arrangements – please see Annex 1.

\(^{14}\) In many markets, over time the common switch becomes the only switch for domestic transactions and the cards branded with international payment card brands get processed through the common switch.
Interoperability of ATMs in Brazil

as the common switch for switching, routing and clearing of transactions of Switch 2 as well, in addition to its own transactions. The advantage that the common switch arrangement has over the bilateral linkage model is that each switch is connected to only one other switch leading to lesser operational inefficiencies. Notwithstanding this arrangement as can be seen from Figure 2 below, each of the switches could also interconnected with respective card schemes. Such arrangement enables some transactions to be routed and cleared independently of the common switch where participants are members of this particular switch.

Figure 2: Common switch arrangements

In both examples provided above, it is not necessary that the switch infrastructure is located domestically. Increasingly, however, it is observed that switch infrastructures are located domestically. The exceptions to this are some of the smaller economies where considerations of cost preclude having a switch infrastructure in the particular jurisdiction. Increasingly, over a period of time, jurisdictions have started taking initiatives for clearing and settlement of domestic card transactions in particular ATM transactions, given the focus on reducing costs, enabling universal access to all card issuers and acquirers operating in the country and promoting interoperability.

Annex 2 provides the approaches used in classifying the arrangement of switches in a country for achieving interoperability. These include: (a) no domestic switch infrastructure, (b) a group of switches with limited interoperability, (c) interconnected switches with interoperability, (d) one common switch, and (e) a hybrid model. The broad characteristics of each of these arrangements is given below:

(a) No domestic infrastructure: Banks have membership in international payment card networks like Visa and Mastercard. Customers of these banks have access to the ATMs
and Point of Sales (POS) terminals at merchants operated by their respective banks, at a price at other banks’ ATMs, and often for free at POS terminals of the banks. Domestic transactions are cleared outside the country, settlement is typically in one of the global reserve currencies. Settlement could also be in the domestic currency based on special procedures established by the international payment card network.

(b) Group of Switches: There could be several switches, each with a distinct set of members with some potential overlaps where some have membership in several switches. The membership is often organized along lines of foreign banks operating their own switch, large domestic banks having their own switch, credit unions having their own, etc. Customers of banks of a particular switch, can use their payment cards across ATMs and merchants (at POS terminals) affiliated with that bank, or at other member banks of the switch. There is no interconnection amongst these switches providing for limited interoperability. Domestic transactions using these switches are cleared and settled in the country and in domestic currency.

(c) Interconnected Switches: In this model the switches are interconnected. The pricing for transactions of a customer of a bank with membership in one switch at an ATM or POS of a bank at another switch, could vary depending on the pair of switches, but in general would be the same. This arrangement provides for interoperability. Domestic transactions using these switches are cleared and settled in the country and in domestic currency.

(d) One common switch: Most of the eligible institutions in a country are connected to one common card switch in the country. There could still be other switches, but all these are required to be also connected to the common switch to enable seamless transactions for a cardholder at all POS and ATMs in the country. Often, either a mandate or quasi-mandate to process all domestic transactions through the common switch, is issued by the regulator. All domestic transactions using the common switch are cleared and settled in the country and in domestic currency.

(e) Hybrid: The hybrid model is usually a mix of (a) and (d) above, wherein there is a separate arrangement for ATM transactions and another for POS transactions. There is, however, no mandate to process all transactions through the common switch.

15 Afghanistan, many countries in Sub-Saharan Africa, Lao, Myanmar, Maldives, Russia, Kazakhstan, Sri Lanka.
16 Bangladesh – but transitioning to d; Israel; USA – but industry structure is such that there is substantial cross-membership; Singapore.
17 Mexico, Pakistan, Jamaica, Jordan, Lebanon.
18 Vietnam (no mandate), Nigeria, UK, China, Malaysia, several Caribbean countries, all GCC countries, UEMOA.
19 India – for ATMs model d, for POS model b; Oman – model D for ATM and model A for POS; Indonesia – for ATMs model C and Model A for POS.
Pricing for ATM transactions

14. **Pricing for ATM transactions has several components.** These include charges which are paid by the issuing bank and the acquiring bank to the card scheme/switch. In addition to this, issuing banks also pay a fee to the acquiring bank for the use of the ATM infrastructure of the acquiring bank. Customers could also be charged a fee for the use of ATMs. The charges that are typically paid by issuing bank, acquiring bank, and customer are indicated below:

a. **Charges paid by issuing bank:** (i) cash disbursement fees (also referred to as interchange fee in certain jurisdictions), which is paid by the issuing bank to the acquiring bank for the use of the ATM; (ii) fees paid to the card network include issuer/membership fee, settlement fee and switching fee per transaction to the switch.

b. **Charges paid by acquiring bank:** fees paid to card network include membership fee, a per transaction acquiring fee and a settlement fee.

c. **Customer charges:** Customers pay for cash withdrawal charges whether they use their own banks ATMs or other bank ATMs. In addition, customers could also be charged a issuer cash withdrawal fee (disloyalty fee for using another banks ATM). For cross-border transactions, customers are charged with: (i) a direct access fees (additional fees charged directly by the ATM owner/ acquirer to the cardholder for an ATM cash withdrawal) and (ii) a currency conversion fee.

Terminologies used in pricing of ATM transaction:

15. The standard terminologies used to describe the above features of pricing of ATM transactions to the stakeholders is given below:

i. **Interchange fees:** The interchange fees ensure a common approach across a market with predictability in terms of the costs and revenues for the participants, but may not ensure a proper income for developing the ATM networks.

ii. **Direct access fee:** Direct access fees provide the tool for transparent and flexible direct pricing to the users of ATM services and for more inter ATM competition, but direct access fees are also prone to abuse in relation to certain users which may be captive.

iii. **Issuer cash withdrawal fees:** Issuer cash withdrawal fees can be effective in directing users to particular ATMs and can make costs more transparent, but may be excessive and may not facilitate financial inclusion.

iv. **Dynamic currency conversion fees:** Dynamic currency conversion fees provide transparency to the costs of currency conversion for cross border transactions, but are also prone to abuse in relation to certain users which may be captive.
16. **Table 1 provides some of the charges/fee for an ATM transaction and who normally pays (-)/receives (+) it.** Figure 3 provides the graphic representation of the same (for POS transactions).

**Table 1: The ATM charges and fee**

<table>
<thead>
<tr>
<th>Cash disbursement fee / interchange fee</th>
<th>Issuer</th>
<th>Acquirer</th>
<th>Customer</th>
<th>Switch</th>
<th>Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>+</td>
<td>- May be passed on by issuer</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Card issuing fee charged by card scheme</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>Card acquiring fee by card scheme (separately charged for POS, ATM and ecommerce)</td>
<td>-</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
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<tr>
<td>Switching fee/ transaction</td>
<td>-</td>
<td></td>
<td>+</td>
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<td>Settlement fee</td>
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<td>Direct access fee</td>
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<td>- (cross border cash withdrawal)</td>
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<tr>
<td>Issuer cash withdrawal fee</td>
<td>+</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
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<tr>
<td>Dynamic currency conversion fee</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>+</td>
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</tbody>
</table>

Note: ‘-’ is for stakeholder who pays and ‘+’ is for stakeholder who receives.

**Figure 3: Typical charges in a card transaction**

Source: 2016 European Commission Regulation on Interchange
17. The ATM acquirer faces other fixed and variable costs as well, apart from the charges to be paid to the scheme and switch as indicated above. These include rent, telecom connectivity, security, storage, transport and handling of cash, processing costs and maintenance. The cost associated with operating a bank owned ATM will be different from an independent ATM, as some of the services required will be available “in-house” within a bank, or can be cross-subsidised through other services provided.

18. The ATM operator revenue stream comprises mostly of variable heads. The revenue streams consist of a number of different fees and charges applied by the ATM owner, which are either fixed through the ATM scheme or agreed bilaterally or multilaterally between ATM operator(s) and card issuers, or set unilaterally by the ATM owner, such as cash disbursement fees (interchange fees), direct access fees, dynamic currency conversion fees, fees related to other ATM service. The revenues that can be realized from ATM operations will differ depending on the location of the ATM and population. Highly populated areas, which are also visited by tourists, will be able to attract significantly higher revenues than ATMs in a remote or rural area. Leveraging on the potential of the ATM, the ATM operators are providing other services such as mobile top-ups, funding of e-money accounts, bill payments, etc. This provides an added revenue stream.

19. As can be seen from the above, the pricing structure for ATM transactions also impacts interoperability of the ATM networks. The pricing principles applied to ATM networks differ and they have different effects which can be contradictory and will need to be monitored in terms of impacts on the policy objectives. Regulators and policymakers maintain direct focus on the pricing policies and market effects. The ATM networks are often owned and controlled by entities which are also competitors, requiring separate focus by the market or competition regulator in relation to both access and pricing.

Section C: Interoperability and Fintech developments

Would developments in Fintech provide more use cases for ATM networks?

