PAYMENT SYSTEMS WORLDWIDE

A SNAPSHOT

SUMMARY OUTCOMES OF THE FIFTH GLOBAL PAYMENT SYSTEMS SURVEY

JUNE 2020

WORLD BANK GROUP

1818 H Street NW
Washington DC 20433
Telephone: + 1 202 473 1000
Fax: + 1 202 522 2422
Internet: www.worldbank.org
E-mail: pubrights@worldbank.org

ACKNOWLEDGMENTS

This study “Payment Systems Worldwide: A Snapshot” presenting the outcomes of the fifth iteration of the World Bank Global Payment Systems Survey (GPSS) is the result of collective efforts of the Payment Systems Development Group (PSDG) of the World Bank’s Financial Inclusion, Infrastructure and Access Team of Finance, Competitiveness and Innovation (FCI) Global Practice.

The implementation of the GPSS and drafting of the report was done under the general guidance of Harish Natarajan, by a team led by Oya Ardic and comprised Holti Banka, Jose Antonio Garcia, Balakrishnan Mahadevan, Biagio Bossone, Dorothee Delort, Ahmed Faragallah, Karol Karpinski, Maria Chiara Malaguti, Renuka Pai, Nilima Ramteke, Arpita Sarkar, Gynedi Srinivas, Nenad Bosiljcic, Isaku Endo, Fredes Montes, Alice Zanza, Guillermo Galicia Rabadan and Edlira Dashi. Numerous World Bank colleagues in the FCI Global Practice Regional Teams supported the drafting team in reaching out to the central banks in their respective regions. The team would like to thank the peer reviewers Carlo Corazza, Luchia Christova, Massimo Cirasino and Marco Nicoli, and the managerial oversight of Alfonso Garcia Mora and Mahesh Uttamchandani. Finally, the PSDG also wishes to thank each and every central bank that participated in this effort.

CONTENTS

ABBREVIATIONS

ACH	Automated clearinghouse
AFI	Alliance for Financial Inclusion
AML/CFT	Anti-money laundering / Combating the financing of terrorism
ATM	Automated teller machine
B2G	Business-to-government
BCEAO	*Banque Centrale des Etats de L'Afrique de l'Ouest* (Central Bank of Western Africa States)
BCP	Business continuity plan
BIS	Bank for International Settlements
CBDC	Central bank digital currency
CCP	Central counterparty
CDD	Customer due diligence
CPMI	Committee on Payments and Market Infrastructures (formerly Committee on Payment and Settlement Systems, CPSS)
CSD	Central securities depository
DVP	Delivery versus payment
EAP	East Asia and Pacific
ECA	Europe and Central Asia
ECCB	Eastern Caribbean Central Bank
ECCU	Eastern Caribbean Currency Union
EFT	Electronic funds transfer
EU	European Union
FAFO	First-available, first-out
FIFO	First-in, first-out
FX	Foreign exchange
G2B	Government-to-business
G2P	Government-to-person
GCC	Gulf Cooperation Council
GPSS	Global payment systems survey
IMF	International Monetary Fund

IOSCO	International organization of securities commissions
KYC	Know-your-customer
LAC	Latin America and the Caribbean
MDR	Merchant discount rate
MFI	Microfinance institution
MNA	Middle East and North Africa
MNO	Mobile network operator
MOU	Memorandum of understanding
MTO	Money transfer operator
NBFI	Non-bank financial institution
NBFC	Non-bank finance company
NGO	Non-governmental organization
NPC	National payments council
NPS	National payments system
OECD	Organization for Economic Cooperation and Development
ONFI	Other non-bank financial institutions
OTC	Over-the-counter
P2G	Person-to-government
P2P	Person-to-person
PCI DSS	Payment card industry data security standard
PFMI	Principles for financial market infrastructures
POS	Point of sale
PSDG	Payment Systems Development Group (World Bank)
PSO	Payment system operator
PVP	Payment versus payment
PSP	Payment service provider
QR	Quick response (code)
RPW	Remittance Prices Worldwide
RSP	Remittance service provider
RTGS	Real time gross settlement
RTO	Recovery time objective

SA	South Asia
SIPS	Systemically important payment system
SSA	Sub-Saharan Africa
SSS	Securities settlement system
SWIFT	Society for Worldwide Interbank Financial Telecommunication
T2S	TARGET2-Securities
TR	Trade repository
TSA	Treasury single account
USD	United States dollar
WBG	World Bank Group

EXECUTIVE SUMMARY

The Global Payment Systems Survey (GPSS) was launched for the first time in 2007. This tool has assisted authorities and policy makers worldwide in making meaningful cross-country comparisons and assess progress in national payments system development and has facilitated dissemination of best practices.

The fifth and latest iteration, GPSS 2018, shows generalized progress in most areas. In particular, in global terms more payments are being made with instruments other than cash reflecting a safer, more efficient and more inclusive provision of payment and settlement services. More specifically, the number of cashless transactions per capita per year rose to 88.31 in 2017, which represents a 25 percent increase over the indicator observed in the previous iteration in 2015.

The legal and regulatory framework for payments has been strengthened. A significant element underpinning progress in this area has been the enactment of payment system laws which are now found in 72 percent of the economies that participated in the survey. This is a significant increase compared to the first GPSS survey in 2007, where this type of law was found in only 46 percent of the responding economies. Moreover, more countries have included in their frameworks concepts associated with enhancing financial access and inclusion, thereby providing legal certainty to issues such as agent-based models or the direct provision of payment services and holding of customer funds for payments by non-banks. The legal and regulatory framework for securities clearing and settlement still shows some weaknesses, however.

A total of 120 jurisdictions (out of 125 that responded the survey, equivalent to 96 percent) indicated they are using at least one RTGS system. Furthermore, in more economies their RTGS system now processes a larger share of large-value payments than it did back in 2015. Regarding qualitative aspects, it is observed that international standards and best practices for RTGS systems are increasingly being adopted in practically all relevant areas. For example, resilience and business continuity arrangements have seen significant improvements over the various GPSS iterations, which corresponds to the increasing attention that is being paid to it. Furthermore, in almost 60 percent of the cases the entity operating the RTGS system already has a specialized Unit that is responsible for identifying, detecting and protecting from cyber threats.

In the area of retail payments, there is steady progress in the implementation of robust practices (e.g. for risk management) in traditional systems like cheque clearinghouses, ACHs for EFT-based instruments and payment card switches. Regarding access to these infrastructures, survey results show that direct access is still limited to banks and some regulated NBFIs, while less traditional players are generally restricted to forms of indirect access or have no access at all. One of the focus points of GPSS 2018 was fast payments. Forty-three percent of respondents indicated that a fast payments system or service is already operational in their jurisdictions, with high-income OECD economies leading in their implementation. Many other respondents indicated that implementation of this type of system or service is planned in the next 3 years. Finally, although there is still room for more improvement, electronic payments are gaining substantial traction for all types of government payments and collections.

In the area of foreign exchange settlement, trading in FX markets continues to increase reaching USD 6.6 trillion per day in April 2019, up from USD 5.1 trillion in 2016. In the case of FX trades that are organized through an exchange and where settlement arrangements are also organized by the exchange, PVP is achieved in 14 out of 15 of those arrangements. However, when it comes to OTC FX markets, only 50 percent of respondents indicated that these have PVP arrangements in place. This percentage is similar to the one observed in the 2015 iteration and shows that further efforts are needed to continue mitigating FX settlement risks.

In the area of remittances and other cross-border payments, commercial banks were reported as having the highest market share and being the most important RSP in 43 percent of the economies worldwide despite that banks, acting as principals, are the most expensive type of RSPs. After commercial banks, international MTOs are reported to be the most important RSP. Cash (via MTOs, banks and other regulated RSPs) continues to be the most used payment instrument for remittances, although bank account-to-account transfers were indicated as the most used one by 28 percent of economies. Transparency and disclosure requirements for RSPs have been significant improvements compared to previous GPSS iterations. However, in GPSS 2018 the presence of exclusivity agreements increased. Regarding cross-border integration of payment systems, the number of countries that have established at least one type of link for cross border payments and settlement is very similar from the previous iteration (56 in 2018 compared to 54 in 2015).

Similar to the case of RTGS systems and the settlement of large-value payments, most jurisdictions are making progress in adopting international standards and best practices for securities and derivatives clearing and settlement. For example, with two exceptions, all reported SSSs have DVP mechanisms in place. Moreover, all the SSSs that reported using DVP model 2 or model 3 indicated there is a guarantee fund or other risk management mechanism in place (other than a CCP) to mitigate counterparty risk. As another example, 93 percent of the reported CCPs apply margin requirements and a similar percentage perform mark-to-market valuation. Furthermore, 82 percent of CCPs report maintaining sufficient liquid resources to withstand the default of the participant and its affiliates that would generate the largest aggregate payment obligation.

For what concerns national payment system oversight, 91 percent of respondents indicate that this function has been established and it is performed regularly and on an ongoing basis, and 93 percent mentioned that they have a specific unit or department responsible for this function. Safety and efficiency remain as the key objectives of oversight in high-income countries, while the remaining economies usually adopt additional objectives like the promotion of competition and of financial inclusion. GPSS 2018 shows that in more countries the scope of oversight is expanding to also include retail payment systems and payment instruments. Payment services are also being increasingly overseen.

GPSS 2018 was expanded to include a specific section covering innovative payment services that are provided directly to end users, and another specific section covering Fintech. In the area of innovative payment services, a majority of countries indicated availability of the following services: provision of payment gateways for e-commerce, mobile money services, QR code payment acceptance and mobile money payment acceptance. Slightly less than half and up to one-third of economies also report having merchant aggregation services, bill payment aggregation, white-label ATM and POS networks and payment initiation services via third parties using APIs. Interoperability of some these services is still limited. For example, two-thirds of the responding economies indicate no interoperability between mobile money service providers. Likewise, while the number of merchants accepting QR code appears to be reaching significant numbers, interoperability among providers of QR code services for payments is still low.

In 2018, the fifth GPSS was expanded to collect information to include additional aspects of fintech issues. More than 60 percent of survey respondents permit Fintech activity by both banks and non-banks in payments and other areas like consumer lending, crowdfunding, insurance, microfinance and others. Regarding risks, protection of consumer funds ranks at the top of regulatory concerns. About half of the respondents mentioned they do not have specific plans to introduce regulations to license Fintech companies, while about one-third already have licensing requirements in place, and the remaining ones are planning to have them in place by 2021. In the area of CBDCs, 54 percent of respondent are studying the pros and cons of CBDCs but have not taken a decision on it yet and one-third have not conducted studies at all. Another 15 percent indicate they have studied these issues and have already decided not to issue CBDCs.

Finally, in the area of reforms, 81 percent of the surveyed economies are planning or are already implementing one or more reforms to their NPS. This marks a small decrease from the 89 percent registered in 2015. These reforms are being planned or are occurring in 87 percent of upper-middle-income, 93 percent of lower-middle-income and 88 percent of low-income economies. By contrast, only 66 percent of high-income economies are engaging in reforms. Increasing the overall efficiency of the NPS and responding to technological innovation were the top motivations for engaging in reforms. However, for low-income and lower middle-income jurisdictions another important reason is the need to expand access of the population to financial products and services.

METHODOLOGY

Payment and settlement systems/services and remittances are in the core of the economic activity and the financial sector. Payment systems promote economic and financial development: improvements in the national payments system lead to savings for the overall economy, while financial markets benefit from efficient post-trade processing and the safe custody of securities. Well-designed payment systems support financial stability by reducing systemic and settlement risks, acting as a firewall to prevent contagion of losses, facilitating proper liquidity management, and through the effective transmission of monetary policy. Also, payment systems are a critical enabler of financial inclusion. On the other hand, transaction accounts offered by banks and other payment service providers (PSPs) allow people to make and receive payments in a cost-efficient way, and to store some monetary value.

In this context, for over twenty years the World Bank Group (WBG) has been supporting national authorities in improving national payments systems, in cooperation with private sector stakeholders, through a broad range of financing, technical assistance, and knowledge instruments. Global data is instrumental to benchmarking and monitoring & evaluation, and helps identify common paths and solutions. The WBG therefore launched the Global Payment Systems Survey (GPSS) for the first time in 2007, to collect information on the status of payment systems worldwide. Since then, the GPSS has assisted authorities and policy makers in making meaningful cross-country comparison and assess progress in national payments system (NPS) development and has facilitated dissemination of best practices.

In 2018, the fifth GPSS was expanded to collect information to include additional aspects of fintech issues and payment services, the latter focusing on the underlying innovations that enable enhanced access to and usage of transaction accounts.

This note provides results of the analysis of the qualitative data collected through the fifth GPSS, which hereinafter is referred to as the "GPSS 2018".[1] The purpose of this analysis is to identify trends in the underlying legal, regulatory and oversight frameworks and the infrastructure foundations that underpin the safe and efficient provision of payment and settlement services.

THE GPSS QUESTIONNAIRE

To identify the qualitative features of NPS, the GPSS questionnaire spans the following areas: (i) legal and regulatory framework, (ii) large-value payment systems, (iii) retail payment systems and services, (iv) foreign exchange settlement systems, (v) cross-border payment systems and international remittances, (vi) securities and derivatives clearing and settlement systems, and (vii) NPS oversight and cooperation. The questionnaire was also expanded to cover new areas in this fifth iteration: (viii) payment services, (ix) fintech, and (x) on-going and planned reforms to the NPS. Legal and regulatory framework and payment systems oversight sections also include new questions to capture innovations in the relevant areas.

[1] The survey was conducted in 2019. Data and qualitative information on the various aspects of NPSs was collected as of end-2018, although in a few countries the latest information available was from 2017 or earlier.

ANSWERS

The survey was carried out through electronic means rather than through in-person interviews. In most of the questions, respondents were requested to answer yes or no, or identify all possibilities that may apply. In some cases, respondents were asked to indicate the answer that best reflected their situation; in other cases, they were asked to provide an opinion or make a judgment on a given issue. In this context, it was sometimes difficult to ensure a consistent interpretation of all survey responses Answers were taken as "given" by respondents to the extent possible. Solely for comparative analysis, some answers were adjusted based on direct knowledge of the systems' features, and in consultation with the authorities.

DATA ANALYSIS[2]

Apart from providing information on global trends, this note also aims at identifying whether and to what extent certain general factors influence the national payments system features and its overall development. Three such broad economy-level characteristics, which are considered exogenous to the national payments system development, have been consistently used across GPSS iterations and include: i) level of *per capita* income; ii) geographical location; and, iii) population size.[3] In the 2018 iteration, the first two classifications are maintained through sections I through X of this report, as follows:

- By level of *per capita* income: economies were classified following the WBG's income classifications: i) high income; ii) upper-middle income; iii) lower-middle income; and, iv) low income.[4]
- By geographical region: developing economies were classified according to the WBG's regional country classifications: i) East Asia and Pacific (EAP); ii) Europe and Central Asia (ECA); iii) Latin America and the Caribbean (LAC); iv) Middle East and North Africa (MNA); v) South Asia (SA); and, vi) Sub-Saharan Africa (SSA). The group "high-income OECD" covers countries that are both member countries of that organization and high-income, and therefore excludes emerging economies like Mexico or Turkey.

Additionally, other country classifications are used sporadically throughout the report. These new classifications are: Euro Zone countries and Small States,[5] to name a few.

---

[2] The analysis was done on the Keshif platform.

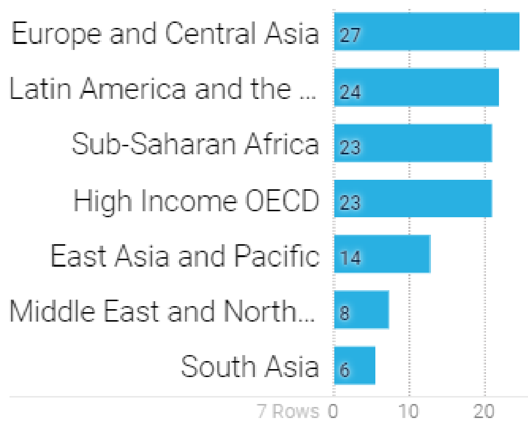
[3] These and other factors were identified in the CPMI General Guidance for National Payment System Development. More specifically, the CPMI report identifies four general factors influencing national payment system development: i) environmental factors, ii) economic factors; iii) financial factors; and iv) public policy factors. Following the CPMI classification, two of the categories selected for analysis in this paper (geographical location and population size) would fall under the "environmental factors" group, while the "level of income" category would fall under the "economic factors" group.