20. The Fintech sector is advancing across many jurisdictions. According to the World Bank/IMF Bali Fintech agenda, Fintech covers advances in technology that have the potential to transform the provision of financial services. Conceptually, Fintech is somewhat disconnected from the use of physical cash and therefore the traditional use of ATMs for distributing cash may be less relevant for Fintech companies. In general, specific issues in relation to the access to ATM networks for cash withdrawal do not appear to be a prominent theme in relation to Fintech.
21. **To the extent that a Fintech company is operating accounts and/or issuing payment instruments, access to ATM networks or operating ATMs becomes relevant.** Fintech companies providing such services will often have to be regulated as payment service providers and therefore they will be covered by the access requirements and principles which apply to banks and other payment service providers. The new entrants at times may face constraints in having access to ATMs. Further beyond PSPs, as the ecommerce and bill payments grow, ATMs are also seen as physical fulfillment locations for these services. The ATMs are also the channels for cashing out remittances (card less withdrawals\(^{20}\)). The ATM networks are therefore now having many new types of stakeholders and hence there could be a need to provide greater access to new FinTech players.

22. **Concepts such as non-discriminatory, fair and open access as well as solely imposing conditions regarding access which are proportionate in relation to concrete risks are important in relation to the access to payment systems in general.** However, it may require particular focus from the relevant regulators in the context of Fintech to ensure a level playing field between the incumbents and Fintech companies. Focus may be required in relation to any access fees and fees between different users in order to ensure that such fees do not effectively prevent the access by new entrants. As a matter of principle, Fintech companies should be regulated under general principles and regulations rather than specific Fintech regulations in order to ensure technology neutrality, including in relation to the access to ATM networks.

### Section D: What is the status in Brazil?

**The regulatory framework and retail payments infrastructure in Brazil supports interoperability.**

#### Legal/ regulatory framework

23. **The BCB has significantly strengthened the legal and regulatory framework that governs retail payments, particularly the role of non-banks.** In 2013, Law 12.865 opened the market to financial services, allowing non-banks payment services providers (NB PSPs). The BCB has also extended the scope of its oversight to the overall NPS, including retail payments (instruments and services). While the legal framework mentions explicitly the objectives of interoperability, and the non-discriminatory and proportionate access to payment systems, full interoperability remains a challenge.

24. **Regulation and policies in Brazil promote interoperability and interconnectivity.** The Law emphasizes (although it does not mandate) interoperability between mobile network

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\(^{20}\) Facilitate unbanked persons to withdraw remittances initiated by ‘senders/remitters’ from their bank accounts. The beneficiary is able to withdraw the money in full at any of the ATMs of the participant banks using a set of pin codes. [https://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=1127](https://www.rbi.org.in/scripts/AnnualReportPublications.aspx?Id=1127)
operators, bank card issuers, acquirers and the cards brands. The Law provides for interoperability between payment services. However, the Law does not mandate interoperability to providers. Additional guidance regarding interoperability has been provided by implementing Circulares 3704 and 3705 (amending Circulares 3681, 3682, and 3.885), issued in May 2014.

Analysis of the card infrastructure in Brazil

25. The retail payments landscape in Brazil reflects a paradox, with the coexistence of sophisticated payment mechanisms, especially cards, and a large usage of cash. Banks are the main providers of digital payments services. They provide sophisticated services but to a limited portion of the population (56% of the adult population), and have yet to fully exploit scale.

26. The card market in Brazil is the 2nd largest in the world. The acquiring of card transactions is very concentrated, although it has declined in recent years, with the top two acquirers representing 69% of the market (please see Figure 4 and 5). While on an average the interchange fee is 66% of MDR (merchant discount rate\(^{21}\)) in other markets, it is higher in Brazil. In addition, the low level of interoperability among networks of ATMs continues to generate inefficiency and unnecessary costs. The BCB Circular 3,887, which came into effect in October 2018, capped the interchange fee for debit card transactions at POS from 0.82% to 0.58%. Concurrently, the merchant discount fee (MDR) declined both for debit card (from 1.46% to 1.36%) and credit cards (from 2.57% to 2.48%) transactions.

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\(^{21}\) The MDR is composed of the interchange fees, paid to the issuers, the card scheme fees, and the net MDR, which is the acquirer’s remuneration.
There is low ATM interoperability, with the exception of the Banco 24 Horas network - TecBan. In Brazil there are proprietary networks and shared network (Banco24Horas which is owned by TecBan) and Saque&Pague. TecBan provides services to financial institutions not having proprietary network and integrates some proprietary networks as well. Saque & Pague network is small and has less than 1000 ATMs. Some proprietary networks have some degree of interoperability, which allows clients of a certain bank to make transactions through ATM terminals.
belonging to other bank. Banco24Horas, besides being used by clients of its associated banks, allows access to international networks Cirrus, Maestro and Amex.

28. The limited interoperability among ATMs contributes to high operational costs of the banking system, as positive network effects are not fully realized by the exclusionary nature of ATM access. Interoperability for cash withdrawal through ATMs for credit cards is possible, albeit at a high cost to customers.

29. There is a decline in the number of ATMs in Brazil as of end-December 2018, compared to previous years, although the number of POS terminals has almost doubled. The total number of ATMs at end-December 2018 was 176,000, compared to 180,000 at end-December 2016. However, the number of POS was 8,482,000 as of end-December 2018, compared to 4,923,000 as of end-December 201623.

**Fintech Context in Brazil**

30. In May 2018, BCB established a working group with market participants, including card scheme owners, banks, payment institutions, FMI, FinTechs, and other stakeholders to discuss and define the key requirements for the Brazilian instant payments ecosystem24. Based on the key requirements, the working group will also map all the actions necessary to adjust the current retail payments landscape to create a competitive, safe and inclusive ecosystem. BCB also launched an innovation hub in May 2018 called the Laboratório de Inovações Financeiras e Tecnológicas (LIFT). LIFT is an innovation hub that will receive projects that prompt the innovation of the National Financial System, including payment services. It will select submitted projects and allow their incubation for a 3-month period to develop working prototypes. LIFT is intended to work on a continuous basis. These new entrants may need access to the ATM network as access channels for the systems operated by them.

31. The establishment of the working group and of the innovation hub could prove to be catalytic measures by BCB in promoting greater access to FinTech players to the National Payment Systems in Brazil. These catalytic measures in turn will supplement the legal mandate of the BCB in further promoting new initiatives, such as open banking and authorization and licensing of new FinTechs in Brazil.

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24 The Law nº 12,865, of October 9, 2013 provides for payment scheme and payment institution, including issuing payment instrument, acquiring payment instrument, e-money, etc. These initiatives include the implementation of Open Banking and the development of an Instant Payments Ecosystem, which are clear stimuli for the development of new financial products and services.
Section E: How does Brazil’s position compare with other countries?

The cross-country examples of interoperable ATM networks and the options for consideration for adoption in Brazil.

32. Interoperability of the ATM network is evident in developed economies and other G20 Emerging Markets and Developing Economies (EMDEs). As part of the GPSS 2016 survey\textsuperscript{25}, central banks were asked to assess the interoperability of ATMs and POS terminals in four categories\textsuperscript{26}. Approximately two-thirds of central banks participating in the survey indicated that both ATMs and POS terminals are fully interoperable. The number of central banks indicating full interoperability for ATMs was 62 percent. With jurisdictions taking measures for having interoperable payment systems and infrastructure, this is expected to have increased further. Full interoperability of ATM terminals is significantly higher in high income economies, in countries belonging to the Euro area, other European Union (EU) members, and Other Developed Economy (ODE) regions. As per population size, full interoperability of ATMs is more common in larger countries, whereas partial interoperability is observed more frequently in smaller countries. Annex 3 provides the ATM interoperability in Australia, Canada, China, Denmark, France, Germany, UK, Spain, Sweden and large developing economies like India, Mexico and Philippines. The regulatory framework, including the pricing policy intervention by the respective regulators, is provided in Annex 3, with a comparative picture in Annex 4.

33. According to the data from the GPSS, there is a clear tendency towards a higher level of interoperability in relation to ATM networks across the globe. Achieving interoperability between different ATM networks appear to have been undertaken mostly without direct intervention by regulators, but rather through cooperation with the market. Common card standards, which are often global, combined with general legal requirements regarding card operations, including in relation to transparency, are also drivers for interoperability and will likely directly serve as strong arguments against any resistance regarding achieving interoperability in a market.

34. The main focus of policymakers and regulators for ATM networks has been in relation to access policies which will become more important as ATM networks grow. The principles and requirements regarding fair and open access are important to ensure a level playing field but need to be combined with focus on the actual technical requirements and fees.


\textsuperscript{26} “Full interoperability of ATMs” is described as all payment and cash withdrawal cards being used seamlessly (though probably at a cost) in all ATMs in the country. Similarly, “full interoperability of POS terminals” means all payment cards can be used seamlessly in any POS terminal.
35. **Ensuring the commercial viability of ATM networks is a balance between the needs of providers acting as card issuer and ATM acquirers and the needs of end-users, i.e. cardholders.** Sound policy interventions to balance the above considerations would require that a detailed cost-study of ATM transactions is carried out. 