[4] Two cases deserve special treatment: 1) that of the countries belonging to the Western Africa Monetary Union (BCEAO) comprised of Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo; 2) countries belonging to Eastern Caribbean Currency Union (ECCU) consisting of Anguilla, Antigua, and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines. The questionnaire was sent to and received from the BCEAO and Eastern Caribbean Central Bank (EECB). Whenever the issue under discussion related to the number of countries, answer from the BCEAO and the ECCU were counted as one. Please see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups for World Bank's classification of countries by income and region.

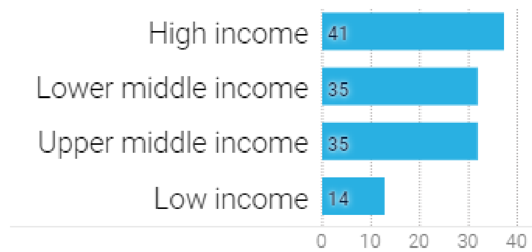
[5] Please see https://www.worldbank.org/en/country/smallstates. The list of Small States is available at: http://pubdocs.worldbank.org/en/922761504726183951/COUNTRY-LINK-Small-States.pdf

A total of 125 jurisdictions responded to the survey. The breakdown of respondents by region and income group are presented in the chart below.

REGION



INCOME GROUP



Numbers and percentages presented throughout this note, as well as the comparative tables,[6] are based on the simple addition of the number of economies in each of the categories and worldwide totals. In other words, different weights to each economy based on country-specific characteristics such as economic size or other variables are not applied.

Finally, caution should be used when comparing the latest results with those of previous iterations of the survey: the number of economies and systems have changed, and the responding countries have varied with each iteration of the survey as well as with each question in this iteration. Moreover, income classifications continue to change over time and changes also exist in the geographical classification (e.g., European Union member countries). Institutional and infrastructure developments in this area may complicate or even invalidate comparison of the current results to those collected during the past rounds of survey. Nevertheless, the GPSS continues to represent a valid and critical tool to monitor the status of NPS developments across the world.

[6] Comparative tables, for this and the previous iterations of the GPSS, are available for download at the following link: http://www.worldbank.org/en/topic/paymentsystemsremittances/brief/gpss

SECTION I: LEGAL AND REGULATORY FRAMEWORK

This section focuses on the legal basis for payment and securities settlement systems, covering the main relevant laws, the key legal concepts and how they apply to the various payment and settlement systems in a country. It also analyses selected legal aspects in the provision of payment services, licensing of payment service providers and payments oversight arrangements.

PIECES OF LEGISLATION THAT HAVE DIRECT/EXPLICIT REFERENCES TO PAYMENT AND SECURITIES SETTLEMENT SYSTEMS

As in the previous GPSS iteration, the central bank law is still the basic legal reference for payment and settlement issues across jurisdictions and regions, as indicated by 98 percent of all countries that participated in the current survey. This trend is consistent across economies in each of the income groups and across all regions. **Table I.1** and **Chart I.1** provide insights into pieces of legislation with explicit reference to payment systems.

In addition to the central bank law, more than three quarters of economies responded having banking laws and/or central bank regulations with the power of Law as relevant legal support for payment and settlement issues. These seem to be especially relevant in the MNA region, with all responding economies indicating having both.

Enacting a payment system law has been identified as a clear trend. Such law can provide the necessary legal basis for payment systems, services and instruments in economies with a less articulated legal infrastructure for payments. Payment system laws are found in 82 responding economies (72 percent of the total). This is a significant increase compared to the first GPPS survey in 2007 where this type of law was found in only 46 percent of the responding economies. Currently, a payment system law is especially relevant in the SSA region with 91 percent of the economies indicating they have one, followed by the ECA region (82 percent). At least 75 percent of the middle (lower and upper) income and low-income economies has adopted a payment systems law.

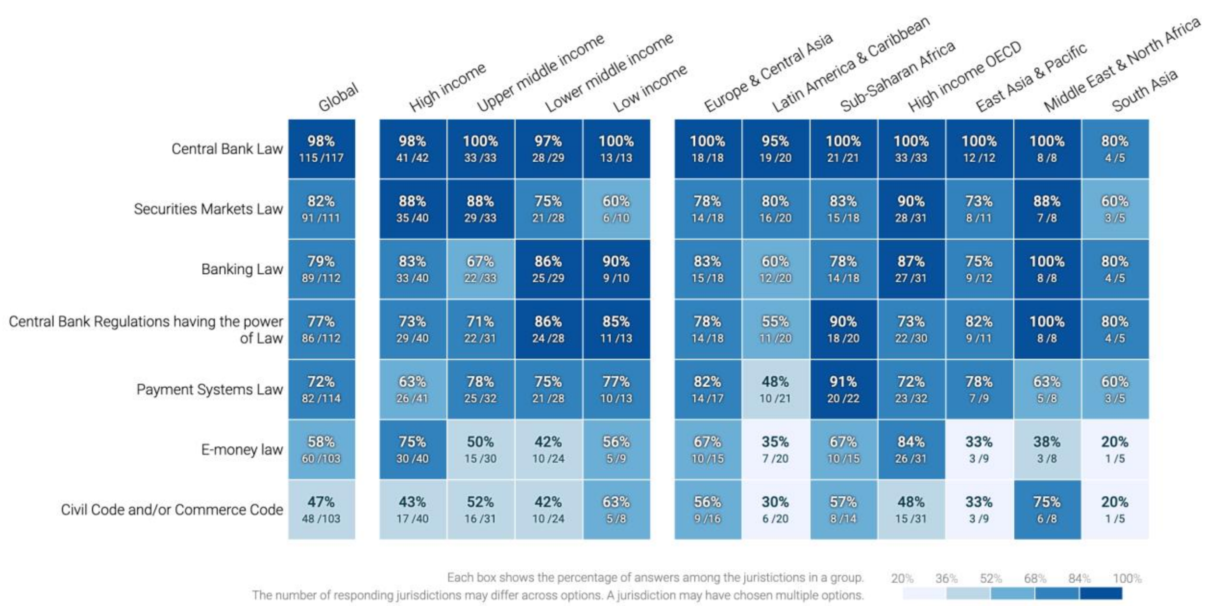
Electronic money (e-money) laws have also been enacted in 58 percent of the survey respondents. They are more prevalent in high-income economies, with 75 percent of the survey economies indicating the existence of such laws. In comparison, only 56 percent of low-income economies had e-money laws in place. A regional analysis shows that a e-money laws can be found especially in high income OECD countries (84 percent of the total), while they are least relevant in SA (only one country reported having such law). It must be noted, however, that in several cases e-money is covered in the Payment System Law, which regulates e-money providers as a category of PSPs.

The number of economies with securities markets laws that now include references to payment and settlement aspects has continued to grow since 2012: 70 percent in the 2012 survey, 77 percent in the 2015 survey, and 82 percent in the current iteration of the GPSS. In the latest iteration, this figure is 88 percent in high-income economies and in upper middle-income economies compared to 75 and 60 percent in lower middle-income and low-income economies, respectively.

Globally, the Civil and/or Commerce code is less relevant than the other pieces of legislation as a legal reference for payment and settlement related issues, since it only addresses the recognition of legal concepts such as netting and clearing. Nevertheless, reference to Civil or Commercial code has been provided by 63 percent of low-income countries. From a regional perspective, such piece of legislation is most relevant in the MNA region (75 percent of the responding countries).

In summary, the legal and regulatory framework for payment and settlement systems, payment services and payment instruments comprises several co-existing pieces of legislation. In those jurisdictions where a payment system law has been adopted, this serves the purpose of regulating the sector in a comprehensive way and ensures consistency of the various elements of the legal and regulatory framework already contained in other legal pieces, such as the central bank law or the banking law, that continue to play a role.

Chart I.1: Legislation regulating payment and settlement systems and related aspects

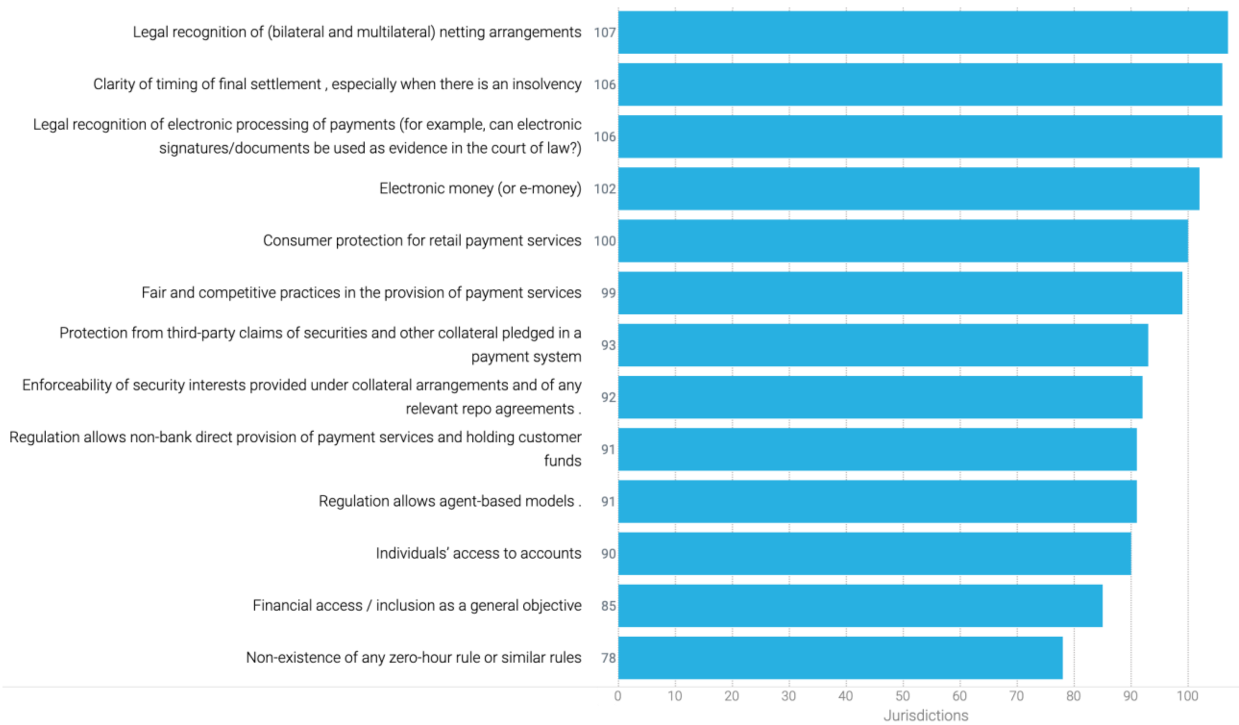


KEY PAYMENT CONCEPTS COVERED IN THE LEGAL FRAMEWORK

As shown in **Table I.2** and **Figure I.1**, at the global level, most survey respondents indicate that their legal framework provides proper coverage of settlement finality (88 percent), netting (91 percent), and the electronic processing of payments (90 percent). These percentages are slightly higher compared to the results from 2015 where the percentages for these same concepts were 79, 86 and 88 percent, respectively.

Figure I.1: Legal Provisions Coverage

(number of jurisdictions where each legal concept or activity is covered by legislation)



Regarding other legal concepts underpinning payment and settlement systems, the vast majority of the economies surveyed have in place legal provisions covering enforceability of security interests provided under collateral arrangements (84 percent) and protection from third-party claims of securities and collateral pledged in a payment system (82 percent). Regarding retail payment services and instruments, having consumer protection for retail payment services in place is indicated by 86 percent of the responding countries, fair and competitive practices in the provision of payment services by 86 percent, and e-money by 85 percent.

As for concepts associated with enhancing financial access and inclusion, more than three quarters of economies indicated the presence of regulations allowing agent-based models (79 percent), non-bank direct provision of payment services and holding of customer funds for payments (77 percent), as well as provisions regulating individuals' access to accounts (76 percent). These numbers are quite promising as not so long ago, these concepts were not covered adequately worldwide from a legal perspective.

From a regional perspective, the ECA and SSA regions and high-income OECD countries cover a larger number of key payment concepts in their legal framework. In comparison, the SA region had much lower coverage across all the payment aspects. Financial access and inclusion have been a primary objective for enhancing the legal and regulatory frameworks and infrastructure in the SSA (91 percent) and MNA (88 percent) regions, but slightly less so in the other regions.

Low-income economies are also focusing on individual's access to accounts as a major objective of regulation, with 92 percent of these economies indicating this.

KEY SECURITIES SETTLEMENTS CONCEPTS COVERED IN THE LEGAL FRAMEWORK

The overall results of this section of GPSS 2018 follow the trends identified in the previous iterations of the survey.

Table I.3 and **Chart I.2** display survey results regarding key securities settlements concepts covered in the legal framework. Globally, 93 percent of the respondents indicate that finality of settlement is covered within their legal framework. This trend is consistent across each of the income groups and regions. Finality of settlement and protection of collateral were indeed the focus of major legal reforms in the past, and, similar to what mentioned above in relation to payments, when settlement finality and protection of collateral were not regulated by other laws they were often covered by adopting a payment system law.

Chart I.2: Securities settlement concepts covered by legislation

(percent of economies worldwide where each concept is covered by legislation)

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Legal recognition of (bilateral and multilateral) netting arrangements	91% 107/118	88% 36/41	94% 33/35	93% 27/29	85% 11/13	100% 17/17	82% 18/22	95% 21/22	91% 29/32	83% 10/12	88% 7/8	100% 5/5
Legal recognition of electronic processing of payments	90% 106/118	95% 39/41	88% 30/34	93% 28/30	69% 9/13	94% 17/18	76% 16/21	82% 18/22	100% 32/32	100% 12/12	88% 7/8	80% 4/5
Clarity of timing of final settlement, especially when there is an insolvency	88% 106/120	95% 40/42	91% 32/35	77% 23/30	85% 11/13	100% 18/18	77% 17/22	91% 20/22	100% 33/33	75% 9/12	88% 7/8	40% 2/5
Consumer protection for retail payment services	86% 100/116	93% 37/40	77% 27/35	89% 25/28	85% 11/13	94% 16/17	68% 15/22	91% 20/22	94% 29/31	92% 11/12	75% 6/8	75% 3/4
Fair and competitive practices in the provision of payment services	86% 99/115	88% 36/41	80% 28/35	93% 25/27	83% 10/12	100% 17/17	68% 15/22	95% 20/21	91% 29/32	82% 9/11	88% 7/8	50% 2/4
Electronic money (or e-money)	85% 102/120	88% 37/42	77% 27/35	93% 28/30	77% 10/13	83% 15/18	59% 13/22	91% 20/22	94% 31/33	92% 11/12	100% 8/8	80% 4/5
Enforceability of security interests provided under collateral arrangements and of any relevant repo agreements .	84% 92/109	92% 36/39	82% 28/34	80% 20/25	73% 8/11	93% 13/14	68% 15/22	81% 17/21	97% 29/30	82% 9/11	86% 6/7	75% 3/4
Protection from third-party claims of securities and other collateral pledged in a payment system	82% 93/114	88% 36/41	83% 29/35	70% 19/27	82% 9/11	93% 14/15	73% 16/22	81% 17/21	91% 29/32	75% 9/12	63% 5/8	75% 3/4
Regulation allows agent-based models .	79% 91/115	71% 29/41	83% 29/35	85% 23/27	83% 10/12	83% 15/18	64% 14/22	95% 20/21	81% 26/32	64% 7/11	86% 6/7	75% 3/4
Regulation allows non-bank direct provision of payment services and holding customer funds	77% 91/118	81% 34/42	71% 25/35	76% 22/29	83% 10/12	76% 13/17	59% 13/22	86% 19/22	85% 28/33	83% 10/12	75% 6/8	50% 2/4
Individuals' access to accounts	76% 90/118	78% 32/41	66% 23/35	79% 23/29	92% 12/13	78% 14/18	55% 12/22	86% 19/22	84% 27/32	67% 8/12	100% 8/8	50% 2/4
Financial access / inclusion as a general objective	73% 85/117	71% 29/41	69% 24/35	75% 21/28	85% 11/13	61% 11/18	59% 13/22	91% 20/22	78% 25/32	64% 7/11	88% 7/8	50% 2/4
Non-existence of any zero-hour rule or similar rules	70% 78/111	76% 31/41	71% 25/35	58% 14/24	73% 8/11	73% 11/15	55% 12/22	78% 14/18	81% 26/32	55% 6/11	75% 6/8	60% 3/5

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

40% 52% 64% 76% 88% 100%

In most of the surveyed economies, the legal underpinning for dematerialization of securities (88 percent), immobilization of securities (84 percent), for transferring securities ownership by means of book entries (88 percent) and the enforceability of delivery *versus* payment for securities settlement (87 percent) already exist. Although these numbers appear comforting, the latter data on DVP still calls for additional action in some countries, as this concept has been internationally recognized as relevant for over 25 years now. Percentages are higher for high- and middle-income economies and lower for low-income economies and parallel the development of the overall development of capital markets and their legislation.

Enforceability of security interests provided under collateral/repo arrangements and the protection from third-party claims of the securities and other collateral pledged in a system are covered in 84 and 82 percent of jurisdictions globally, respectively. In the 2015 iteration, these percentages were 77 and 75 percent, implying there has been significant improvement in these issue over the last three years.[7]

OTHER LAWS AND REGULATIONS THAT ARE RELEVANT FOR PAYMENTS

Chart I.3 presents other types of legislation that have become or are now becoming increasingly relevant for payments. AML/CFT laws exist in practically all responding economies (97 percent). General law on consumer protection, competition laws, data privacy laws and electronic signature laws are also fairly common. In contrast, laws or regulations on digital ID and on e-invoicing exist in only about one-third of all responding economies.

Chart I.3: Other legislation that is becoming increasingly relevant for payments

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Anti-Money Laundering/Counter Financing of Terrorism (AML/CFT) Law	97% 113/116	100% 42/42	94% 32/34	96% 27/28	100% 12/12	100% 18/18	90% 19/21	100% 21/21	100% 33/33	100% 11/11	100% 7/7	80% 4/5
General Consumer Protection Law	84% 98/116	88% 37/42	85% 29/34	82% 23/28	75% 9/12	94% 17/18	81% 17/21	76% 16/21	85% 28/33	82% 9/11	86% 6/7	100% 5/5
Data privacy laws	78% 91/116	98% 41/42	68% 23/34	68% 19/28	67% 8/12	94% 17/18	57% 12/21	76% 16/21	97% 32/33	55% 6/11	86% 6/7	40% 2/5
Competition Law	77% 89/116	93% 39/42	74% 25/34	64% 18/28	58% 7/12	83% 15/18	57% 12/21	71% 15/21	97% 32/33	73% 8/11	71% 5/7	40% 2/5
E-signature laws/regulations	72% 83/116	74% 31/42	76% 26/34	61% 17/28	75% 9/12	89% 16/18	71% 15/21	52% 11/21	82% 27/33	82% 9/11	57% 4/7	20% 1/5
Financial Consumer Protection Law	53% 62/116	71% 30/42	41% 14/34	43% 12/28	50% 6/12	67% 12/18	29% 6/21	48% 10/21	76% 25/33	27% 3/11	71% 5/7	20% 1/5
Digital ID laws/regulations	37% 43/116	57% 24/42	29% 10/34	25% 7/28	17% 2/12	44% 8/18	19% 4/21	24% 5/21	67% 22/33	9% 1/11	14% 1/7	40% 2/5
E-invoicing laws/regulations	33% 38/116	43% 18/42	29% 10/34	29% 8/28	17% 2/12	28% 5/18	33% 7/21	19% 4/21	48% 16/33	36% 4/11	14% 1/7	20% 1/5

Each box shows the percentage of answers among the juristictions in a group.
A jurisdiction may have chosen multiple options.

0% 20% 40% 60% 80% 100%

From the perspective of country income groups, the findings indicate that the AML/ CFT laws and general consumer protection laws are consistently relevant across all income groups. In almost

[7] The percentages of the 2015 iteration were also higher than those of the 2012 iteration for these variables.

all other cases, these other laws are more prevalent in high-income economies. The gap between high-income and low-income economies is still more evident when it comes to digital ID laws/regulations and e-invoicing laws/regulations.

SELECTED LEGAL ASPECTS RELATED TO THE PROVISION OF RETAIL PAYMENT SERVICES

<u>Consumer protection</u>

According to survey results (see **Table I.5**), most jurisdictions responded that key consumer protection requirements have been largely provided for in their laws/regulations. This is the case regardless of income levels.

Certain aspects are still lagging in lower middle-income and low-income economies, however. For example, specifying and providing admissible disclosure of transactional and/ or personal data to the public is provided for in only 33 percent of low-income economies. Some of them currently indicate they are considering having the required provisions in place (**Chart I.4**).

The LAC region is slightly lagging behind other regions. For example, in the LAC region the aspect of specifying and making available recourse and dispute resolution mechanisms to the public is observed in 62 percent of the economies, the issue of protecting customers against third-party claims on their funds is provided for in 65 percent of the region's economies, and providing admissible disclosure of transactional and/ or personal data to the public is present in 45 percent of the economies in this region. The global averages for these consumer protection requirements are 86, 79 and 73 percent, respectively. Protection to consumers against fraud in the form of limited liability is less prevalent in the MNA region.

Chart I.4: Consumer protection requirements

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Terms, conditions, fees, and customer rights have to be disclosed prior to executing contract / transaction	95% 105 /111	98% 39 /40	90% 28 /31	97% 28 /29	91% 10 /11	100% 16 /16	81% 17 /21	95% 18 /19	100% 31 /31	100% 11 /11	88% 7 /8	100% 5 /5
Recourse and dispute resolution mechanisms are specified and available to the public	86% 96 /111	88% 35 /40	81% 25 /31	93% 27 /29	82% 9 /11	88% 14 /16	62% 13 /21	95% 18 /19	94% 29 /31	100% 11 /11	88% 7 /8	80% 4 /5
Customers are protected against unauthorized transactions in the form of (limited) customer liability	82% 91 /111	85% 34 /40	77% 24 /31	86% 25 /29	73% 8 /11	100% 16 /16	71% 15 /21	79% 15 /19	94% 29 /31	73% 8 /11	50% 4 /8	80% 4 /5
Customers are protected against third-party claims on customers' funds	79% 84 /106	85% 33 /39	73% 22 /30	75% 21 /28	89% 8 /9	81% 13 /16	65% 13 /20	89% 16 /18	86% 25 /29	70% 7 /10	75% 6 /8	80% 4 /5
Admissible disclosure of transactional and/or personal data is specified and available to the public	73% 78 /107	85% 33 /39	67% 20 /30	76% 22 /29	33% 3 /9	81% 13 /16	45% 9 /20	56% 10 /18	93% 27 /29	82% 9 /11	88% 7 /8	60% 3 /5

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

33% 47% 60% 73% 87% 100%

Globally, and across all income groups and regions, almost all economies that responded to this particular question of the survey indicated that terms, conditions, fees, and customer rights are to be disclosed prior to the customer entering into a contract or performing a transaction.

Measures supporting financial inclusion

Regarding specific measures to support financial inclusion and access to payment services, around 69 percent of the responding jurisdictions require the provision of basic accounts. Interestingly, while 74 percent of the high-income jurisdictions require basic payment account provision, only 58 percent of low-income jurisdictions do so (**Chart I.5**)

Chart I.5 – Regulation of Basic Payment Accounts

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Regulation includes consumer protections (e.g. dispute resolution, disclosure)	84% 85/101	83% 30/36	78% 21/27	88% 23/26	92% 11/12	64% 9/14	72% 13/18	94% 17/18	93% 26/28	90% 9/10	75% 6/8	100% 5/5
Provision of basic payment accounts is regulated	78% 85/109	87% 34/39	65% 20/31	81% 22/27	75% 9/12	56% 9/16	75% 15/20	74% 14/19	93% 28/30	73% 8/11	88% 7/8	80% 4/5
Regulation allows KYC/CDD to be performed by agents of financial institutions or e-money issuers	72% 68/95	52% 16/31	69% 18/26	85% 22/26	100% 12/12	50% 7/14	72% 13/18	100% 18/18	59% 13/22	70% 7/10	88% 7/8	60% 3/5
Tiered KYC/CDD requirements exist which are tailored to facilitate the opening of basic payment accounts	71% 71/100	54% 19/35	68% 19/28	88% 22/25	92% 11/12	29% 4/14	85% 17/20	94% 16/17	56% 14/25	64% 7/11	100% 8/8	100% 5/5
There is a regulatory requirement to provide basic payment accounts	69% 75/108	74% 29/39	70% 21/30	67% 18/27	58% 7/12	60% 9/15	65% 13/20	63% 12/19	83% 25/30	64% 7/11	75% 6/8	60% 3/5
Basic payment accounts are protected by deposit insurance or similar mechanism	58% 56/97	66% 23/35	58% 15/26	54% 14/26	40% 4/10	50% 7/14	41% 7/17	53% 10/19	73% 19/26	55% 6/11	83% 5/6	50% 2/4
Regulation includes financial capability / literacy responsibilities for providers	55% 53/96	46% 16/35	46% 12/26	68% 17/25	80% 8/10	57% 8/14	53% 9/17	82% 14/17	38% 10/26	40% 4/10	57% 4/7	80% 4/5
For non-bank e-money issuers, the deposit to a Bank account of an amount of cash equivalent to issued e-money is required.	55% 52/95	25% 8/32	59% 16/27	72% 18/25	91% 10/11	17% 2/12	33% 6/18	89% 17/19	33% 8/24	91% 10/11	71% 5/7	100% 4/4
Regulation includes parameters for payment transaction fees / conditions (e.g., fee caps, no fees, etc.)	50% 52/103	62% 23/37	39% 11/28	54% 14/26	33% 4/12	21% 3/14	47% 9/19	56% 10/18	75% 21/28	18% 2/11	75% 6/8	20% 1/5
There are restrictions on the types of payment transactions that can be performed	45% 46/102	41% 15/37	29% 8/28	62% 16/26	64% 7/11	29% 4/14	33% 6/18	50% 9/18	50% 14/28	45% 5/11	63% 5/8	60% 3/5
The bank account mentioned above is required to be named to holders of issued e-money	44% 35/79	29% 7/24	50% 10/20	54% 13/24	45% 5/11	18% 2/11	21% 3/14	63% 10/16	33% 5/15	60% 6/10	63% 5/8	80% 4/5
Provisions allow for basic payment accounts in the form of e-money to be issued by non-banks	43% 43/99	20% 7/35	42% 11/26	62% 16/26	75% 9/12	7% 1/14	28% 5/18	72% 13/18	23% 6/26	70% 7/10	75% 6/8	100% 5/5
Regulation includes parameters for minimum balance requirements (allow for having a zero balance)	35% 35/101	17% 6/36	33% 9/27	62% 16/26	33% 4/12	7% 1/14	37% 7/19	56% 10/18	23% 6/26	27% 3/11	63% 5/8	60% 3/5
Regulation requires that basic payment accounts be opened free of charge	32% 33/102	19% 7/36	29% 8/28	46% 12/26	50% 6/12	0% 0/14	47% 9/19	56% 10/18	22% 6/27	18% 2/11	63% 5/8	20% 1/5
Regulation includes limits on volume or value of cash withdrawals	32% 33/102	8% 3/36	32% 9/28	50% 13/26	67% 8/12	7% 1/14	42% 8/19	61% 11/18	7% 2/27	27% 3/11	50% 4/8	80% 4/5
Regulations apply limits on account balance	30% 30/100	11% 4/36	30% 8/27	58% 15/26	27% 3/11	7% 1/14	39% 7/18	41% 7/17	15% 4/27	27% 3/11	50% 4/8	80% 4/5

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.
0% 20% 40% 60% 80% 100%

Overall, a larger share of middle-income and low-income economies have in place regulations that allow know-your-customer (KYC) and customer due diligence (CDD) to be performed by agents of financial institutions and e-money issuers (see **Table I.6**). Tiered KYC/CDD requirements tailored to facilitate the opening of basic payment accounts are in fact present more prominently in developing economies, especially in the MNA and SA and SSA regions. Moreover, all economies from SA that answered the survey indicated they have provisions allowing for basic payment accounts in the form of e-money to be issued by non-banks, compared to a global average of 43 percent, and only 20 percent for high-income economies.

In terms of customer protections for basic payment accounts, the evidence is mixed across groups of economies:

- The regulation for basic payment accounts includes consumer protection clauses such as dispute resolution and disclosures in around 84 percent of reporting jurisdictions, and there is not much difference across the country groups.
- Basic payment accounts are protected by deposit insurance or a similar mechanism in 58 percent of the reporting jurisdictions and in 66 percent of the reporting high-income economies.
- Fifty-five percent of the reporting jurisdictions mandate financial literacy responsibilities for providers. This is much higher among low-income economies (80 percent of the responding jurisdictions).
- Fifty-five percent of the responding central banks noted that non-bank e-money issuers are required to deposit all the balances in an account at a bank. In low-income economies, this figure is as high as 91 percent.

E-money transactions

The survey shows that the most popular transactions with e-money products are person-to-person (P2P) payments (90% at the global level), bill payments (88%) and international remittances (84%) and associated deposits and withdrawals. Overall, agents are commonly used for various transactions involving e-money products. About three quarters of the responding central banks noted that cash-in and cash-out transactions are allowed at agent locations for e-money products, and another 13 percent noted that such transactions are supported for e-money products, however not through agents. Thirteen and eleven percent of the respondents noted cash-in/deposits and cash-out/withdrawal transactions cannot be performed using an e-money product, respectively.

Around 62 percent of the responding jurisdictions allow for using e-money products for international remittances transactions. This is more prevalent in high-income OECD countries and in the ECA region.

Public salary payments via e-money accounts are legally possible in half of the responding jurisdictions. This is more prevalent in the ECA and LAC, and quite rare in MNA.

P2P domestic transfers are allowed via e-money products at agent locations in 68 percent of the responding jurisdictions. In another 22 percent of the responding jurisdictions they are allowed but not through agents. Similar figures are observed for bill payments.

Taxes applicable to accounts and payment activities

GPSS 2018 asked two types of questions regarding taxes: i) Taxes on fees that are charged for the provision of payment services; ii) Taxes applicable directly to the payment activity, e.g. typically over the principal amount of the payment.

For the first question, the results are shown in **Chart I.6**. The fees applicable to sending international remittances are taxed in 85 percent of economies globally, and reach 100 percent in the EAP, ECA and MNA regions. Countries in the high-income OECD category apply taxes to the applicable fees on payment activities more than other regions.

In the case of ECA, according to survey results all economies in this region apply taxes over the applicable fees on sending international remittances, transferring funds from a bank account and withdrawing cash from a bank account, but do not apply such taxes over any of the other payment services that were included in the survey questionnaire. Regarding e-money, fees applicable to cash-outs are taxed more frequently than fees for cash-ins.