36. **In this regard, regulators and policy makers have an important role in defining the most appropriate business model.** Direct and in-direct fees and charges define and sometimes limit the income basis for ATM operators. Banks may be able to absorb some of the ATM associated costs as part of the general package of the different services provided, whereas non-banks may not have the same option. Also, banks and other payment service providers which rely on utilising the services of ATM networks “free-riding,” without providing similar ATM services, requires particular attention of the regulators and policy makers.

**Section F: What are the options for Brazil?**

The policy options that the BCB could consider adopting for achieving its objective of interoperability

37. **The interoperability of ATM infrastructure in Brazil is limited due to exclusionary nature of ATM access.** While credit cards of various financial institutions can be used by customers in ATMs other than those owned by their financial institutions, the same is not the case for cash withdrawal at ATMs using debit cards. Cash withdrawal at other financial institutions' ATMs is limited and expensive to the customer, and is available only in those cases where the financial institution owning the ATM has enabled its usage for the customers of other financial institutions. The agreements between the ATM owner and the network to which it is connected has been cited as one of the limiting factors in providing interoperable ATM usage using debit cards. Thus, the lack of interoperability of ATMs in Brazil is a result of the rules governing the access to the different switches, user charges, and not so much the technical infrastructure itself.

38. **The BCB should exercise its regulatory powers to enforce interoperability of the ATM network infrastructure in Brazil.** There are 21 networks, proprietary and shared, in operation in Brazil. The shared networks are the Banco24Horas owned by TecBan and the Saque&Pague. Banco24Horas network - TecBan provides ATM interoperability to its members. However, interoperability of full ATM infrastructure in Brazil is limited due to the exclusionary nature of ATM

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network access. Figure 3 provides an illustration of full ATM interoperability using TecBan as an example.

**Figure 6: Full ATM interoperability in Brazil**

1. All Switches are connected to each other – bilaterally or through central switch
2. All switches can process any scheme they wish to agreement with scheme on a fair and transparent basis
3. Scheme [shown by colour] is delinked from Switch & Issuers and Acquirers have a choice of which switch they send (Acquirer) or receive (Issuer) transactions.
4. Each transaction has a particular underlying scheme – this determines what rules apply to the transaction, interchange fee, dispute rule etc.
5. Settlement is in domestic currency – either at BCB or at a local settlement bank [using one of the payment systems]

The issues of rules, procedures, risk management will need to be addressed.


39. In order to promote full interoperability amongst the various ATM networks in Brazil, the following policy options could be considered by BCB\(^28\).

**Policy Option 1:** Mandating interoperability through requiring FIs and ATM networks to adopt transparent non-discriminatory access criteria

40. As provided for in Law 12,865,\(^29\) BCB could consider mandating and promoting full interoperability of the ATM infrastructure in Brazil, by requiring that FIs and ATM networks adopt transparent non-discriminatory access criteria. In doing so, the BCB should also engage and consult all stakeholders, including the international card networks, to address the related issues of charges and fees including the interchange fee and other fees, if any, to be charged to the customer and foster competition.

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\(^{28}\) Some of the options are not mutually exclusive and the BCB could choose a combination of options.

\(^{29}\) Law 12,865, of October 9, 2013, Article 7 III and IV “non-discriminatory access to infrastructures and services required for the functioning of the payment scheme” and “meet end-users needs, in particular with respect to freedom of choice, safety, protection of their economic interests, non-discriminatory treatment, privacy and personal data protection, transparency and access to clear and complete information about the service”
41. **Under this policy option, all the switches would be required to be connected to the other switches in the market bilaterally or through another infrastructure.** This requires the switches to establish the required technical interfaces, and in addition some form of co-ordination arrangement for administering the technical standards, risk management and mitigation measures, pricing and dispute resolution arrangements, etc. The lack of interoperability of ATMs in Brazil, as indicated in the paragraphs above, is a result of the rules governing the access to the network, user charges and not so much the technical infrastructure itself. Such co-ordination arrangements framed by stakeholders, including the rules governing the access, should be reviewed and approved by BCB as the overseer of the national payment system in Brazil, in line with the mandate provided to it under Law 12,865. The desired effect could also be achieved if all the acquirers in the market participate in all the switches.

42. **The clearing and settlement in this model could be either bilateral or at the level of scheme.** In the bilateral arrangement, the settlement obligations would be calculated and settled bilaterally. In case of bilateral settlement, from a settlement risk management perspective, the risk could be handled by each institution through establishing counterparty limits and collecting collaterals, or establishing a mechanism through an entity playing the role of coordinator. From an operational risk perspective, as there are multiple interfaces, this may bring inefficiencies and could enhance operational risks. These risks could however be mitigated by adhering to international standards and best practices, including cyber risk mitigation measures.

43. **The alternative arrangement is for the scheme to handle the settlement based on the submission of authorized transactions, re-presentments and exception transactions by acquirers, chargebacks and exception transactions by issuers.** Settlement of transactions is done through a settlement bank in the country which requires all scheme members to have a settlement account with the designated settlement bank. In terms of mitigating settlement risk, the scheme owner should establish appropriate risk management measures. The extant settlement mechanism could continue with the SITRAF/ STR/ SILOC used as the settlement system.

44. **Adoption of this option by BCB would facilitate achieving interoperability without disturbing the existing structure and operations of the ATM infrastructure in Brazil.** Simultaneously, BCB should take measures for discouraging FIs from having proprietary networks (the FIs could continue to have switch for intra FI transactions).

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30 The following is stated for settlement of card transactions in the report on the Payment, clearing and settlement systems Brazil “Various different approaches are used for interbank settlement, as there is no central clearing system for all payment cards. MasterCard, for instance, settles participating banks’ net positions through SILOC, while banks participating in the Visa scheme settle obligations arising from card payments in SITRAF. As for three-party schemes, the respective licensed bank receives payments from the cardholders mainly via SILOC, while payments to merchants usually involve intrabank payments (retailers participating in a three-party scheme typically hold an account at the relevant licensed bank).” ‘Payment, clearing and settlement systems in the CPSS countries - Volume 1, September 2011’, BIS. https://www.bis.org/cpmi/publ/d97.pdf
Policy Option 2: Interoperable Payment System/ ATM network

45. **BCB could authorize the existing ATM networks, as the IPS (ATM network/s).** There are two options for ensuring that all financial institutions participate in the authorized IPS.

   a. **Model 1: The BCB could consider mandating all financial institutions to be part of the authorized IPS/ ATM network/s and enable all ATM transactions to be domestically routed, cleared and settled.** The mandate of being part of the domestic ATM network would accordingly make the ATM infrastructure interoperable.

   In this scenario, all financial institutions will have to mandatorily switch, clear and settle all domestic ATM transactions with the domestic authorized IPS. The participation, clearing and settlement would be governed by the rules and regulations of the IPS (including inter IPS transactions) which would need to be approved by the BCB.

   b. **Model 2: The BCB could consider mandating all financial institutions to be part of the authorized IPS, but not mandate routing, clearing and settlement.** Although this would enable full interoperability of the ATM network, it would leave the option to the ATM acquiring bank to configure its routing priorities, including switching, clearing and settlement priorities, i.e. it would be left to the ATM acquiring bank to decide which would be its preferred network for clearing and settlement.

   In this approach, all the switches/ networks in Brazil would be required to interconnect to the authorized IPS. In the event that two or more IPS are authorized, one of the IPS (authorized ATM network) could act as the Apex IPS. This model is present in several markets. Although over time in many markets, the common switch (apex switch) becomes the only switch for domestic transactions, and the cards branded with international payment card brands get processed through the common switch. A variant of this approach could be to require settlement domestically in local currency but leave the decisions on routing, authorization and clearing processes to the market players.

   In this model, each switch is connected to the authorized IPS and hence there are less operational inefficiencies in comparison to the bilateral arrangement. The participation, clearing and settlement would be governed by the rules and regulations of the system which would need to be approved by BCB.

   In this scenario, all financial institutions would be participating in the authorized IPS (ATM network/s). However, the choice would be left to the acquiring financial institution whether to switch and clear the transaction performed using international card
scheme through the domestic ATM network; or route switch, clear and settle the transaction with the respective card network. For example, bank A customer holding a Visa card goes to an ATM of bank B (who has license to acquire ATM transactions for Visa), bank B could decide whether it would route the transaction with the domestic ATM network; or switch, clear and settle the ATM transaction through the Visa network. This mandate would also ensure that the fallback arrangement is in place to address any eventuality.

**Policy Option 3: Use of moral suasion to join apex ATM network**

46. Using the tool of moral suasion, the BCB could make all financial institutions join a particular IPS, which would act as the apex ATM network in Brazil. Sanctions if any, could be resorted to by BCB in the event that the FIs and the ATM networks exhibit any conflicting behavior to achieve the goal of interoperability.

**Policy Option 4: Build a new infrastructure**

47. In the event BCB does not want to consider the above options, but wants to setup a new infrastructure, such new infrastructure should not only provide interoperability for the ATM transactions, but also facilitate interoperability for POS, e-money, etc. The business viability of setting up a new infrastructure and its operation for facilitating interoperability of only ATM transactions, compliant with international standards and best practices, would have to be carefully considered. The new infrastructure should also be enabled for faster payments, which is a path being taken by a number of jurisdictions. This would be a step in the direction of moving towards digital payments vis-à-vis cash. This would generate a sufficient volume of transactions for sustaining the switch operations and to provide services at reasonable cost to all stakeholders.

48. The ownership of such an infrastructure could be decided in consultation with stakeholders. The IPS could be a “public good” and available for all eligible institutions to leverage for offering payment services. The new interoperable infrastructure would comprise of the technical infrastructure, operational framework and rules, standards, associated clearing and settlement arrangements, risk management framework, dispute resolution arrangements, membership rules, branding and pricing model. The new institution/ infrastructure so setup, should also work in close coordination with LIFT, to enable new entrants to have a seamless interface for innovative payment systems/ services to the IPS.

**Policy option 5: Pricing intervention**
49. **The previous policy options have focused on interventions related to technical infrastructure.** BCB could also consider along with any of the above options to intervene in the pricing of the ATM transactions for achieving interoperability. Such intervention could again be mandated, or BCB could also use moral suasion to bring about the desired changes in pricing of transactions. It is very often observed that regulators\(^{31}\) intervene in the interchange and customer charges related to ATM transactions.

**Which pricing parameter to intervene on?**

50. **As can be seen from the cross-country examples provided above, regulators have intervened in determining interchange fees in the use of debit card transactions whether used at ATMs or at POS terminals.** It is accordingly suggested that BCB could adopt a similar policy stance to intervene at the level of interchange fees for debit card transactions. Such a policy stance would be in line with the action taken by BCB in capping the interchange fee for debit card transactions at POS from 0.82% to 0.58%\(^ {32}\).

51. **In the specific context of promoting interoperability of the ATM infrastructure in Brazil, the BCB should examine the extant interchange fee\(^ {33}\) and customer charges\(^ {34}\) as part of its coordinated policy strategy.**

52. **Taken together, the interchange fees and the customer charges, act as incentives in promoting interoperability of the ATM infrastructure, when they are seen to serve the interests of all stakeholders viz., issuing bank, acquiring bank and the customers as end users.** Hence, any regulatory intervention needs to consider this.

53. **For such a policy measure to be successful, the BCB should carry out a cost study on the deployment of ATMs and other related cost issues.** The study should take into account:


**US:** Federal Reserve issues a final rule establishing standards for debit card interchange fees and prohibiting network exclusivity arrangements and routing restrictions [https://www.federalreserve.gov/newsevents/pressreleases/bcreg20110629a.htm](https://www.federalreserve.gov/newsevents/pressreleases/bcreg20110629a.htm)


\(^{32}\) **BCB Circular 3,887** which came into effect in October 2018. Concomitantly, the merchant discount fee (MDR) declined both for debit card (from 1.46% to 1.36%) and credit card (from 2.57% to 2.48%) transactions.

\(^{33}\) The interchange fee is the fee which the issuing bank pays to the acquiring FI when its ATM is used by the customer of the issuing FI.

\(^{34}\) The issuing bank charges its customers for using its own ATMs or ATMs belonging to other FIs.
(i) the cost for deployment of an ATM, (ii) cost of owning and operating an ATM; (iii) the number of transactions required for the ATM operations to be viable, (iv) the cost of servicing a customer at a bank branch/ Banking Correspondent (BC)/ agent outlet of the FI in comparison to providing the same service at ATMs, (v) customer charges levied for using own bank ATMs and other bank ATM, and (vi) interchange fees.

54. The findings of such a study should be shared with all stakeholders with a view to ensuring buy-in of the BCB’s policy stance of rationalizing interchange fees and customer charges for promoting interoperability. BCB could use moral suasion as a tool to achieve the above objective, failing which BCB should be willing to exercise its statutory powers and issue necessary instructions on rationalizing of the fee structure for ATM transactions.

(i) **How best to set the Interchange fee**: In rationalizing the interchange fee, BCB should keep in mind that the proposed intervention in the fee structure does not serve as a disincentive for financial institutions planning to expand their ATM infrastructure, or impact the business viability of the existing ATM infrastructure. The findings of the cost study would have an important bearing in deciding upon the appropriate level of interchange fees.

(ii) **Intervention in customer charges**: Due to the close linkage between customer charges and interchange fees, any changes in the latter would impact the former. Therefore, while incentivizing the acquiring FIs which have deployed ATMs, the BCB in line with its mandate, should also keep customer interests in mind. For instance, any rise in customer charges could be offset by providing customers with a limited number of free transactions. The rationale for such a measure would be explained by the fact that servicing a customer at a branch or outlet would be costlier, as compared to providing the same service through an ATM.

55. For all the various policy options (policy options 1-5) indicated above, BCB as an overseer should ensure that appropriate governance framework, fair access to the infrastructure to all stakeholders, including access to FinTech, and risk management rules are put in place. The current infrastructures and any new infrastructure setup should have to be fully under the oversight of BCB. BCB as part of its oversight function should (i) ensure that the IPS (ATM networks) are compliant with international standards and best practices; (ii) review the governance and risk management framework, including management of operational risk, cyber security, fraud monitoring, etc. on an ongoing basis; (iii) review the pricing structure to ensure that it is non-discriminatory; and (iv) encourage competition to foster innovation.

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35 For e.g. the Reserve Bank of India (RBI) mandated that the issuer bank should provide a minimum of 3-5 (based on location of the ATM) transactions free to the customer with the option to the issuer bank to charge the customer for transactions beyond the minimum free transactions with the maximum charge of Rs.20 (approx.25 cents). However, most of the jurisdictions (Annex 2) allow charging a fee to the customer which is transparent and fair.
Conclusion: The approach recommended for BCB

56. The interoperability of payment systems is critical to the development of modern (digital) retail payment services, and has been discussed in many international forums, including at the Committee on Payment and Market Infrastructures (CPMI) of the Bank for International Settlements (BIS). Interoperability enables users to make electronic payment transactions with any other user in a convenient, affordable, fast, seamless and secure way, without requiring them to have accounts with the same institution. Thus, interoperable payment systems enable exchange of payment transactions between and among Payment Service Providers (PSPs) and consequently users. By its very nature, interoperability represents both an important feature of payment system efficiency and, at the same time, a critical source of risks. For this reason, pursuing it requires that public authorities adopt suitable oversight provisions, and system operators and PSPs to implement adequate oversight standards covering legal, organizational, technical, procedural, and business practices. This is true for ATM interoperability as well.

57. In conclusion, it is recommended that BCB takes a series of policy measures starting with using the tool of moral suasion to encourage the stakeholders towards achieving full interoperability of the ATM infrastructure in Brazil. While all the options provide a menu of possible policy and institutional changes to support interoperability, the authorities would need to weigh the pros and cons of each option in order to determine the one best suited to the country's needs. For instance, Policy Option – 1, i.e. exercising its statutory powers to mandate FIs and IPS (ATM networks) to adopt transparent non-discriminatory access criteria, could have some advantages over other options, if the objective is to achieve interoperability with the least disturbance to the existing structures and operation of networks. Further, this could be a good starting point for initiating a dialogue with the private sector on interoperability of ATMs in Brazil.

58. In the event BCB considers other options, the choice of the appropriate model should be done in consultation with the stakeholders. Adopting either a bilateral switch or a common switch model should not prove to be a disincentive to the existing infrastructure or for the deployment of new infrastructure. Also, before deciding on the charges the BCB should carry out a detailed cost study to arrive at rationalized interchange fee and customer charges that protect the interests of all stakeholders in the market. Moral suasion on pricing – interchange and customer charges, is an option which should be exercised. BCB should also be willing to use its statutory powers to mandate interoperability, as well as intervene in the pricing structure to promote interoperability of ATM transactions based on its statutory powers (as was done in the case of interchange fees for debit card transactions at POS terminals).
59. As an overseer BCB should ensure that an appropriate governance framework, fair access to the infrastructure to all stakeholders, including access to FinTech companies, and risk management rules are put in place, irrespective of the policy option adopted. The current infrastructures and any new infrastructure setup should have to be fully under the oversight of BCB. BCB as part of its oversight function should: (i) ensure that the IPS are compliant with international standards and best practices; (ii) review the governance and risk management framework, including management of operational risk, cyber security, fraud monitoring, etc. on an ongoing basis; (iii) review the pricing structure to ensure that it is non-discriminatory; and (iv) encourage competition to foster innovation.
Components of an ATM network

1. **The stakeholders in a card payment transaction involves three institutions** – institution that issued the card (Issuer); the institution that facilitates a merchant to accept cards or operates an ATM (acquirer); and, the payment system that interconnects the issuer and acquirer. In some cases, like in American Express – the acquirer and the payment system could be the same entity. In addition, the cardholder and merchant are also parties.