Chart I.6: Prevalence of taxes that apply over the fees that are charged on payment activities

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Sending international remittances	85% 34/40	91% 10/11	89% 8/9	82% 9/11	78% 7/9	100% 1/1	87% 13/15	83% 10/12	83% 5/6	100% 2/2	100% 2/2	50% 1/2
Transfer from bank account	73% 29/40	82% 9/11	78% 7/9	64% 7/11	67% 6/9	100% 1/1	60% 9/15	67% 8/12	100% 6/6	100% 2/2	50% 1/2	100% 2/2
Cash withdrawal from bank account	53% 21/40	82% 9/11	44% 4/9	36% 4/11	44% 4/9	100% 1/1	40% 6/15	58% 7/12	100% 6/6	0% 0/2	50% 1/2	0% 0/2
E-money account to e-money account funds transfer	50% 20/40	55% 6/11	44% 4/9	27% 3/11	78% 7/9	0% 0/1	33% 5/15	75% 9/12	83% 5/6	0% 0/2	0% 0/2	50% 1/2
E-money cash-out	50% 20/40	55% 6/11	33% 3/9	36% 4/11	78% 7/9	0% 0/1	33% 5/15	67% 8/12	100% 6/6	0% 0/2	0% 0/2	50% 1/2
Receiving international remittances	45% 18/40	73% 8/11	33% 3/9	27% 3/11	44% 4/9	0% 0/1	33% 5/15	33% 4/12	83% 5/6	100% 2/2	50% 1/2	50% 1/2
E-money cash-in	30% 12/40	45% 5/11	11% 1/9	9% 1/11	56% 5/9	0% 0/1	13% 2/15	42% 5/12	83% 5/6	0% 0/2	0% 0/2	0% 0/2
E-money account opening	20% 8/40	45% 5/11	22% 2/9	0% 0/11	11% 1/9	0% 0/1	20% 3/15	8% 1/12	67% 4/6	0% 0/2	0% 0/2	0% 0/2

Each box shows the percentage of answers among the juristictions in a group.
A jurisdiction may have chosen multiple options.
0% 20% 40% 60% 80% 100%

Chart I.7: Prevalence of taxes that apply over the principal of a payment made or received

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Sending international remittances	31% 26/84	12% 3/26	39% 9/23	40% 10/25	40% 4/10	7% 1/14	53% 10/19	50% 8/16	11% 2/18	14% 1/7	20% 1/5	60% 3/5
Sending domestic funds transfer	25% 20/80	8% 2/26	24% 5/21	33% 8/24	56% 5/9	8% 1/13	28% 5/18	63% 10/16	11% 2/18	17% 1/6	20% 1/5	0% 0/4
Receiving international remittances	21% 17/82	8% 2/26	26% 6/23	22% 5/23	40% 4/10	14% 2/14	30% 6/20	36% 5/14	6% 1/18	0% 0/7	20% 1/5	50% 2/4
Receiving domestic funds transfer	14% 11/79	4% 1/26	23% 5/22	9% 2/22	33% 3/9	15% 2/13	16% 3/19	29% 4/14	6% 1/18	0% 0/6	20% 1/5	0% 0/4

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.
0% 13% 25% 38% 50% 63%

Regarding taxes on the principal of a payment made or received, **Chart I.7** shows that, at the global level, taxes are slightly more prevalent when sending international remittances (31 percent of all cases) than for domestic funds transfers (25 percent). Interestingly, in the case of international remittances only 12 percent of high-income economies - which are typically remittance-sending economies – apply a tax on the principal amount sent. On the contrary, 40 percent of low-income and 40 percent of lower-middle-income economies – many of which receive large amounts of remittances – apply taxes on the principal amount of remittances received. LAC, SSA and SA are the regions that show more prevalence of taxes on the principal of international remittances both sent and received.

Regarding the taxation of the principal when sending domestic funds transfers, compared to the global average of 25 percent, taxation is much more prevalent in the SSA region at 63 percent. When receiving domestic funds transfers, taxation on the principal is applied in 14 percent of the responding jurisdictions, while in the case of the SSA region this percentage is also higher at 29 percent.

Overall, and in contrast to the taxation of fees, high-income economies and high-income OECD economies are the ones that, as a region, apply taxes less frequently on the principal amount of a payment.

LEGAL FOUNDATIONS OF NPS OVERSIGHT

The NPS oversight function is discussed in detail in Section VIII of this report. However, issues related to the statutory empowerment of the central bank to perform this function are included in this section as part of the analysis of the legal and regulatory framework.

Tables I.8a and **I.8b** show indicators that relate to the legal basis of NPS oversight. These can be grouped in three broad categories: i) the law or laws where payments oversight powers are conveyed to the central bank; ii) whether such powers are implicit or explicit; and, iii) whether central banks are empowered to oversee other settlement systems - besides payment systems - such as securities settlement systems and/or central counterparties.

Overall, 98 percent of the responding central banks indicate that they have formal powers to perform NPS oversight. Central bank powers to oversee payment systems are explicit in 78 percent of the cases, while in the rest of the responding countries, the powers are provided in more general terms in the context of ensuring the safe and adequate functioning of payment systems. According to survey results, the lowest percentage is observed in high-income OECD countries at 60 percent.

Oversight powers of central banks are to be found mainly in central bank laws (88 percent of respondents), followed by payment system laws and other laws (68 percent and 42 percent of respondents, respectively).

LICENSING/REGISTRATION OF PAYMENT SYSTEM OPERATORS AND PAYMENT SERVICE PROVIDERS

GPSS 2018 asked on the requirement to obtain a license or registration for a wide range of payment system operators (PSOs), including financial market infrastructures (FMIs)[8] as well as various types of retail payment systems.

In the case of FMIs, CSD-SSSs require a license or registration or both in 93 percent of economies globally, although for those that only handle government securities this percentage is 81 percent, the likely cause being that the latter systems are often operated by the central bank itself. Ninety-seven percent of CCPs handling derivatives or other securities need to have a license or registration or both. However, the total number of responses for CCPs was significantly smaller as many lower income economies do not yet have a CCP in operation.

PSOs operating payment card networks need a license in 35 percent of jurisdictions globally. In high-income OECD countries, this percentage is only 14 percent, but rises to 75 percent in the EAP and MNA regions. In 44 percent of the responding economies automated clearinghouses (ACHs) need a license, and this percentage is 36 percent for cheque clearinghouses.

In the case of mobile money platform operators, no license or registration applies in only 15 percent of the responding economies globally. Only 10 percent of the countries in the EPA region (1 out of a total of 10 respondents) require this type of license.

Regarding licensing and/or registration of payment service providers (PSPs),[9] these are required to have a license or a registration or both in the majority of the responding jurisdictions. **(See Table I.10)**

<u>Permissible activities for non-bank PSPs</u>

GPSS also inquired about the permissible activities by different types of PSPs. Overall, money transfer operators (MTOs) are mainly allowed to transfer international remittances, contract agents, and act as agents of non-bank PSPs and banks. In a smaller number of responding jurisdictions they can also issue e-money and payment cards (debit and credit); and in very rare cases, they can accept deposits.

Mobile network operators (MNOs), on the other hand, are mainly allowed to contract agents, issue e-money, act as agents of banks and non-bank PSPs, in a smaller number of responding jurisdictions transfer international remittances, issue e-money and payment cards (debit and credit), and more rarely, can take deposits.

Supervised non-bank financial institutions (NBFIs) can issue e-money and payment cards (debit and credit), transfer international remittances, and can be agents of banks and non-bank PSPs. In about a third of the responding jurisdictions, they can also accept deposits.

---

[8] FMIs include payment systems, central securities depositories (CSD), securities settlement systems (SSS), central counterparties (CCP) and trade repositories (TR).

[9] For the purposes of GPSS 2018, PSPs include domestic MTOs, international MTOs, MNOs, payment card acquirers, bill payment aggregators, payment card issuers, payment card processors, ATM/POS drivers, white-label ATM companies, white-label POS companies, gateways, other supervised NBFIs, other unsupervised NBFIs, e-money issuers, and merchant aggregators.

Unsupervised NBFIs are more restricted in terms of the activities they can undertake. For example, in about a third of the responding jurisdictions, unsupervised NBFIs can become agents of banks and non-bank PSPs. In around 10-15 percent of the responding jurisdictions, they can issue payment cards (debit and credit) and contract agents, in 10 percent they are allowed to issue e-money and process international remittances, and in only 2 cases within the responding countries they are allowed to accept demand deposits form the public.

Lastly, other non-financial institutions seem to be those that are the most restricted in terms of the activities allowed.

<u>Licensing/registration requirements for non-bank PSPs</u>

On a worldwide level, supervised NBFIs, MTOs and non-bank e-money issuers are the most intensively regulated non-bank PSP types. The main requirements that are applicable to these types of non-bank PSPs are shown in **Table I.15.**

Table I.15: Most common licensing/registration requirements applicable to selected non-bank PSPs

(as a % of total number of responses to each requirement per each non-bank PSP type)

Requirement	Supervised NBFIs	MTOs	Non-bank e-money issuers
Fit-and-proper	91	79	66
AMF/CFT	90	85	70
Information security and data integrity	88	77	67
Minimum initial capital	88	68	65
Right to inspect and audit	87	80	68
Minimum authentication	87	79	69
Minimum liquidity	86	56	52
Minimum customer disclosures	86	82	67
Interoperability	77	50	71
Bank guarantees	70	57	57

SECTION II: LARGE-VALUE PAYMENT SYSTEMS

Having the capacity to generate and transmit disturbances of a systemic nature to the financial sector, large-value payment systems[10] have long been the focus of central banks' involvement in a country's national payments system, including through the direct operation of these systems. The importance of real time gross settlement (RTGS) of high-value and time-critical payments for limiting settlement and systemic risks has been extensively discussed in previous GPSS reports and is reflected in the broad adoption of RTGS systems worldwide.

This section begins with a landscape of large-value payment systems. It then turns to analyzing the specific features of RTGS systems, in particular risk management practices. Finally, it covers other types of arrangements for processing large-value payments.

SYSTEMS USED IN EACH ECONOMY FOR LARGE-VALUE FUNDS TRANSFERS

Information on the type of system used to process large-value payments is shown in **Table II.1a** the options being RTGS systems, cheque clearinghouses, and "other" systems.[11] A total of 120 jurisdictions (out of 125 that responded to the survey, equivalent to 96 percent) indicated they are using at least one RTGS system. As some RTGS systems are used by two or more jurisdictions (e.g. TARGET2 in the Euro area, among others), the total number of reported RTGS systems was 96.

At the same time, almost a quarter (24 percent) of the surveyed economies still use cheque systems for large-value payments. This situation prevails especially in 55 percent of reporting low-income economies, compared to only 10 percent of the high-income ones. These results are largely comparable to those collected in 2015.

A total of 19 economies (17 percent) indicated that they use a system other than an RTGS system or a cheque clearinghouse for large-value payments. In contrast to cheque systems, "other" types of systems for large-value payments are more prevalent in high-income economies with 8 of the 19 systems, while another 7 such systems are in lower middle-income economies. Such systems usually operate in addition to the RTGS system.

Table II.1b provides detailed information on the relative importance of systems for processing large-value payments based on volume breakdown data. The trend of increasingly processing large-value payment through RTGS systems instead of using cheques or "other" systems continues. In GPSS 2018, 87 percent of the reporting economies use their RTGS system to channel more than half of the total value of large-value payments (versus 82 percent in GPSS 2015). Conversely, the percentage of economies that use cheque systems for this same purpose decreased to 7 percent compared to 9 percent in 2015 and 13 percent in 2012. Consistent with what was mentioned in the previous paragraph, most of the jurisdictions still channeling more

[10] While, in general, the average value of each individual payment processed by these systems is high when compared to other systems (e.g. automated clearinghouses or payment cards switches), many of "large-value" systems covered in this section also process payments of relatively low value. In fact, the distinction between large value and retail payment systems is blurring in many countries. The distinction is kept in the GPSS also for historical and comparison reasons and because of the systemically important nature of many of these systems.

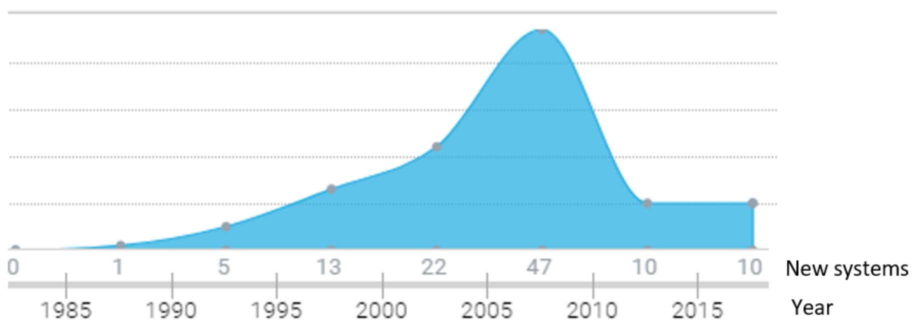
[11] Answers do not necessarily add up to 100 percent since several countries indicated more than one system through which large-value payments are executed.

than half of their large-value payments through cheque systems are low-income economies, mainly in the EAP and SA regions.

RTGS SYSTEMS

Figure II.1 below shows that most RTGS system implementation occurred in the decade of 2000s, peaking at 47 new systems in 2007-2008. Nine RTGS systems were implemented during this period in Small States – almost half of the 19 jurisdictions under this classification that answered the survey.

Figure II.1: Year of implementation of RTGS systems worldwide



As mentioned earlier in this section, some RTGS systems are used by multiple jurisdictions and also some jurisdictions have more than one RTGS system. Therefore, *the discussion on RTGS systems for the remainder of this section of the report takes as basis the number of the reported RTGS systems and not the number of jurisdictions.*

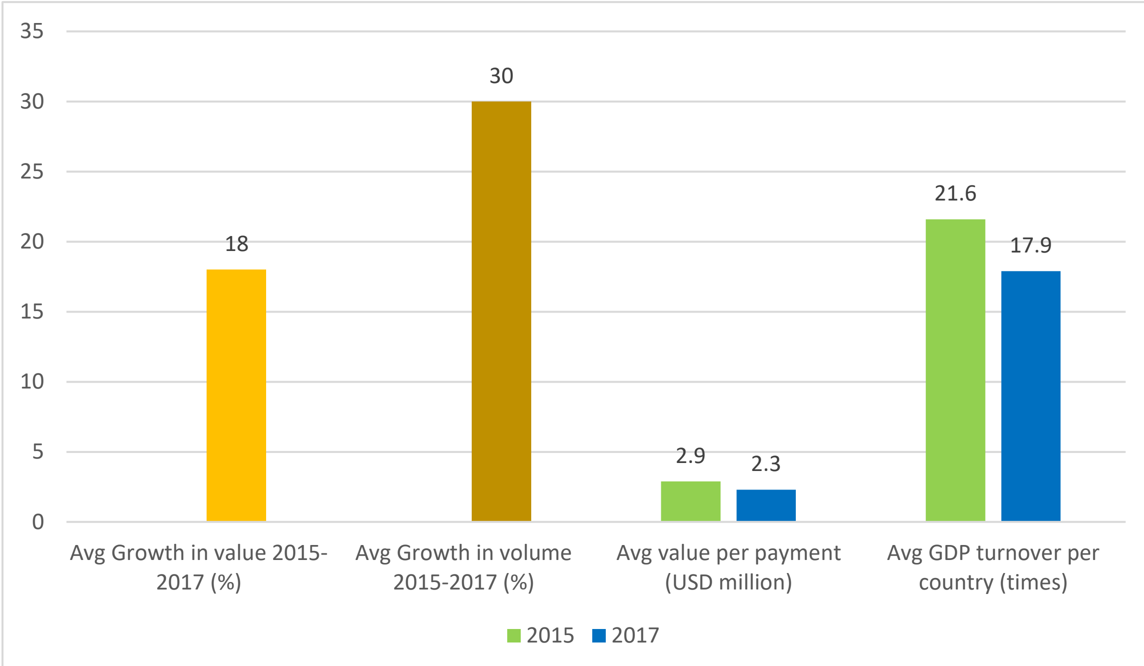
Of the reported 96 RTGS systems, as shown in **Table II.2,** the central bank is the owner, operator and settlement agent in 98, 89 and 93 percent of the cases, respectively.

Twenty-four jurisdictions indicated that their RTGS system handles transactions both in local currency and in at least one foreign currency, the USD being the most predominant followed by the EUR. Several countries have foreign currency RTGS systems in addition to their domestic currency RTGS system (for example, China and Hong Kong SAR (China)). Bulgaria, Poland and Romania have, in addition to their domestic RTGS systems, a TARGET2 component for the settlement of transactions in EUR.

Table II.3 shows basic statistics for RTGS systems worldwide for years 2015 and 2017.[12] In about one-third of all responding economies total settlement throughput measured in US dollars (USD) decreased during this period of time. In contrast, volume decreased in only about one-tenth of economies. The number of RTGS systems that cater for retail payments appears to be on the rise. For example, **Figure II.2** below shows that global growth in terms of value from 2015 to 2017 was 18 percent (measured in USD), while in terms of volume it was 30 percent.