2. **The payment system interconnecting issuers and acquirers i.e. Payment Card Network (PCN)**, comprises the technical infrastructure, operational framework and rules, standards, associated clearing and settlement arrangements, risk management framework, dispute resolution arrangements, membership rules, branding and pricing model - structured for offering a common infrastructure for conduct of electronic transactions through various channels like Point of Sale (POS) terminals, mobile phones, ATMs and the internet. If the issuer and acquirer are the same institution, in general the PCN has no direct role in the transaction processing, but the product and branding rules of the associated PCN might still need to be followed. A PCN consists of the technical infrastructure; and, a governance arrangement covering the business and operating rules and procedures. The former is often referred to as a “Switch” and the latter as the “Scheme”. The same entity can perform both roles like in the case of international card networks, or by different entities which is the case with domestic switching infrastructures processing international card network transactions. As an example – Visa and MasterCard are a PCN, but their schemes can be used in another switch. In many countries even when there are domestic switches the Visa and MasterCard schemes are used. This is because the same card is used both domestically and internationally and the banks for domestic transactions use the domestic infrastructure (switch) and follow the same rules but with different pricing and use the Visa and MasterCard scheme and switch for international transactions. Conceptually, a card switch handles only the authorization stage. Clearing and settlement is handled at a scheme level, as it needs to take into account pricing, business rules, and policies related to handling disputes. While most card switches handle all these steps, they could be using the rules of the underlying scheme used to process the transaction. Which scheme to use is based on the scheme under which a card was issued and acquired – often also visually depicted as a brand mark on the card and as an acceptance mark in an ATM booth, website or POS terminal.

3. **The Interoperable Payment System (IPS)** is the term often used to identify an infrastructure which processes all or most of the card payments (ATM and POS transactions or only ATM transactions or only POS transactions) irrespective of the scheme to which the card is affiliated. Increasingly IPS are also developing capabilities to handle mobile payment transactions, interconnect agents and become the infrastructure for interconnecting different...
Interoperability of ATMs in Brazil

mobile money schemes. The ownership of such an infrastructure may vary and could be owned by (i) a consortium of banks, (ii) the central bank or (iii) some other public authority or (iv) in some cases it could actually be a set of individual infrastructures that are interconnected (so called switch of switches). The IPS is expected to be a “public good” available for all eligible institutions to leverage for offering payment services. Increasingly the IPS of various countries are getting interconnected to offer seamless cross-border transactions and funds transfers to the participating nation’s residents and commercial establishments. IPS seeks to raise the level of interoperability to all the card acceptance channels across the country.

4. **Automated Teller Machine (ATM)** is an electro-mechanical device that allows authorised users, typically using machine-readable plastic cards, to withdraw cash from their accounts and/or access other services such as to make balance enquiries, PIN management, transfer of funds, deposit money, fund a pre-paid account/mobile money account or the distribution or acquiring of foreign currency. ATMs facilitate access to cash for domestic customers but also for e.g. tourists through the international card schemes. The number of ATMs available in the market will differ depending on e.g. the maturity of a market with a decrease of the total number of ATMs as a market matures but will also be driven by a preference for cash in more mature markets. The number of ATMs will also differ between rural and more densely populated areas.

5. **ATM network** is an interbank payment system supporting the access to cash and other services offered through ATMs. An ATM network will typically consist of an operating scheme and the technical infrastructure supporting authorisations, clearing and settlement services. A country may have one of several ATM networks operating off the same ATM devices.

6. **Bilateral linkages**: In this model all the switches are required to be connected to the other switches in the market bilaterally or through another infrastructure. This requires the switches to establish the required technical interfaces and in addition establish some form of co-ordination arrangement for administering the technical standards, pricing and dispute resolution arrangements. The co-ordination arrangement could be managed by: (i) a neutral body like the Bankers Association, (ii) a special purpose entity with representation of all stakeholders in the payments card market; (iii) the BCB; and, (iv) by respective schemes.

7. **Common Switch**: In this approach a common switch will need to be developed, to which all the switches in Brazil could be required to interconnect. This common switch could be operated by a licensed Payment System Operator (PSO) or by the BCB. In addition, as for the bilateral linkages, there would be a need to establish co-ordination arrangements. This role could be covered by the PSO operating the common switch, or by a separate entity.

8. **ATM ownership/operational model** could be bank owned or independently owned and operated.
(i) **Bank-owned and operated ATMs** which are either located in a bank branch or through a “hole-in-the-wall” or in remote location beyond the premises of a bank branch. Remote ATMs may be used as a replacement or supplement to physical bank branches in particular geographies.

(ii) **Independently owned and operated ATMs** which may be located in a publicly accessible location similar to bank operated ATMs or e.g. inside a shop or in particular areas mainly targeting tourists.

9. **ATM fees** are layered.

a. **Cash Disbursement Fees.** The interbank fees charged by the ATM owner/ acquirer to the card issuer for each cash withdrawal. Some countries refer to the cash disbursement fee as an interchange fee. Cash disbursement fees are default fees which can be set multilaterally or bilaterally and is influenced by the number of cards issued in the market and total no of ATM's deployed.

b. **Card issuing/ acquiring fee:** The fee that is charged by the card schemes. There are distinct bank/ third party service provider (TPSP) licensing terms for acquiring for POS, ATMs and ecommerce transactions. The bank/ TPSP has to be separately licensed by the card network for being an acquirer for POS, ATM and ecommerce by paying separate one-time acquirer license fee. The one-time acquirer license fee is high (varies for different regions) apart from the annual connectivity/ maintenance fee. Registered/authorized TPSP's with one single connection can connect multiple banks/institutions for acquiring and hence the costs mentioned above is reduced for the participating banks.

   - **Issuing bank:** The issuing bank apart from issuer/ membership fee pays settlement fee/ switching fee per transaction.
   - **Acquiring bank:** The acquirer pays the Acquiring fee and per transaction settlement fee. It does not pay switching fee to the card network but receives interchange fee from issuer bank. The card network interchange fee varies for different markets. The inter-bank volume of transactions is the deciding factor for the bank to obtain Acquiring authorization from the card networks.

   - **Direct access fees.** For cross-border transactions additional fees is charged directly by the ATM owner/ acquirer to the cardholder for an ATM cash withdrawal. Such fees are also referred to as ATM surcharging or ATM access fee and the customer is prompted to consent the fee being charged before proceeding with the transaction.

d. **Issuer cash withdrawal fee.** The fee charged by the card issuer for an ATM cash withdrawal. Such fees may in the form of disloyalty fees where a cardholder uses ATMs not owned by its bank.
The banks at times may pass on the interchange fee to the customer.

e. **Dynamic currency conversion fee.** For cross-border transactions, traditionally the currency conversion is conducted by the card network/schemes. More recently the card networks have allowed dynamic currency conversions by Acquiring institutions generating additional revenue at the expense of the issuing institution. The fee charged by the ATM owner/ acquirer to the cardholder regarding the currency conversion involved in a cash withdrawal. Again, customer consent is required and is provided option to either allow Acquiring institution to do the conversion or should the customer prefer the issuer do it through the card networks.

Cross-border transactions i.e. non-domestic or international cards will often face different and higher charges such as direct access fees compared to domestic transactions.

10. **ATM costs** are both of a fixed and variable nature in relation to the number of ATMs employed, location of the ATMs including rent, connections, security, storage, transport and handling of cash, processing costs and maintenance. The cost associated with operating a bank owned ATM will be different from an independent ATM as some of the services required will be available “in-house” within a bank or can be cross-subsidised through other services provided.

11. **ATM revenues** consists of a number of different fees and charges applied by the ATM owner which are either fixed through the ATM scheme or agreed bilaterally or multilaterally between ATM operator(s) and card issuers or set unilaterally by the ATM owner such as cash disbursement fees (interchange fees), direct access fees, dynamic currency conversion fees, fees related to other ATM service. Revenues will differ depending on the location of the ATM and population density- highly populated area which is also visited by tourists will be able to attract significantly higher revenues than an ATM in a remote or rural area. Revenues will also differ depending on the type of ATM transaction where transactions conducted by foreign cards will be able to attract higher revenues through e.g. direct access fees and dynamic currency conversion fees.

12. **The participants** in an ATM network will traditionally be card issuers and ATM operators but providers of other services may want to utilise ATMs for the distribution of their services such as mobile top-ops, funding of e-money accounts, bill payments, balance inquiries and mini-statements, etc.

**ATM network and interoperability**

13. **Interoperability is the ability to use one’s payment card (credit, debit or prepaid) at ATM, POS terminals, kiosks, ecommerce merchant affiliated with institutions other than the bank which issued your card [issuer and acquirer are different institutions].** While multiple schemes can function on an IPSIPS, at times IPS comes with its own scheme. Increasingly IPS are also developing capabilities to handle mobile payment transactions,
interconnect agents and become the infrastructure for interconnecting different mobile money schemes.