[12] Table II.3 only includes countries for which the data on the value and volume settled was deemed consistent based on validations made with data reported by CPMI, CEMLA, other regional groupings, and/or with data published in the website of the corresponding central bank.

Figure II.2: Global averages for value and volume processed by RTGS systems worldwide



As shown in previous iterations, total settlement throughput expressed in terms of GDP turnover is, on average, three to four times higher for high-income economies (where RTGS systems often support the settlement of a significant number of securities market transactions). The sum of the total settlement throughput for all reported RTGS systems in **Table II.3** was equivalent to approximately 30 times the global GDP in 2017,[13] less than the 36.3 times recorded in 2015 and 32.8 times in 2012. This decrease is also reflected in a different form in **Figure II.2**, as the *average GDP turnover per country* decreased from 21.6 times in 2015 to 17.9 times in 2017. A potential reason for these reductions could be that some countries with high GDP turnover of their RTGS systems like Japan and the United Kingdom did not provide data for GPSS 2018.

DETAILED FEATURES OF RTGS SYSTEMS WORLDWIDE[14]

Primary means to send payment orders

Regarding the primary means through which direct RTGS participants send their payment orders (see Table II.4), SWIFT closed user groups and proprietary telecommunications networks are by far the most common alternatives, each serving approximately 40 percent of all RTGS systems surveyed. SWIFT closed user groups are especially prevalent in High-income OECD countries, as well as in the EAP and SSA regions. On the other hand, proprietary telecommunications networks are the preferred means of communication among upper-middle income economies, like those

[13] Note that the global GDP includes all countries, including those that did not participate in the GPSS 2018.
[14] In some of the questions of RTGS system features more than one answer is possible. Therefore, percentages may not add up to 100 percent.

in ECA and LAC, with nearly two-thirds of the systems in these regions using this connection type.[15] Even in *Small States*, proprietary networks are predominant (used in 8 out of 18 systems). Only 11 percent of the surveyed systems indicated using SWIFT international network, compared to 21 percent in the 2015 iteration. This may be the result of comparability issues within the high-income economies category from one iteration to the other.

Pricing policies

The GPSS also collects information on RTGS pricing policies.[16] The 2018 survey data (see **Table II.5**) shows that out of 88 RTGS systems for which the questions on pricing were answered, only 7 of them (8 percent) apply no charges, most of them being in LAC (3 systems) and SSA (2 system). This percentage is slightly down from the one in the 2015 iteration.

The pricing policy options that were more prevalent were *partial* recovery of the *operational costs* of the system, *full* recovery of those costs and *full* recovery of *all costs (operational plus investment)*, each of these options with 19 responses (22 percent). Fourteen systems apply charges with no particular relationship to cost recovery, and in only 4 systems the pricing policy targets obtaining a profit. Recovery of all costs is more common in higher income economies (especially high-income OECD), while partial recovery of the operational costs is more prevalent in lower income economies. Full recovery only of operational costs is especially common in EAP with 6 systems following this pricing policy (almost half of the total for this region).

With regard to the period of time for the recovery of investment costs, the most common response was 5 years, followed by 10 or more years. Meanwhile, the average value is very similar to the 2015 iteration at 6.6 years.

Liquidity risk management

As shown in **Table II.7**, all but three systems surveyed reported that the opening balances in the settlement accounts and funds received from other participants during the day are the main sources of liquidity. Reserve requirements are regarded as one of the main sources of intraday liquidity in 77 out of 96 systems, with the majority of these systems (54) allowing participants to make use of the full amount of the reserves during the operational day. Full usage of reserve requirements is far less common in low-income economies though. From a regional perspective, it is more predominant in High-income OECD and LAC, and less prevalent in MNA and SSA.

The use of lines of credit between banks as a source of liquidity is also very common with 61 percent of responses indicating this option. It is more relevant in lower-income economies, especially those in EAP, ECA and SSA. This option is nevertheless also relevant in other regions, except possibly for High-income OECD.

Regarding provision of intraday liquidity by the central bank, most RTGS systems do rely on it, either in the form of loan or repo (60 percent) or participants' account overdrafts, either in a

[15] In SA the share is somewhat similar at 60 percent, although there were only three observations (out of a total of five).

[16] The survey also asked if the pricing policy is used to promote a smooth flow of payment throughout the day. This specific question is discussed as part of liquidity risk management later in this section.

collateralized (9 percent) or uncollateralized (6 percent) form. This means that in 23 systems (24 percent of the total) the central bank does not provide any form of intraday credit.

Provision of collateralized intraday credit by the central bank is fairly common across the various country categories from both the income and regional perspectives (see **Table II.8**).

Suitable collateral is required in 84 percent of all cases, with a slightly higher percentage for higher income economies and a lower one for lower-middle-income and low-income economies (76 and 78 percent, respectively), especially those in ECA and SA.

Should a participant be unable to repay the intraday credit (or overdraft) by the end of the system's operating day, in most cases the operator transforms the intraday credit into an overnight credit at a penalty rate (in 45 percent of the RTGS systems) or at the market rate (28 percent). Only in 6 systems or 7 percent of the total, the operator proceeds to seize the collateral immediately after the daily closing time of the system. These results are summarized in **Table II.9**, and for the most part are similar to those reported in previous iterations.[17]

A central queuing facility is another crucial liquidity management tool in RTGS systems. Eighty-one percent of the systems have in place queuing facilities, up from the 74 percent observed in the 2015 iteration. Only in 12 systems (13 percent of the total) transactions are rejected if no funds or credit are available in the account of the initiator. These figures are similar throughout the various regions, with only the SSA region showing a noticeably smaller percentage (68 percent) for the first variable and, consequently, higher (21 percent) for the second one.

Queuing resolution mechanisms are illustrated in **Tables II.11a** and **II.11b**. A large majority of systems (74 percent) use a first-in, first-out (FIFO) resolution algorithm. This is used more extensively in the ECA (93 percent) and MNA (100 percent) regions. In addition, first-available, first-out (FAFO) algorithm is reported in 20 percent of the RTGS systems globally and is most common in the MNA region (71 percent). In two-thirds of the systems, participants can set priorities to their payment orders, and in 54 percent they can change the priority of payment orders in the queue before these orders are settled. For these two variables, the percentages are somewhat smaller in lower-middle-income and, especially, in lower-income economies. Changing the priority of queued payment orders is less common in South Asia (33 percent) and in the ECA and SSA regions (both at 47 percent).

Regarding more advanced tools for saving liquidity in the RTGS systems, such as offsetting, 84 systems use either multilateral offsetting (30 systems), or bilateral offsetting (13 systems) or both (41 systems). The offsetting mechanism can be triggered manually in almost half of the cases, especially in economies in the MNA, SA and SSA regions. Automatic triggering every certain period of time is more common in almost two-thirds of the cases, while automatic triggering based on other parameters (e.g. accumulated volumes pending settlement) is observed in about one-fourth of the cases. The latter feature has not been reported by any of the RTGS systems in in the EAP and SA regions, while ECA and SSA are below the global average for time-based automatic triggering.

---

[17] In some countries, more than one option or a combination of options is applied: the approach varies depending on the frequency of such failure, or even the participant's preference.

The two final questions on liquidity risk management asked whether the pricing policy is used by the RTGS operators to promote a smooth flow of payment throughout the day[18] and whether RTGS systems participants have access to real-time information on their settlement account balances and available credit/overdrafts during the day (see **Table II.12** and **Table II.13**, respectively). Price incentives - with lower charges applying to those payments sent and settled earlier in the operating day - are used by slightly more than one-third of RTGS operators, similar to the results of the 2012 and 2015 iterations. These are more common in developing economies (more than 40 percent) and less in high-income economies (only 12 percent). Participants' access to real-time information on account balances and credit is available in all reported RTGS systems.[19]

Resilience and business continuity

Enhancing resilience and ensuring proper business continuity arrangements for systems that are of critical importance for the financial system has been in the focus of the overseers and operators for several years. This section addresses operational risk management in RTGS systems **(see Tables II.14a and II.14b).** In the 2018 survey, *new questions were included to cover cybersecurity and cyber resilience aspects*.

For what concerns governance of the underlying risks, in 83 percent of the systems the operational risk management framework has been endorsed by the Board of Directors of the entity operating the RTGS system, and in all such cases the framework is periodically reviewed and tested, including the business continuity arrangements. The lowest percentages of Board endorsement of the risk management framework are observed in low-income economies and in the MNA and SA regions, while the highest are observed in upper middle-income economies.

When it comes to cybersecurity and resilience, however, in only 3 percent of the cases the operational risk management framework includes a specific cyber resilience framework. Despite this, in 58 percent of the cases the operator already has a specialized Unit that is responsible for identifying, detecting and protecting from cyber threats. Moreover, in 37 percent of systems there is a cybersecurity Committee in place involving the relevant stakeholders. Both the specialized Unit and the stakeholder Committee are twice more prevalent in high-income economies than in low-income economies. The LAC region ranks at the bottom in these two questions with a 47 and 21 percent of positive answers, respectively, while the EAP region ranks at the top.

Eighty-six percent of the 95 operators that responded to this section of the survey report having a formal business continuity plan (BCP) in place. BCPs are reviewed and tested regularly by all but 7 of the 95 systems, and 54 of the 95 operators perform these tests in coordination with interdependent FMIs. Such practices are observed in almost all high-income OECD countries and to a lesser extent in the EAP and MNA regions. In contrast, the SA region lags in this particular area.

---

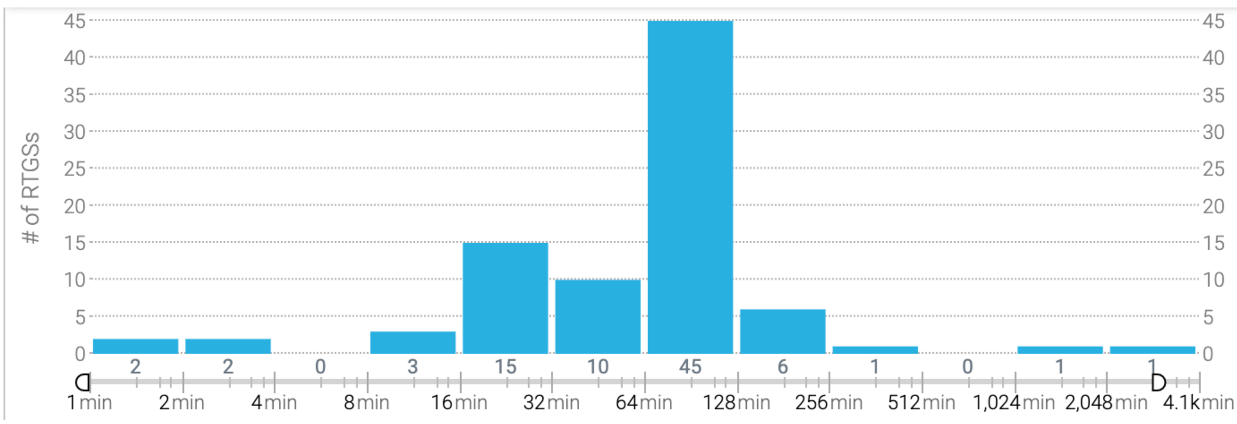
[18] For example, by using differentiated charges according to the time of the day in which payment orders are sent to the system for processing, with lower charges applying to those payments sent during RTGS off-peak hours.

[19] In the 2015 iteration there were two exceptions, one in LAC and another one in the SA region.

Regarding specific business continuity measures, 88 percent of the surveyed RTGS system operators reported having implemented a fully-equipped alternate processing site, this percentage being identical to the one of the 2015 iteration. Moreover, a third of the operators also report having a third backup site, which is significantly higher than the one-fifth of the systems reported in 2015. High-income economies are somewhat more likely to have a fully equipped alternate processing site, with the highest percentage being observed in high-income OECD countries (100 percent) and the lowest one in the SA region (60 percent).

The last question covered in this area was on the recovery time objective or RTO. **Figure II.3** shows that the vast majority of RTGS systems operators target an RTO of no more than 2 hours or 120 minutes as recommended by the CPMI-IOSCO Principles for Financial Market Infrastructures (PFMIs).

Figure II.3: Targeted Recovery Time Objective (in minutes)



Interdependencies

Survey results confirm the trend of high interdependencies between RTGS systems and other systems (other FMIs and retail payment systems) or service providers. **Table II.17** shows that 79 out of 94 systems that answered this question (83 percent) have identified a dependency with a CSD-SSS. This percentage is very similar to the 81 percent that was obtained in the 2015 iteration. In 30 percent of the cases the CSD-SSS is integrated in the same platform as the RTGS; this percentage is much higher in low-income economies at 67 percent. In addition, in 21 percent of the systems the same entity operates the RTGS and the CSD-SSS. Forty-nine percent of the RTGS systems have identified dependencies on a third-party service provider operating the CSD-SSS.

RTGS Users' Groups

To better address participants' needs, RTGS operators in many countries create forms of RTGS Users' Groups.[20] **Table II.16** shows that out of a total of 94 responses, 72 percent indicated that such a group has been created for the RTGS system. The EAP region and High-income OECD countries show higher results at 85 and 82 percent, respectively, while the lowest one is observed in the ECA region with only 53 percent.

Access and exit policies

The last set of questions for RTGS systems covers the issue of access and exit policies to these systems, including the types of entities that can become participants, the key conditions for their participation and conditions for terminating the access. Commercial banks are the only type of entity that has access to the RTGS systems in all systems worldwide, with all but one case being direct access. Other types of banks and supervised NBFIs have direct access in 52 and 30 percent of the cases, respectively. Direct access of supervised NBFIs is more common in high-income economies. In contrast, unsupervised NBFIs typically do not have direct access to RTGS systems. In only four cases direct access was reported – all of them without access to central bank credit.

Where applicable, direct access to the RTGS system is granted to other system operators (e.g. CCPs, SSSs, ACHs, payment card network operator) with SSSs being the most common participants. Compared to the previous survey iteration, other systems' access to RTGS systems has dropped to 11 percent for ACH and 29 percent for payment card network operators. Direct access of FMIs is more common in high-income economies, especially in High-income OECDs.

The 2018 survey also included *e-money issuers, post office (when not licensed as a bank), national treasuries, MNOs* and *MTOs* as other potential participants in RTGS systems and asked the same questions as for the more traditional participants (see **Table II.18)**. Access of these "non-traditional" entities is slowly rising but in general terms is still low, with none of the entity types exceeding 8 percent for direct access - and in several cases being actually zero. See Box 1 below for further details in access to RTGS by non-banks in India and the UK.

BOX 1: Access to RTGS by Non-Banks – Cases of India and the UK

Access to national payment systems infrastructure either by way of direct or indirect access by PSPs – banks and non-banks, is critical for ensuring optimal reach of digital financial services to all segments of the population. In accordance with the above, the global standard setter – the CPMI through its standards advocates an "objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access".

Traditionally, banks were the only providers of payment services in an economy with the central bank acting as a settlement agent as well as operators of both large value and retail payment systems. Over the years as central banks started divesting from operating retail payment systems, the private sector (banking consortium/subsidiaries) have become operators of retail payment infrastructures. The advent of non-bank payment service providers, the policy orientation and thrust towards financial inclusion, and providing access to payment services in a safe and efficient manner to all segments of society, also reflected in changes to

[20] The typical core objective of a RTGS Users' Group is to promote a more active involvement and empowerment of participants in the decision-making framework of the system in order to better address the needs of the financial market on an on-going basis.

policies governing access to the national payments infrastructure. Jurisdictions started adopting policies which were objective, risk-based, and were functional in their approach to permit fair and open access. The access criteria accordingly address legal, financial, and operational risks to enable participants (bank and non-bank PSPs) to fulfil their obligations in the system on a timely basis as well as to their constituents.

Access to a payment system infrastructure by a PSP can be characterized as being either *direct or indirect*. A PSP which can directly execute payment orders with the centralized payment system infrastructure and is bound by the rules of the system is classified as a direct participant. In contrast, a PSP which is accessing the services provided by the centralized payment system infrastructure but is not bound by the rules of the payment infrastructure is defined as an indirect participant.

Access to the payment system infrastructure can be further divided into whether a PSP has access only to the clearing service or settlement service or both. It may be the case that a non-bank PSP is provided direct access to the clearing infrastructure but may not hold an account with the settlement agent for settling its transactions and for the purposes of settlement would have an indirect participant status. This may be the case especially when the settlement agent is the central bank and which by virtue of the central banking law is obliged to provide settlement services to banks and not to other entities such as non-bank PSPs.