14. **ATM Network as payment system**: As a payment system, an ATM network will be obliged to employ access criteria which are based on the principles of open access and non-discrimination in relation to payment services. The considerations regarding access to ATM networks regarding other services provided through ATM networks may be different. An ATM network may be owned directly or indirectly by the banks operating in a particular market which are also competitors, and which will further increase the emphasis on ensuring fair and open access. The direct eligibility criteria regarding participation can be combined with requirements regarding capping access fees and limiting or eliminating interbank fees.

Within the European Union access to an ATM network is governed by PSD2\(^{36}\).

15. **Interoperability of ATM networks** across a market provides general utility for cardholders in terms of ensuring and supporting universal access to cash through ATMs operated by banks and other providers across a particular market with which a cardholder has no pre-existing relationship both interbank and cross-border.

Interoperability of ATM networks is of particular importance in relation to financial inclusion in countries with a lower penetration of bank branches and an uneven distribution of ATMs combined with a high dependency on cash. In many markets to provide more easy access to cash in a branchless environment, regulators have allowed third-parties to deploy ATM's in remote areas where banks might not find it lucrative to deploy and service ATM's.

\(^{36}\) *Article 35: Access to payment systems*

1. Member States shall ensure that the rules on access of authorised or registered payment service providers that are legal persons to payment systems are objective, non-discriminatory and proportionate and that they do not inhibit access more than is necessary to safeguard against specific risks such as settlement risk, operational risk and business risk and to protect the financial and operational stability of the payment system
# Possible configurations of card switches in a country

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Characteristics</th>
<th>Sample list of countries with this situation</th>
</tr>
</thead>
</table>
| A - No domestic infrastructure | - Some banks have membership in international payment card networks like Visa and Mastercard. These banks customers have access to the ATMs and Point of Sales (POS) terminal at merchants operated by their respective banks and at a price at other similar banks ATMs and often for free at POS terminals of the similar banks.  
- Smaller and weaker banks, most credit unions and other similar institutions either have no card payment products or operate their own proprietary brands.  
- Domestic transactions are cleared outside the country, settlement is typically in US dollars or one of the global reserves currencies but could also in some large countries could be in domestic currency based on special procedures established by the international payment card network. | Afghanistan, many countries in Sub-Saharan Africa, Lao, Myanmar, Maldives, Russia, Kazakhstan, Sri Lanka |
| B - Group of Switches | - Several switches, each with a set of members with some potential overlaps with some having membership in several switches.  
- Often organized along lines of foreign banks operating their own, large domestic banks their own, credit unions having their own etc.  
- Customers of banks of a particular switch, can use their payment cards across ATMs and merchants (at POS terminals) affiliated with that bank or other member banks of the switch.  
- No interconnection amongst these switches.  
- Domestic transactions using these switches are cleared and settled in the country and in domestic currency. | Bangladesh – but transitioning to D; Israel; USA – but industry structure is such that there is substantial cross-membership; Singapore |
| C - Interconnected Switches | - Similar to B, but the switches are interconnected.  
- The pricing for transactions of a customer of a bank with membership in one switch at an ATM or POS of a bank at another switch, could vary depending on the pair of switches, but in general would be the same.  
- Domestic transactions using these switches are cleared and settled in the country and in domestic currency. | Mexico, Pakistan, Jamaica, Jordan, Lebanon |
| **D-** One common switch (the IPSIPS) | • Most of the eligible institutions in a country are connected to one common card switch in the country.  
• There could still be other switches, but all these are required to be also connected to the common switch to enable seamless transaction for a cardholder at all POS and ATMs in the country.  
• Often also, either a mandate or quasi-mandate to process all domestic transactions through the common switch.  
• Domestic transactions using the IPS is cleared and settled in the country and in domestic currency. | Vietnam (no mandate), Nigeria, UK, China, Malaysia, several Caribbean countries, all GCC countries, UEMOA |
| **E-** Hybrid | • Could be a combination, with one model for ATM transactions and another for POS transactions.  
• Model D, but no mandate to process all transactions through the common switch – so in reality could end up being a mix of D and A. | India– for ATMs model D, for POS model B; Oman – model D for ATM and model A for POS; Indonesia – for ATMs model C and Model A for POS. |
Annex 3

Cross-country examples on the domestic ATM networks, regulatory framework and pricing interventions

A. Australia

1. A number of ATM network are in operation in Australia including the EFTPOS and rediATM networks. Over half of the 30,000 ATMs in place in Australia are operated by independent ATM providers whereas the remaining ATMs are owned and operated by banks.

2. Direct access fees for ATM transactions are common in Australia for transactions at ATM owned by independent ATM providers whereas the tendency is that ATMs operated by banks do not charge any direct access fees.

3. The developments of the ATM market in Australia has been driven largely by regulation issued by the Reserve Bank of Australia in 2009\textsuperscript{37} by;
   - Eliminating cash disbursement fees (interchange fees) and replacing them with “more transparent” direct access fees thereby creating direct insight by users of ATM to the costs of those transactions. Certain exemptions apply in relation to ATM access for very remote Indigenous communities in Australia.
   - By increasing competition by making it easier for new entrants to become direct participants in the ATM systems by e.g. capping the cost of establishing links to the ATM system.

B. Canada

4. There are more than 70,000 ATMs or Automated Banking Machines (ABM) in operation in Canada of which 18,000 are bank operated and the remaining part of ATMs are operated by independent ATM operators. There is universal interoperability of ATMs in Canada.

5. Canada has a domestic debit card scheme Interac which also operates an ATM network.

6. Applying direct access fees is the predominant charging method in Canada when a cardholder is using ATMs outside the ATM network(s) to which its bank belongs. The Exchange is an ATM network put in place to avoid direct access fees. In addition to direct access fees, disloyalty fees and own bank ATM fees are common. In addition, some banks will also add so-called network access fees.

7. The cash disbursement fee (interchange) differs between schemes and is set at CAD 0.75-1.50.

8. The Canadian Competition Tribunal has ruled that the levying of direct access fees may not be restricted. Previous practices by the internal schemes regarding exclusivity which created acceptance issues at POS and ATMs have seized. There is no recent guidance available regarding access to ATM networks.

C. China

9. There are more than 960,000 ATMs in operation in China. The total number of ATMs in China has previously grown significantly, year-on-year, which has now been replaced by a decline in the number of ATMs, year-on-year. All ATMs accept China UnionPay cards. Most, if not all, cards issued under the international card schemes in China will be co-branded with China UnionPay.

10. ATMs in China are subject to restrictions in terms of limits on daily transaction amounts and access to some ATMs can be restricted outside normal opening hours. Direct access fees are predominant when using ATMs operated outside the ATM network of the issuer.

11. Interchange fees were capped in 2016, but this initiative did not include cash disbursement fees. There is no guidance available regarding e.g. access to ATM networks in China.

D. Denmark

12. There are more than 2100 ATMs in operation in Denmark. The ATMs are predominantly operated by banks with a number of additional independent ATM operators. There is a clear tendency towards fewer bank operated ATMs combined with an increase in the number of ATMs operated by the ATM independent providers which mainly target areas in the bigger cities and tourist areas. All banks are obliged to accept all debit cards issued under the Dankort scheme at the ATMs provided. Dankort is the dominant means of payment regarding retail payments in Denmark. There is universal acceptance of ATMs in Denmark.

13. Direct access fees are not applied to Danish issued debit cards (Dankort). Disloyalty fees which are applied by the card issuers are very common.

14. No guidance is available regarding access to ATM networks. Cash disbursement fees have not been scrutinized by the competition authorities.

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38 https://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03958.html
E. France

15. Most ATMs are owned and operated by commercial banks and the independent ATM operators only have a very small share of the market. In total 32,000 ATMs are in place in France. There is universal interoperability in France. Carte Bancaire operates the main ATM network in France. Carte Bancaire is also operating a debit card scheme in France in which most Carte Bancaire cards are co-badged with Visa and MasterCard.

16. Direct access fees are not applied in France, but French banks often apply disloyalty fees when the customer uses the ATMs of other banks. The cash disbursement fee (interchange fee) applied for Carte Bancaire ATM transactions is currently EUR 0.57. Carte Bancaire is currently considering increasing the cash disbursement fee to EUR 1.

17. No particular guidance has been issued by authorities regarding access to the ATM networks in France.

F. Germany

18. The reliance on cash in Germany remains high.

19. There is universal interoperability of ATMs across the German market. Girocard acts as the main infrastructure for ATMs in Germany combined with a number of separate interbank ATM networks. Girocard also operates the national debit card scheme. Banks are the main operators of ATMs in Germany and several independent ATM networks are operating in Germany with a marketshare of 5%. Germany has a total of around 38,000 ATMs.