It may also be the case that payment system infrastructures owned and operated by central banks for instance distinguish between different categories of direct participants based on the type of facilities that they extend to such direct participants. The range of facilities could extend for example to providing collateralized intraday liquidity support; permitting third-party transfers along with own-account transfers; allowing for participation in primary market auctions of government securities; and stepping in as lenders of last resort depending on the type of the direct participant.

India:

The Reserve Bank of India (RBI), traditionally permitted access to the RTGS system to only to banks and primary dealers. With non-banks being licensed as payment system providers under the Payment and Settlement Systems Act, (PSS Act), the RBI expanded the provisions of direct membership access for the RTGS system to other entities such as to payments clearing entities. In addition, as stated in the RTGS Rules and Regulations, the RBI at its discretion could also permit other entities to gain membership access to the RTGS system. The RBI accordingly provides four membership categories to the RTGS system:[21]

Membership Type	Broad Category	Facilities available
Type A	Regular Participant	Intraday liquidity (IDL), inter-bank, customer transactions, own account transfer
Type B	Restricted Participant	IDL, inter-bank, own account transfer
Type C	Clearing House	Gross transaction, Multilateral Net Settlement Batch, any other transactions / facilities approved by the Bank.
Type D	Regular or Restricted Participant or clearing house	Customer transactions, Inter-bank, IDL/No IDL, own account transfer, any other condition applied by RBI

A direct RTGS member acting as an agent can facilitate settlement in central bank money in RTGS for other non-bank payment system operators,[22] which are not direct members of RTGS.

[21] Real Time Gross Settlement (RTGS) System Regulations, 2013 https://rbidocs.rbi.org.in/rdocs/RTGS/PDFs/RTGS1907201932653E87D7E842D6B3D90974D53F5A42.PDF
[22] https://www.empays.com/#test-20

In addition, access to the national payment system infrastructure operated by the NPCI is guided by the RBI "Master Direction on Issuance and Operation of Prepaid Payment Instruments (PPI)."[23] The Master Direction provides for direct access to Unified Payments Interface (UPI)[24] to PPI issuers to promote interoperability and deepen their reach.

United Kingdom: Non-bank PSPs' Direct Access

The Bank of England (BoE) in July 2017, working in tandem with FCA and HM Treasury decided to allow non-bank PSPs (authorized payment and e-money institution payment service providers) to have direct access to the UK's sterling payment systems that settle in sterling central bank money, including CHAPS (RTGS system), Faster Payments, Bacs, LINK, and Visa.[25] It also published a revised Settlement Accounts Policy[26] that allowed non-banks to open settlement accounts with the BoE.

The motivation to allow non-bank PSPs to become direct participants and open settlement accounts was to support financial stability through greater diversity and risk-reducing payment technologies. These changes were driven by the intent to provide a level playing field for non-bank PSPs to compete with banks; enable non-bank PSPs to provide a wider range of payment services; and reduce their dependence on banks. Taken together, these were expected to spur competition and promote innovation in the provision of payments services in the UK. From a longer-term perspective, the innovation that would stem from this expanded access should promote financial stability by:

- Creating more diverse payment arrangements with fewer single points of failure
- Identifying and developing new risk-reducing technologies
- Expanding the range of transactions that can take place electronically and be settled in central bank money.[27]

Non-bank PSPs are guided by the BoE's "Access to UK Payment Schemes for Non-Bank Payment Service Providers"[28] to become direct participants in payment systems and to open settlement accounts with the BoE. The document outlines the steps that are required to be taken by non-bank PSPs to gain direct access to the UK's interbank payment schemes directly (rather than through a sponsor bank). It also provides a framework by which non-bank PSPs can apply to open a settlement account at the BoE, in order to become a direct participant of a payment scheme.

For a non-bank PSP to become a direct participant of a payment scheme, it must be authorized by the FCA to provide payment services, based on the following requirements:

- The eligibility criteria as set by the relevant payment scheme
- The eligibility criteria for a settlement account at the BoE
- Completion of a supervisory assessment by the FCA (and HMRC, where appropriate).

For a payment scheme that settles at the BoE, non-bank PSPs must hold a settlement account in the BoE's RTGS system, with the discretion vesting with the BoE to provide such an account. The settlement account

---

[23] E-money is denoted as a pre-paid payment instrument and e-money issuers are classified as pre-paid payment instrument (PPI) issuers by the Reserve Bank of India. Please see https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=11142&fn=9&Mode=0

[24] Please see para 18. Interoperability https://www.rbi.org.in/scripts/NotificationUser.aspx?Id=11142&fn=9&Mode=0

[25] https://www.bankofengland.co.uk/news/2017/july/boe-extends-direct-access-to-rtgs-accounts-to-non-bank-payment-service-providers

[26] https://www.bankofengland.co.uk/-/media/boe/files/payments/boesettlementaccounts.pdf?la=en&hash=5902F70D257DC5BCAE4E40E4E6D87F8C6FFF8BA4

[27] https://www.bankofengland.co.uk/news/2017/july/boe-extends-direct-access-to-rtgs-accounts-to-non-bank-payment-service-providers

[28] December 2019. https://www.bankofengland.co.uk/-/media/boe/files/markets/other-market-operations/accessfornonbankpaymentserviceproviders.pdf?la=en&hash=19DEFEB783364B8B79245628043B69FC1DB8B0FE

can only be used to settle payment obligations arising from payment schemes that settle at the BoE. Specific requirements have been laid down by BoE for non-bank PSPs to open a settlement account with itself, in order to mitigate the risks that participants bring to the payment schemes and RTGS and provide the same level of assurance that banks are required to meet. These are:

- The non-bank PSP must be either an e-money or a payment institution authorized in the UK by the FCA. Any non-bank PSP applying for a settlement account at the BoE will undergo a supervisory assessment by the FCA.
- The non-bank PSP has the operational capacity to participate in, and efficiently settle, transactions in RTGS. This involves having access to the RTGS Enquiry Link service, which allows a non-bank PSP to fund, defund (to/from a nominated commercial bank account) and monitor their settlement account and, if applicable, settlement collateralization account(s).
- There are a number of legal documents that an account holder must sign up to. These are: the RTGS Account Mandate Terms & Conditions and an Annex to this Mandate for the relevant payment scheme.

Table II.19 shows that 93 percent of all RTGS system operators indicate they have an explicit policy that deals with criteria for granting access to, and conditions for excluding participants from, the system. This very high percentage is observed for all income levels and regions, except in the SA region with only 40 percent. In 89 percent of the cases, direct access to the RTGS system depends on the institutional standing of participants, i.e. whether participants are banks or other types of financial or non-financial institutions. At the same time, 79 percent of RTGS system operators indicated direct access is also related to the fulfillment of a set of objective criteria (e.g. minimum capital or technological requirements). This seems to indicate that in most jurisdictions access criteria reflect a combination of institutional and functional criteria.

The orderly and timely exit of a participant that no longer meets the established criteria is explicitly addressed by 80 of the 94 operators that answered this question. No significant change is observed in these indicators compared to the 2012 and 2015 survey iterations.

II.2 Other Settlement Systems for Large-value Payments

The last part of the large-value section of GPSS 218 covers other settlement systems used for processing and settling large-value payments. Two sets of questions were asked: the type of settlement model used and where final settlement takes place.

In 2015, it was found that 18 jurisdictions worldwide channeled large-value payments through "other" systems, either partially or exclusively. In the 2018 iteration, one set of questions was answered by 17 jurisdictions, while another set was answered by 20 jurisdictions.[29]

Settlement model

The first set of questions aims at capturing the settlement model used by these "other" systems. Out of the 17 responses (see **Table II.20a**), the most common settlement model is net settlement with multiple clearing cycles during the operating day (59 percent of the cases), followed by non-real-time gross settlement (24 percent) and end-of-day net settlement (18 percent). Out of the

[29] As per the instructions in the questionnaire, only those economies that answered these questions are supposed to be using "other systems" for large-value payments.

10 systems with multiple cycles of net settlement, 4 are in high-income OECD countries and 3 in LAC countries.

Final settlement

The second set of questions, answered by 20 jurisdictions, is related to where and how final settlement of these "other" systems occurs (see **Table II.20b**). Final settlement takes place through an RTGS system in 11 systems (55 percent of the total), meaning that in these jurisdictions the other system for large-value payments operates in parallel to the RTGS system. Out of these 11 systems, 6 are in high-income OECD countries, 2 in both the ECA and SSA regions, and 1 in the EAP region. In the remaining cases, final settlement takes place either in central bank money though not through an RTGS system (in 35 percent of the cases) or in commercial bank money (in 10 percent of the cases). The latter is observed in only 1 country in ECA and another one in the SA region.

Credit facilities

Credit facilities of such systems were also investigated (see **Table II.22**). In most cases (47 percent of the 15 economies that answered this question), if a participant does not have enough balance to process a new payment, the payment order is rejected immediately. The operator extends intraday credit in two systems: one in a high-income and one in a lower middle-income economy. In one case, there is a guarantee fund that allows some payments to go through even if the relevant participant does not have sufficient balance in its settlement account.

Regarding interdependencies of these "other" systems for large-value payments, 40 percent of the surveyed systems indicated they are dependent on another payment system for final settlement, while 35 percent indicated they are dependent on a CSD-SSS (e.g. for collateralized intraday credit), mostly in lower-income economies in the EAP, MNA, SA and SSA regions.

Special procedures for large-value cheques

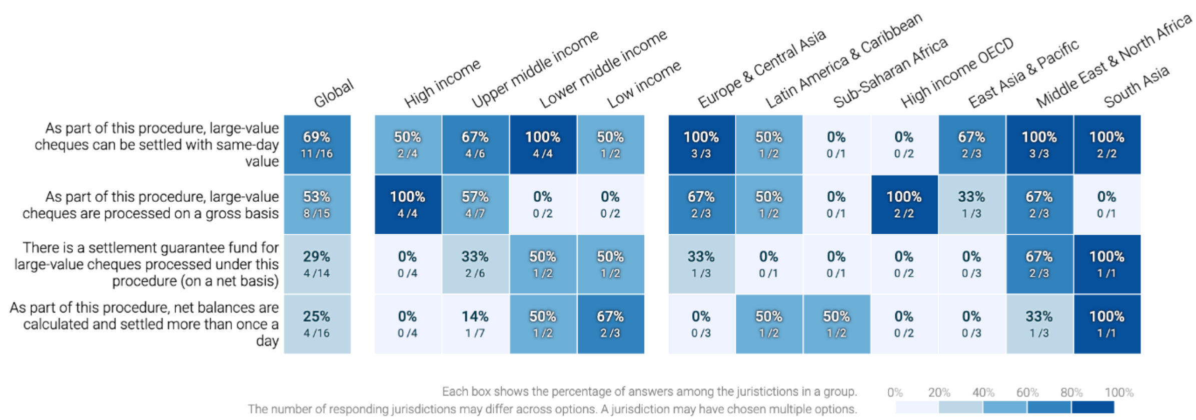
Finally, the survey included questions on the existence of any special procedures for the settlement of large-value cheques.[30] Such a procedure has been implemented in 20 jurisdictions, as follows: 3 in each of EAP, ECA, high-income OECD and MNA regions, 2 in each of the SA and SSA regions, and 4 in the LAC region. From another perspective, 5 of the 20 cheque systems of this kind are in jurisdictions that are also classified as Small States.

Among the various special procedures indicated for large value cheque processing, as shown in **Chart II.1** at the global level 69 percent of the subset of economies where a special procedure exists and that answered these questions (a total of 16 economies) indicated cheques are settled with same-day value, this being the case in all the responding economies in the ECA, MNA and SA regions. In addition, in 8 systems cheques are processed on a gross basis, all of them being in high-income or upper middle-income economies. Within those countries where netting of large-

[30] The relevant questions were included in section III (Retail Payment Systems) as part of the discussion of cheque systems and clearinghouses.

value cheques is applied (i.e. 7 countries), in 4 of them there is a settlement guarantee fund, these cases being one in the ECA and SA regions, and two in the MNA region.

Chart II.1: Special clearing and settlement procedures for large-value cheques



SECTION III: RETAIL PAYMENT SYSTEMS AND INSTRUMENTS

The existence of a wide range of payment instruments is essential to support customers' needs in a market economy. While a less than optimal use of payment instruments may ultimately have a negative impact on economic development and growth, the safe and efficient use of money as a medium of exchange in retail transactions ultimately underpins the stability of the monetary system. Moreover, country authorities are increasingly recognizing the relevance of efficient retail payment systems and services for financial inclusion. At the same time, there are clear efficiency gains that enhanced financial inclusion can bring to the retail payment system, and to the NPS as a whole.

This section provides insights in the use and evolution of non-cash payment instruments and access channels and focuses on the underlying clearing and settlement arrangements.

OVERALL USAGE OF NON-CASH PAYMENTS

On average, across the 96 countries that provided full responses for the cashless transactions per capita indicator,[31] the number grew by 25 percent from 70.65 to 88.31 in the three-year period between 2015 and 2017.[32]

Per capita cashless transactions by country income levels

As shown in previous GPSS iterations, there is a high correlation between a country's income and the number of cashless transactions per capita. In 2017, this indicator was over 300 for high-income economies, moderate for upper middle-income economies at 62, and significantly lower for lower middle-income economies at 11 (see Figure III.1).[33] In terms of growth between 2015 and 2017, although lower-middle income economies have seen very high growth rates in cashless transactions per capita, to a large extent such high growth rates reflect a lower starting point or comparison base.

Perc capita cashless transactions by region

The high-income OECD category had the highest per capita cashless transactions in 2017 at 315 and this represents an increase of about 17 percent from 2015 levels. The ECA region crossed the threshold of 100 in 2017 reporting 106 cashless payments per capita, which an increase of about 70 percent from 2015 levels. This was followed by the LAC region which reported 89 cashless transaction per capita in 2017, an increase of 18 percent from 2015. See Figure III.1 for details.

Among the other regions, the best performance was reported in the EAP region with 41, representing an increase of about 56 percent from 2015. In the SSA region, cashless transaction

---

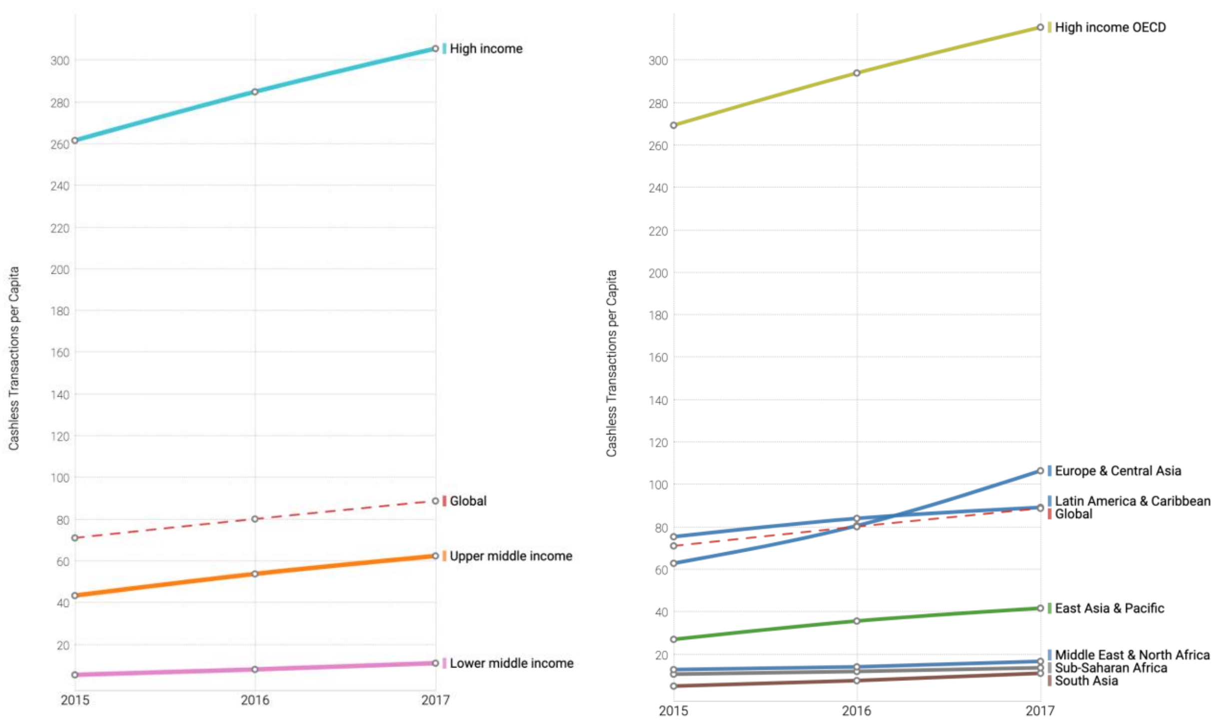
[31] The number is derived by adding up payments initiated via cheques, debit/credit cards (excluding cash withdrawals), direct debits, credit transfers, and e-money, and then divided by the country population in that particular year. In order to derive group averages (i.e. by income, geography, population), the numbers are weighted by population, hence using population-weighted averages.