20. Under the Girocard scheme, ATM operators can charge a cash disbursement fee (interchange fee) to the card issuer for the use of its ATMs, but there are no multilateral agreements in place in this regard. In practise, cash disbursement fees appear to have been replaced by direct access fees.

21. Direct access fees are applied to cardholders using the ATMs of other banks. In some instances, very high and in some cases exorbitant direct fees have been applied to cardholders belonging to different ATM networks, especially cardholders of new entrants (direct banks), whereas the participants within a network are able to offer cash withdrawals at no or very low direct access fees.
22. The German Competition Authority has recently assessed the ATM networks operating in Germany. While the competition authority found no reason to intervene directly regarding direct access fees, the competition authority stressed that dominant ATM operators are prohibited from charging users’ excessive fees without objective justification. In addition, ATM operators may not use direct access fees to disproportionately transfer the cost of the ATM infrastructure costs to customers of banks not belonging to the network. The German Competition Authority stressed the importance of ensuring full transparency of direct access fees to cardholders. In addition, while stressing that co-operation between competitors in relation to ATM networks provides benefits to consumers, the ATM networks need to grant access to interested companies on a non-discriminatory basis and not unfairly hinder such access. Finally, the German Competition Authority stated that a statutory single cap on direct access fees imposed without regard to the specific costs of operating ATMs would ultimately threaten to undermine incentives for investments in the ATM infrastructures.

G. Greece

23. As a direct consequence of the euro crisis, the number of bank branches in Greece (1,979) was reduced by 51% compared to 2010 and similarly, the number of ATMs (5,594) dropped by 35%. Banks are the main operators of ATMs and a number of independent ATM operators are also present in the market. The is universal interoperability of ATMs in Greece.

24. Applying direct access fees is the predominant charging method in Greece when a cardholder is using ATMs outside the ATM network(s) to which its bank belongs. The direct access fee is commonly set around EUR 2-3.

25. There is no guidance available regarding access to ATM networks.

26. From 2015 to 2018, and due to the euro crisis, restrictions were imposed regarding the amount of cash individual Greek cardholders were able to withdraw on a daily basis.

H. India

27. The National Financial Switch (NFS) is the largest ATM and acts as an apex network for ATMs in India. As on 31st July 2019, there were 1,140 members that includes 110 Direct, 966 sub members, 56 RRBs and 8 non-bank ATM operators using NFS network. There are a few other networks with a select few banks as its members which are also members of NFS. Interoperability of ATMs appears to be near universal across India.

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40 The reference rate was $1=Rs. 71.85 on 22nd November 2019.
28. Through regulation issued by the RBI, banks are obliged to provide at least 3-5 ATM transaction per month free of charge. The actual practices differ in this regard and some banks provide additional ATM services for free.

29. Restrictions are also in place which impose a cap on the fees charged by banks to its customers for ATM transactions. The ceiling / cap on customer charges is Rs.20/- per transaction (plus service tax, if any)\(^1\).

30. The interchange fees is currently Rs.15. A committee was established by the Reserve Bank of India in July 2019 with the objective of reviewing the ATM interchange fee structure and make recommendations before the end of 2019\(^2\).

31. No specific guidance has been issued in relation to access. The National Financial Switch has facilitated wider access to the ATM network through a sub-membership model.

32. The interchange fee for NFS is currently as follows:

<table>
<thead>
<tr>
<th>Transaction Type</th>
<th>Interchange Fees for approved transactions*</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ATM Transactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Withdrawal</td>
<td>₹ 15/-</td>
<td>-</td>
</tr>
<tr>
<td>Card to Card Funds Transfer</td>
<td>₹ 15/-</td>
<td>-</td>
</tr>
<tr>
<td>Non – Financial Transactions(^@)</td>
<td>₹ 5/-</td>
<td></td>
</tr>
<tr>
<td>Interoperable Cash Deposit</td>
<td>₹ 25/-</td>
<td>Txn. amount Up to ₹ 10,000/-</td>
</tr>
<tr>
<td>(ICD) #</td>
<td>₹ 50/-</td>
<td>Txn. amount above ₹ 10,000/- to less than ₹ 50,000/-</td>
</tr>
<tr>
<td>For Card and PIN transactions on Micro-ATM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Withdrawal</td>
<td>NIL</td>
<td>Txn. amount Up to ₹ 100/-</td>
</tr>
<tr>
<td></td>
<td>₹ 0.5% of transaction amount with maximum upto ₹ 15/-</td>
<td>Txn. amount above ₹ 100/-</td>
</tr>
<tr>
<td>Non – Financial Transactions</td>
<td>NIL</td>
<td>Balance Inquiry</td>
</tr>
</tbody>
</table>

Note: * Excluding GST and other applicable taxes
\(^@\) 50% shared by Issuer and Beneficiary each
\(^\circ\) Non-Financial transactions includes 1) Balance Inquiry, 2) PIN Change, 3) Mini Statement, 4) Cheque Book Request, 5) Statement Request, 6) Mobile Banking Registration and 7) Aadhaar Seeding.

I. Israel

33. There are more than 7000 ATMs in operation in Israel (excluding West-Bank and Gaza). The ATMs are predominantly operated by banks with a number of additional independent ATM operators. The ATMs in Israel are operated through SHVA (Automated Banking Services Ltd) which provides various services in relation to the payment card transactions in Israel, including switching services. MasterCard has recently been allowed to acquire 10% of SHVA as part of the mandated divestment of SHAV by banks. There is almost universal interoperability regarding ATMs in Israel.

34. Applying direct access fees is the predominant charging method when a cardholder is using ATMs outside the ATM network(s) to which its bank belongs. The direct access fees are normally set at NIS 3 and the direct access fees have been capped by the Central Bank of Israel, as far as banks are concerned, following a significant reduction in the number of physical branches in Israel. Direct access fees applied by non-bank ATM providers are not currently capped.

35. Israel has recently adopted payment legislation based on PSD2 despite being outside the European Union.

36. No special guidance is available in relation to access to ATM networks.

37. In the West-Bank and Gaza, the majority of banks are linked to the switch operated by the Palestine Monetary Authority which facilitates ATM access and provides around 70% coverage throughout the West-Bank and Gaza. The ATMs in the West-Bank and Gaza will normally distribute cash in three different currencies, NIS, USD and Jordanian Dinars.\(^{43}\)

J. Mexico

38. Institutional framework: Retail interbank card payments and cash withdrawals are processed and cleared by two processors, PROSA and E-GLOBAL, and settled at a settlement bank. PROSA and E-GLOBAL exchange information under the terms of a collaboration agreement that establishes the main features and terms of the card payments process, as well as a communication protocol. Clearing takes place at the end of the day and settlement is done the following working day by a commercial settlement bank that holds accounts for all affiliated banks.

\(^{43}\)http://www.pma.ps/Portals/1/Users/002/02/2/Publications/English/Annual%20Reports/PMA%20Annual%20Reports/AR%202018_en.pdf
Every Mexican bank participating in the cards market uses either PROSA or E-GLOBAL to process its domestic interbank retail payment transactions.

39. PROSA and E-GLOBAL process most ATM, POS and internet transactions. Interbank transaction at an ATM Processing of a transaction that involves both PROSA and E-GLOBAL is illustrated with the following transaction example: first, a cardholder uses his card, issued by a bank affiliated with E-GLOBAL, to withdraw cash at an ATM operated by a bank affiliated with PROSA (acquiring bank). The ATM sends an authorisation query to PROSA and PROSA forwards it to E-GLOBAL, which in turn sends it to the issuing bank. The issuing bank checks the cardholder’s balance and authorises the transaction through E-GLOBAL. Afterwards, E-GLOBAL sends the authorisation to PROSA, which forwards it to ATM which in turn releases the cash to the cardholder.

40. Pricing: ATM operators charge user fees that may vary according to the ATM’s location. In October 2009, the central bank issued a regulation to make ATM fees for interbank transactions more transparent. Between October 2009 and May 2010, the acquiring bank charged the issuer bank an interchange fee of MXN 7.25 per authorised transaction. Processors charged their associates or customer banks for transaction processing (e.g. special authorisations or digitalisation of receipts signed by the cardholder). Consequently, whenever cardholders used an ATM not operated by their own bank, they faced a foreign fee that was usually much larger than the interchange fee. After May 2010, only the acquiring banks can charge cardholders a fee when they carry out an interbank transaction. Acquirers now pay a new interchange fee to the issuers. Currently, this interchange fee is MXN 2.92. Both the acquiring and the issuer bank pay transaction fees to the processors.

K. Philippines

41. The BancNet and Megalink ATM networks were consolidated in 2015 facilitated by the central bank in order to achieve further interoperability in the market. Majority of ATMs in the Philippines are owned by banks with more than 21,000 ATMs in operation. In addition, a number of independent ATM operators are also operating in the market.

42. A six-year moratorium on fees and charges regarding ATM transactions was lifted in 2019. The moratorium was based on maintaining the status quo in relation to both fees and connectivity and maintaining the principle that the fees charged to cardholders should be the same for all ATMs. The moratorium was replaced by a new regime intended to move the market towards the use of direct access fees set by the ATM operator. The direct access fees may not be bilaterally or multilaterally agreed and shall be fully transparent to the cardholder which should be able to

Interoperability of ATMs in Brazil

Abort an ATM transaction. The card issuer will still be able to apply an ATM fee to the cardholder. The Central Bank has also issued regulations which require banks to adhere to the principles of reasonable and market-based pricing in their ATM operations according to which a bank cannot increase the ATM fee on their own, but only in consultation with the central bank.

L. South Africa

43. There are over 29,000 (2016 figures) ATMs in operation in South Africa which are predominantly operated by banks through the BankservAfrica’s ‘SASWITCH’. Interoperability is near universal in South Africa but with differences in the number of ATMs accessible in the different parts of South Africa.

44. Direct access fees are common when using an ATM outside the network of the issuing bank often in combination with a disloyalty fee applied by the card issuer.

45. The focus of the South African Reserve Bank has mainly been on cash disbursement fees (interchange) rather than on issues in relation to access to ATM networks. The current cash disbursement fee is R 4.07 + 0.53% of the amount. The is no guidance available regarding access to ATM networks.

M. Spain

46. Spain previously had three domestic card schemes in operation which have now been replaced by one scheme, Sistemapay, which is also operating the main ATM network. Banks are the main operators of ATMs in Spain and the independent ATM operators account for 5% of the market. There are a total of 30,000 ATMs in place in Spain. There is universal interoperability of ATMs in Spain and interoperability was in place between the previous schemes.

47. The Spanish market has previously experienced direct access fee charging practices regarding the use of ATMs which is now only applicable to ATM transactions with foreign cards. DCC is also widely available.

48. The Bank of Spain has banned any double charging practices in relation to charging cardholders both an ATM access fee by the ATM owner as well as a disloyalty fee applied by the card issuer. ATM operators are allowed to enter into agreements with card issuers regarding cash disbursement fees (interchange fees) either bilaterally or multilaterally regarding domestic ATM transactions. If no such agreement exists, then the ATM owner is obliged to charge the same cash disbursement fee to all card issuers on a non-discriminatory basis. Card issuers may pass on the cash disbursement fee to the cardholder but are not allowed to charge any fees over and above the cash disbursement fee.
N. Sweden

49. Sweden is characterised by a very low degree of cash usage combined with a very low penetration of ATMs overall. There is a total of 2,600 ATMs in operation in the market. There is universal interoperability of ATMs in Sweden.

50. The majority of ATMs in Sweden are owned and operated by Bankomat which is a company jointly owned by the largest banks operating in the market. A number of independent ATM operators are active in the Swedish market which operate around 30% of the total number of ATMs.

51. Direct access fees are not common in Sweden and the income from the ATMs is generally generated through cash disbursement fees (interchange). Cash withdrawals are generally free for cardholders.

52. No particular guidance is available regarding access to ATM networks in Sweden.

O. United Kingdom

53. LINK is the main ATM network operating in the UK. Banks are the main operators of ATMs. In addition, a number of independent ATM providers are operating in the UK which are all members of LINK and there is universal interoperability in the UK. In total more than 62,000 ATMs are in operation in the UK. ATM cash withdrawals in the UK are labelled as either free-to-use or pay-to-use and whereas 22% of the ATMs are pay-to-use ATMs, 98% of all cash withdrawals are free-to-use. For all free-to-use ATM transactions the ATM operator is able to charge a cash disbursement fee (interchange fee) to the card issuer. The cash disbursement fee is currently 25 pence. LINK has been exploring increasing the cash disbursement fee further in order to ensure an extensive access to free-to-use ATMs across the UK in the wider context of financial inclusion without any conclusions. At pay-to-use ATMs the ATM operator is able to charge a direct access fee in which case no cash disbursement fee will apply. The direct access fees can be up to 5 GBP but is usually between 0,95-1,95 GBP. The UK Payment System Regulator has also initiated work regarding the impact of increased inter ATM scheme competition in the UK in order to reduce the cash disbursement fee without reaching any conclusions.

54. The UK Payment System Regulator has issued general policy guidance regarding access and has introduced an access rule requiring operators to have objective, risk-based and publicly-disclosed access requirements, which permit fair and open access. The UK Payment System
Regulator has issued a number of key requirements regarding ATM networks in the UK. Those requirements are;

- a commitment by LINK to do whatever it takes to protect the current broad geographical spread of free-to-use ATMs;
- that any cuts in interchange (cash disbursement fees) must be incremental and accompanied by close monitoring by LINK to understand the impact on the overall ATM estate – with action taken by LINK where the impact is not as expected; and
- for a greater focus on the financial Inclusion programme – to continue to fill any gaps in the free-to-use network.

P. United States

55. There are several ATM networks in operation in the US with a total of 470,000 ATMs of which a majority are owned by independent operators which operate more than 278,000 ATMs. There is near universal interoperability regarding ATMs in the US. The acquirers are members of multiple networks, and similarly issuers are also members of multiple networks. The major acquirers use processing companies [processors] which support all schemes in the country. Applying direct access fees is the predominant charging method when a cardholder is using ATMs outside the ATM network(s) to which its bank belongs. Direct access fees are commonly set at USD 2.50 to which the card issuer will normally also add a disloyalty fee. The cash disbursement fee is currently between USD 0.35-0.55.

56. The Federal Reserve has mainly been addressing access to ATMs networks in the context of exclusivity but has not issued specific guidance.

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45 https://www.psr.org.uk/psr-focus/access-to-cash/uk-atm-network
## Annex 4

### Snapshot of the ATM network and regulatory framework and pricing intervention

<table>
<thead>
<tr>
<th>Country</th>
<th>Interoperable domestic network</th>
<th>Regulatory framework</th>
<th>Intervention in pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>EFTPOS and rediATM networks</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Interac, The Exchange</td>
<td>Payments Act. Retail payments Regulations</td>
<td>Yes, intervention in support of direct access fees.</td>
</tr>
<tr>
<td>China</td>
<td>Exist for cards affiliated to CUP. Interoperability for international card is slightly lower.</td>
<td>Yes – limits on daily transactions</td>
<td>Yes</td>
</tr>
<tr>
<td>Denmark</td>
<td>Dankort</td>
<td>PSD2</td>
<td>No.</td>
</tr>
<tr>
<td>France</td>
<td>Carte Bancaire – main network</td>
<td>No particular guidance</td>
<td>No particular guidance</td>
</tr>
<tr>
<td>Germany</td>
<td>Girocard – main network</td>
<td>Guidance issued by Competition authority</td>
<td>Guidance issued by Competition authority</td>
</tr>
<tr>
<td>Greece</td>
<td></td>
<td>PSD2</td>
<td>No.</td>
</tr>
<tr>
<td>India</td>
<td>National Financial Switch (NFS)</td>
<td>Interchange – network decided (RBI has powers to intervene); A minimum number of free transactions to customers with a charge of Max.Rs.20/ above the free transactions</td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td>SHVA</td>
<td>PSD2 type legal framework in place. Direct access fees have been capped.</td>
<td>Yes, regarding direct access fees.</td>
</tr>
<tr>
<td>Mexico</td>
<td>PROSA and E-GLOBAL</td>
<td>Regulatory framework exists</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>BancNet and Megalink</td>
<td>Regulatory framework</td>
<td>Requirement of transparency</td>
</tr>
<tr>
<td>South Africa</td>
<td>SASWITCH.</td>
<td>No specific guidance</td>
<td>Yes</td>
</tr>
<tr>
<td>Spain</td>
<td>Sistemapay</td>
<td>Three networks replaced with one.</td>
<td>Banned double charging. Card issuers may pass on the cash disbursement fee to the cardholder</td>
</tr>
</tbody>
</table>

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[46](https://www.rbi.org.in/scripts/FS_Notification.aspx?Id=10421&fn=9&Mode=0)
<table>
<thead>
<tr>
<th>Country</th>
<th>ATM Network Details</th>
<th>Policy Guidance</th>
<th>Fee Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden</td>
<td>Full interoperability. Bankomat – company which owns majority of the ATMs and operates</td>
<td>No particular guidance</td>
<td>Cash withdrawal are generally free to customer</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>LINK - main ATM network</td>
<td>General policy guidance</td>
<td>ATMs are 'free-to-use' or 'pay-to-use'. For all free-to-use ATM transactions the ATM operator is able to charge a cash disbursement fee (interchange fee) to the card issuer. The cash disbursement fee is currently 25 pence.</td>
</tr>
<tr>
<td>United States</td>
<td>Multiple networks. Universal interoperability</td>
<td>Federal Reserve has been addressing access to ATMs networks in the context of exclusivity. No specific guidance issued.</td>
<td>No. The cash disbursement fee is however, currently between USD 0,35-0,55</td>
</tr>
</tbody>
</table>