[32] Annual data are collected and analyzed for 2015, 2016, 2017.

[33] For the 2018 iteration not enough low-income countries provided data in order to have a representative an average for this income group.

per capita reached 13.21 in 2017, with an increase of about 28 percent. Finally, the South Asia region reported the highest growth rate from 2015 to 2017 at 124 percent, reaching almost 11 cashless transactions per capita in the latter year.

Figure III.1: Cashless transactions per capita according to country income levels and regions



CHEQUE CLEARING SYSTEMS

Of the 115 countries responses, 78 of them (68 percent) reported having a cheque clearinghouse. These systems exist in 90 percent of low-income economies but only in about half of high-income economies. Countries without a cheque clearinghouse totaled 37 and are mainly concentrated in the ECA region and in high-income OECD countries. In contrast, all reporting economies in the SA region and 95 percent of those in LAC and SSA regions have one.

In 51 percent of the countries where such system exists the central bank acts as the operator. When analyzed from a country income perspective, the central bank plays this role in all low-income countries that answered this question, but only in 36 percent of high-income countries.

From a regional perspective, significant involvement of the central bank as the operator was reported in the MNA region (71 percent), while the ECA region had the lowest percentage at 25 percent followed by high-income OECD countries at 33 percent.

<u>Efficiency of cheque processing</u>

Cheques are standardized across 96 percent of the 75 economies that answered this question. Only a small percentage of economies in LAC (5 percent), High-income OECD countries (7 percent) and the EAP region (14 percent) are lacking in cheque standardization.

Regarding automation of cheque processing, all economies that answered this question reported having automation. In GPSS 2015 this percentage stood at 91 percent. Sixty-one percent of these economies indicated they are using cheque truncation and image-based processing, while the remaining ones still exchange physical cheques even if their processing for payment is automated.

Economies in the EAP and MNA regions, and to a lesser extent also economies in LAC, lag behind in adopting image-based cheque processing. PSDG experience in this area points to legal and regulatory issues as a barrier to further adoption of cheque truncation.

Clearing and settlement models

The vast majority of cheque clearinghouses (93 percent) reported that they use multilateral net settlement. This model is used in all low-income and lower middle-income economies. In terms of regions, all economies in the ECA, MNA and SA regions use this model, while the corresponding percentages for LAC, SSA, high-income OECD and EAP economies are 95, 95, 87 and 86 percent, respectively.

Net positions are calculated and settled only once a day in 70 percent of countries globally reaching 100 percent in the ECA region and only 57 and 56 percent in the MNA and SSA regions, respectively. The remaining countries in the two latter regions settle net positions two or more times a day.

All economies indicated that the settlement of net positions happens in central bank money, and in 87 percent of the cases these occurs through the RTGS system. While all economies in the ECA region and high-income OECD economies settle their cheque clearinghouse balances in the RTGS system, this is done in only 40 percent of the economies in the SA region.

The actual crediting of customer accounts takes place not later than T+2 in 86 percent of the reporting economies. Low-income economies, especially in the SA region, have the highest percentage (25 percent) of cases in which crediting of customer accounts takes more time.

Risk management

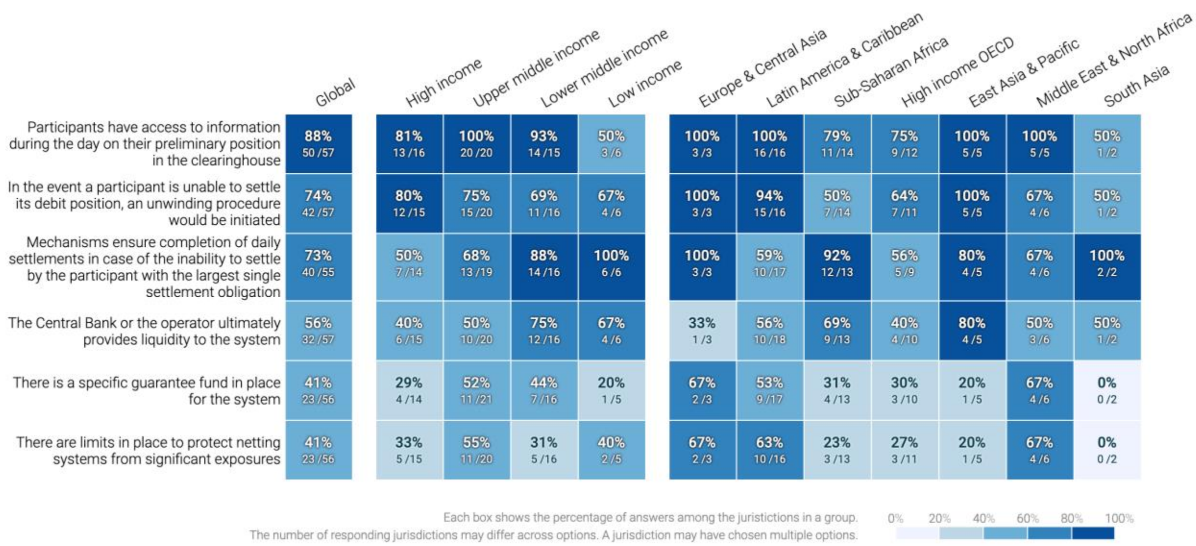
Only 54 percent of the reporting jurisdictions stated their cheque clearinghouse has a settlement risk management framework in place, this percentage being highest in low-income economies (70 percent) and lowest in high-income ones (38 percent), possibly reflecting the fact that in most of the latter economies cheque clearing systems are considered having less systemic risk potential.[34] From a regional perspective, in the ECA region only 3 of 17 reporting economies (18 percent) stated the cheque clearinghouse has established this framework. In contrast, 90 percent of economies in the LAC region have it.

Risk management mechanisms for credit and liquidity risks were analyzed in further detail. The results are shown in **Chart III.1.** A total of 57 jurisdictions responded these questions, of which 88 percent indicated that cheque clearinghouse participants have access to information during the day about their preliminary settlement positions so that they can make arrangement for

[34] As discussed in section II, a total of 28 countries reported that the cheque clearinghouse is used to process large-value payments. This occurs in only 10 percent of high-income countries but in 55 percent of low-income countries.

funds for settlement accordingly. This is common across income levels and at regional levels except for low-income economies and economies in the SA region where only about 50 percent of the economies have this information available for participants.

Chart III.1: Credit and liquidity risk controls in the cheque clearinghouse



Overall, in 73 percent of jurisdictions there are mechanisms in place to ensure completion of daily settlements in case of the inability to settle by the participant with the largest single settlement obligation. This is observed in all low-income economies, but only in 50 percent of high-income ones.

The central bank or the operator of the systems provides liquidity to the system in 56 percent of the cases, this being more common in lower middle-income economies (74 percent) and in low-income economies (67 percent).

Other risk management measures like settlement guarantee funds and setting limits on the net debit positions are used in approximately 40 percent of cheque clearing systems globally, being slightly more relevant in the ECA, LAC and MNA regions.

Finally, in 74 percent of all cases, if one or more participants are unable to settle, unwinding takes place and net positions are recalculated after removing some or all payments involving failed participants. This feature is also present in the majority of economies, except in the SA and SSA regions where it is observed in 50 percent of the corresponding jurisdictions.

AUTOMATED CLEARINGHOUSES

This part of GPSS 2018 refers to automated clearinghouses (ACH) that process electronic funds transfer (EFT) type transactions, such as credit transfers and direct debits, and potentially other instruments.[35] These systems have been undergoing significant change in the last decade or so[36]. For example, in some EU jurisdictions domestic ACHs have been discontinued and EFT-type transactions have been migrated to the pan-European platform. In other jurisdictions, ACH-type transactions are processed through the retail component of modern automated transfer systems (ATS) that also handle large-value and time-critical payments in RTGS mode.

Survey results show that a total of 108 ACH systems serve 87 economies. Seventy-one countries had one ACH system, while 10 countries had 2 systems and 6 countries had 3 systems of this kind. Also, there are some ACHs that serve more than one country, e.g. the case of the ACH system operated by the BCEAO for the economies of the Western Africa Monetary Union.

The availability of ACH infrastructures is fairly common in high-income, upper middle-income and low-income economies (all above 75 percent). Lower middle-income economies reported a relatively smaller number of ACH systems at 64 percent. In terms of regions, while 95 percent of the jurisdictions in LAC and SSA regions reported having an ACH, this percentage is significantly lower in the SA and EAP regions at 40 and 45 percent, respectively.

About one-third of ACHs worldwide are operated by central banks. This is the case especially in low-income economies and in economies in the ECA region, but less prevalent in high-income economies. As mentioned in previous iterations, central banks operating ACHs is less common than them operating cheque clearing systems (51 percent), which may be explained by most ACHs being newer than cheque systems and introduced to the market directly by the private sector.

Key features supported by the ACH and main settlement aspects

As shown in **Chart III.2**, 91 percent of the ACH systems worldwide process credit transfers. The share of ACH systems that support direct debits is smaller, although still high at 71 percent, and varies widely across country income levels and regions: high-income economies and lower middle-income economies reported that 89 and 78 percent of their ACHs, respectively, process direct debits. In contrast, in upper middle-income economies this percentage drops to 57 percent and further to 45 percent in low-income economies.

From a regional perspective, processing of direct debits in ACH systems is more common in high-income OECD economies (90 percent), followed by economies in the MNA region (83 percent). Meanwhile, in the EAP and SA regions this percentage is only 56 and 50 percent, respectively.

Regarding other payment instruments, globally, 40 percent of ACH systems support the processing of truncated cheques, with higher percentages in high-income economies (51 percent) and in low-income ones (58 percent), the latter especially those in the SSA region and to a lesser extent in the SA region. More recently, 37 percent of the ACH systems have added fast payments as a new service (see below the sub-section on Fast Payments).

[35] This definition of an ACH has been used for the purposes of the GPSS. In practice, separate systems like a payment cards switch is also an automated clearinghouse, and some countries that have automated cheque processing also consider that cheque clearinghouse as an ACH. Moreover, Fast payment systems that settle on a net basis can also be considered an ACH.
[36] See also Section VIII on Reforms.

For what concerns settlement, the vast majority of ACH systems (89 percent) reported that the final settlement of the net positions takes place in the RTGS systems of the respective jurisdictions. No much variation was observed either in terms of income levels or in terms of region.[37] In 15 ACHs, the settlement takes place in central bank money but not in an RTGS system.

Chart III.2: Key features of ACH

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
The ACH allows the processing of credit transfers	91% 98 /108	95% 36 /38	90% 36 /40	94% 17 /18	75% 9 /12	86% 12 /14	96% 24 /25	82% 18 /22	97% 29 /30	78% 7 /9	100% 6 /6	100% 2 /2
Final settlement of net positions takes place through a RTGS system	89% 96 /108	89% 34 /38	88% 35 /40	89% 16 /18	92% 11 /12	86% 12 /14	84% 21 /25	95% 21 /22	90% 27 /30	89% 8 /9	100% 6 /6	50% 1 /2
The ACH allows the processing of direct debits	71% 76 /107	89% 34 /38	57% 23 /40	78% 14 /18	45% 5 /11	64% 9 /14	64% 16 /25	62% 13 /21	90% 27 /30	56% 5 /9	83% 5 /6	50% 1 /2
Net balances are calculated and settled in multiple times during the same day	70% 74 /105	73% 27 /37	75% 30 /40	89% 16 /18	10% 1 /10	57% 8 /14	72% 18 /25	50% 10 /20	83% 24 /29	89% 8 /9	83% 5 /6	50% 1 /2
Net balances are calculated and settled once a day or in longer time intervals	41% 43 /105	38% 14 /37	38% 15 /40	29% 5 /17	82% 9 /11	43% 6 /14	50% 12 /24	50% 10 /20	30% 9 /30	22% 2 /9	50% 3 /6	50% 1 /2
The ACH also allows the processing of truncated cheques	40% 43 /107	51% 19 /37	30% 12 /40	28% 5 /18	58% 7 /12	0% 0 /14	40% 10 /25	59% 13 /22	52% 15 /29	33% 3 /9	17% 1 /6	50% 1 /2
The ACH also allows the processing of faster payments	37% 39 /105	56% 20 /36	33% 13 /40	22% 4 /18	18% 2 /11	7% 1 /14	36% 9 /25	29% 6 /21	61% 17 /28	44% 4 /9	33% 2 /6	0% 0 /2
The ACH is operated by the Central Bank	34% 37 /108	18% 7 /38	43% 17 /40	28% 5 /18	67% 8 /12	64% 9 /14	28% 7 /25	41% 9 /22	20% 6 /30	22% 2 /9	50% 3 /6	50% 1 /2
Final settlement takes place in Central Bank money, but not through a RTGS	15% 15 /103	16% 6 /38	16% 6 /38	12% 2 /17	10% 1 /10	14% 2 /14	22% 5 /23	5% 1 /19	17% 5 /30	11% 1 /9	0% 0 /6	50% 1 /2

Each box shows the percentage of answers for the FMIs among the jurisdictions in a group. A jurisdiction may have reported multiple FMIs. The number of responding jurisdictions and reported FMIs may differ across options. A jurisdiction may have chosen multiple options for each reported FMI.

0% 20% 40% 60% 80% 100%

Globally, in 70 percent of the ACH systems net balances are calculated and settled multiple times a day, while in others they are calculated and settled once a day or at longer time intervals. Multiple daily settlements are common across all country income levels except for low-income economies at only 10 percent. From a regional perspective, the highest percentage for multiple daily settlements is observed in the EAP region (89 percent) and the lowest in the SA and SSA regions (50 percent in each of them).

Risk management

This part of the questionnaire focused on settlement risk. Most of the jurisdictions that responded this part (83 percent) indicated that they have a settlement risk management framework for the ACH operating in their jurisdictions. Not much variation is observed in this aspect either from the income level or the regional level perspective.[38]

Among the key settlement risk management features, as shown in **Chart III.3**, 87 percent of ACHs provide their participants with access to information during the day on their preliminary positions

[37] The SA region is an outlier at 50 percent, although only two countries responded to this specific question.

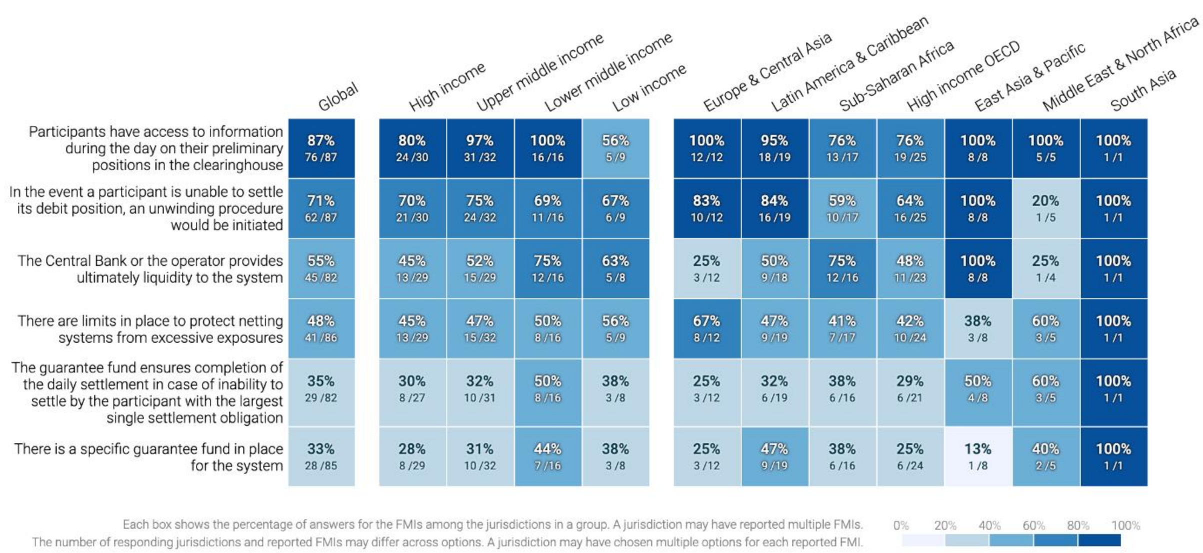
[38] Again, the SA is an outlier at 50 percent, with only two countries responding this part of the questionnaire.

in the clearinghouse. Globally, out of the 11 exceptions, 6 of them are observed in high-income OECD economies, 5 in the SSA region and one in the LAC region.

Setting limits to net debit positions is used as a tool to protect netting system from excessive exposures in 48 percent of the ACH systems. There are not many variations on the availability of this feature across income levels or regions.

Globally, there is a specific settlement guarantee fund in place for one-third of the reported ACHs, this being slightly less common in high-income economies. In apparently all cases, the guarantee fund ensures completion of the daily settlement in case of inability to settle by the participant with the largest single settlement obligation.[39]

Chart III.3: Settlement risk management tools in ACHs



The central bank ultimately provides liquidity to the ACH system in slightly more than half of the reported systems, this feature being more prominent in lower middle-income economies (75 percent) and low-income economies (63 percent). From a regional perspective, the EAP, SA and SSA regions have higher percentages at 100, 100 and 75 percent, respectively, Meanwhile, the lowest ones are observed in the ECA and MNA regions, both being at 25 percent.

Further, in more than two-thirds of the systems (71 percent) there are provisions in place to initiate an unwinding procedure in the event a participant is unable to settle its net debit position. This tool is fairly common across the various country income levels and across regions, except in the MNA region where only 20 percent of the economies reported this feature.

Access to the ACH

All respondents indicated that commercials banks have direct access to the ACH system. In the case of banks other than commercial, at the global level in 65 percent of the economies they

---

[39] For these two questions, the number of countries that answered them is slightly different, and therefore percentages appear not to be fully consistent.

have direct access to the system. Other jurisdictions indicated either that this question is not applicable to them due to, for example, they only having commercial banks (19 percent), that indirect access would apply (3 percent) or that no type of access is allowed (13 percent). From a regional perspective, direct access of banks other than commercial banks in higher than the global average in the EAP region and in high-income OECD countries at 89 and 88 percent, respectively, and lower in the MNA (60 percent), SA and SSA regions (both at 50 percent).

In the case of supervised NBFIs, 23 percent of the reported ACHs globally provide them with direct access, while a further 33 percent allow indirect access. Direct access to ACH systems for this type of PSP is more prevalent in the LAC region (46 percent), and practically non-existent or non-existent at all in the EAP, ECA, MNA and SA regions. Also regarding indirect access, while there is not much variations across country income levels, from a regional perspective this type of access is more common in jurisdictions in the SA, EAP, MNA and SSA regions with 50, 44, 40 and 35 percent, respectively, and also in high-income OECD countries at 48 percent.

In the case of international MTOs, only 2 percent of the ACHs allow direct access to the system to them, while another 17 percent provide indirect access. Indirect access is observed in 24 percent of ACHs in high-income economies, while it does not exist in any of the reported ACHs in low-income economies. From the regional perspective, indirect access is only relatively common in EAP jurisdictions (67 percent).

The situation is somewhat similar for exchange bureaus, unsupervised NBFIs, local MTOs and MNOs. Only 4 percent of ACHs allow direct access to MNOs and 2 percent to exchange bureaus, none of those ACHs being in lower middle-income or low-income economies. The percentages for indirect access are 15 and 9 percent, respectively. Moreover, none of the ACHs provide direct access to either unsupervised NBFIs and only one ACH in a high-income country provides direct access to local MTOs. Indirect access for these two PSPs types stands at 13 and 23 percent, respectively. As with international MTOs, indirect access for all these three categories is more frequently observed in the EAP region (63 percent for local MTOs, 50 percent for exchange bureaus, 38 percent for MNOs and 36 percent for unsupervised NBFIs).

Local postal services/networks have been increasing their role in the provision of payment services in many jurisdictions based, in most cases, in their wide reach in rural and less populated area. However, so far this has not resulted in them having better access to ACH systems than other types of non-bank PSPs. As with those PSPs discussed in the previous paragraph, postal networks have direct access to an ACH in only 11 percent of the economies and in another 18 percent of the cases they can get indirect access. Direct access is mostly observed in low-income economies (30 percent). For indirect access there is not much variation based on country income levels, but there are some relevant differences in regions: 38 percent in the EAP region and only 4 percent in the LAC region.

Finally, National Treasuries are not generally considered a PSP but play a vital role in digitizing government payments. Globally, 24 percent of ACH systems provide direct access to them and a further 18 percent provide indirect access, the latter very often through the central bank when this institution is a direct participant in the system. Direct access is more prevalent in lower middle- income economies (44 percent) and is less common in low-income economies (9 percent). Forty-three percent of ACHs in the ECA region and 32 percent in High-income OECD countries allow direct access, but none in the EAP region (8 responses) and the SA region (2 responses). On the other hand, indirect access is more common in low-income economies (36 percent), and in the EAP region (50 percent).

FAST PAYMENTS

Given the growing importance of fast payment systems/services, the GPSS 2018 included a number of questions to understand the *status quo* in this area with a focus on system implementation and key operational features.

Current implementation of fast payments and plans to operationalize one such system

Forty-nine respondents out of 114 (43 percent) indicated that a fast payments system or service is already operational in their jurisdictions.[40] High-income economies, in particular those classified as OECD countries, currently lead in the implementation of this type of system/service.

Where it is not operational, 50 respondents out of 65 (77 percent) indicated that it is being planned in the next 3 years. This is the case in all MNA and SA economies that still do not have such system/service in place, and in 85 percent of high-income OECD countries in this category.

Availability of fast payments during the day/week

Out of the 48 jurisdictions that reported having fast payments in place and that responded to this question, 88 percent of them indicated that fast payments are available on 24 x 7 basis. This is the case in all high-income economies (23 out of 23 systems) and all low-income economies (2 out of 2), and in 80 percent of upper middle-income economies and 63 percent of lower middle-income ones. In terms of regions, all economies in the ECA and SSA regions and high-income OECD economies reported fast payments are available 24 x7, dropping to 57 percent in LAC and 50 percent each in both the MNA and SA regions' economies.

Settlement model

Instant gross settlement was a preferred choice for settlement for 52 percent of those operating such systems, while 46 percent opted for deferred net settlement. Only one country, located in the ECA region, reported deferred gross settlement. High-income and upper middle-income economies showed a preference for instant gross settlement option. In contrast, 88 percent of lower middle-income economies prefer the net settlement option.[41]

Payment instruments and channels supported by fast payments

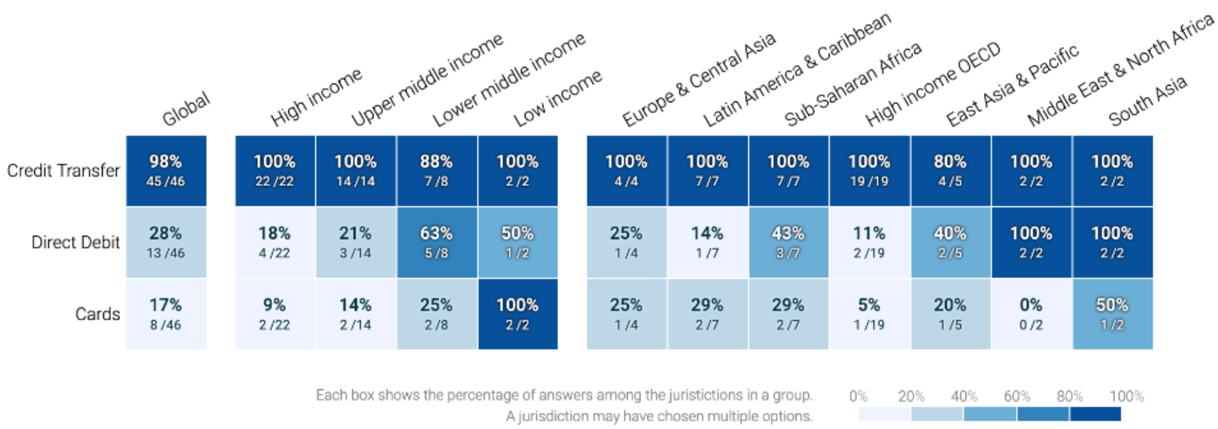
---

[40] There are several terms used to characterize this type of service, such as faster payments, fast payments, instant payments, etc. These systems and services are characterized by a multiplicity of models and features. From a World Bank perspective and also the purposes of the GPSS, the key aspect differentiating this service from others is the immediate availability of funds to the final beneficiary. Therefore, "fast payment" has been selected as the term to refer to them.

[41] Based on PSDG's experience, the choice of the settlement model is often a function of how fast payments were implemented. If it was a brand-new system implementation, it is more likely to follow the instant gross settlement model, whereas if it is an adaptation/upgrade of an existing system (e.g. ATM switch or ACH), then it is more likely to be using the deferred net settlement model.

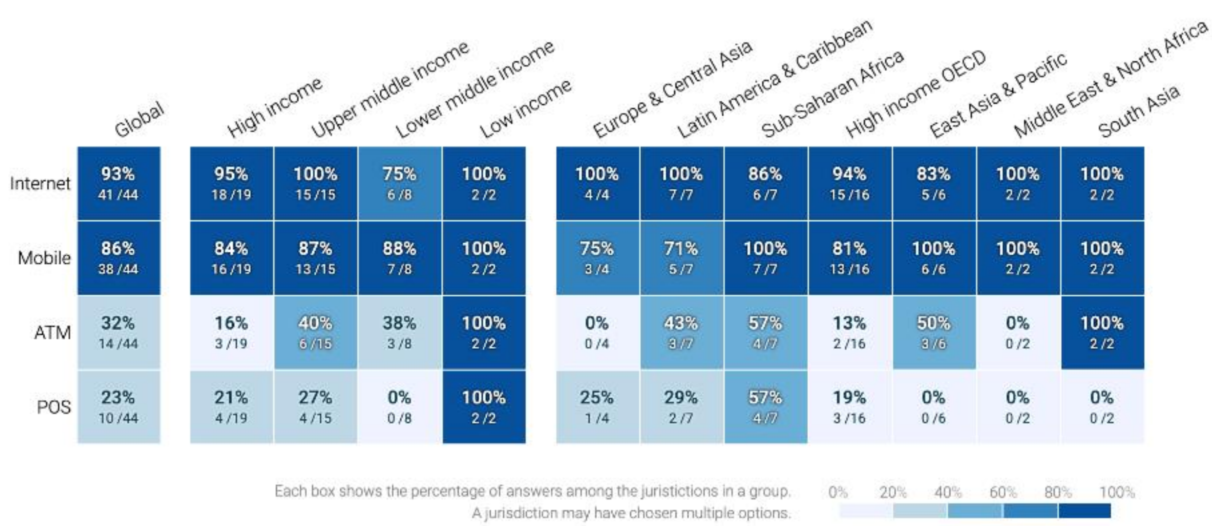
As shown in **Chart III.4**, all but one of the economies that have fast payments and that answered this question indicated that the system supports account-based credit transfers. Card-based funds transfers are supported in 8 economies (17 percent), including the one country where account-based credit transfers are not supported. Further, in 28 percent of the cases fast payments also support direct debits, including in all responding economies in the MNA and SA regions.

Chart III.4: Payment instruments supported by fast payments



Regarding the channels from which fast payment services may be accessed, **Chart III.5** shows that in the vast majority of cases (93 percent) Internet banking can be used to initiate a transaction of this kind. The percentage is similar for the mobile channel at 86 percent. Further analysis indicates that all reporting economies offer access to fast payments through at least one of these two options. On the other hand, only in 32 and 23 percent of the cases this can be done through the ATM and POS network channels, respectively.

Chart III.5: Channels from which fast payments may be accessed



All upper middle-income and low-income economies offer access to fast payments through the Internet banking channel, but this is observed in only 75 percent of lower middle-income economies. For what concerns the mobile channel, all reporting low-income economies offer this capability.

Limits on fast payment transactions

Per transaction and/or daily limits for users of fast payment services are a common risk management measure set by the operator and/or the participating PSPs.

Eighty-three percent of the 47 respondents indicated that there are per transaction limits on fast payment transactions. These limits are more common in high-income OECD economies and in the MNA region (95 and 100 percent of the cases, respectively), and less so in the SA region.

Regarding daily amount limits per user, only 43 percent of the respondents indicated they have established this type of limit. An amount limit per user is enforced in the two MNA economies that have implemented fast payments, but in none of the four ECA economies having this same implementation.

PAYMENT CARD SYSTEMS

This section covers payment cards, payment card switches[42] and other related aspects.

Dominant payment card brands

The first question queried about the dominance in the domestic market of international card brands like Visa, MasterCard and others, versus domestic brands/schemes. International brands dominate the domestic card market in 83 of the responding economies (74 percent). They are especially dominant in upper middle-income economies (84 percent), while in lower middle-income and low-income economies they also dominate but to a lesser extent at 64 and 67 percent, respectively.

International brands are very dominant in the MNA region (100 percent), the ECA region (94 percent) and in the LAC region and SA regions (both around 80 percent). However, their dominance is subdued in EAP, dominating in only 36 percent of this region’s economies.

Payment card switches operating in the country

This question was answered by 94 central banks which have at least one operational payment card switch (i.e. in production stage). Globally, 45 percent of these economies indicated there is one payment card switch operating in the country, 19 percent reported 2switches and 36 percent reported 3 or more switches. The majority (71 percent) of the low-income economies had only one operational switch. In contrast, 64 percent of high-income economies and 54 percent of upper middle-income economies reported having 2 or more switches in operation. Multiple

[42] A payment card switch is defined as a mechanism that connects various institutions allowing interchange of payment cards transactions of participating institution cardholders at other participating institution merchants, ATMs and other card acceptance devices. It is typically used for routing authorization and authentication-related messages between participating institutions, and can also generate and distribute clearing and settlement files (and in this last sense it can be considered an ACH).

switches are especially prevalent in the ECA region and in high-income economies. In contrast, 75 percent of the economies in SA region had only one switch in operation.

Interoperability

Central banks were asked to assess the interoperability of ATMs, POS terminals and mobile money (at least for a person-to-person transfers) terminals in four broad categories: full interoperability, good interoperability, low interoperability and no interoperability.[43]

For what concerns ATMs and POS terminals, about two-thirds of the 110 central banks that answered this question indicated that ATMs and POS terminals in their country are fully interoperable.[44] If "full interoperability" and "good interoperability" are considered together, then ATM interoperability stands at 87 percent and POS interoperability at 90 percent. In contrast, 8 percent of economies reported low interoperability and 5 percent reported no interoperability (5 economies) for ATMs, and a similar overall picture for POS terminals.

For ATMs, 85 percent of high-income economies reported having full interoperability, and an additional 10 percent consider they have good interoperability. The combination of these two categories yields 86 percent in lower middle-income economies and an almost identical percentage (85 percent) in upper middle-income economies. In terms of regional comparisons, all high-income OECD countries have full or good interoperability, and this same combination reaches above 80 percent in the ECA, MNA, SSA and EPA regions.

For the most part, the results for POS terminals are similar and even slightly higher: 100 percent of high-income OECD countries and countries in the ECA and MNA regions reported having either full interoperability or good interoperability. If only full interoperability is considered for these three regions, there are relevant differences: 95 percent in the first case and about 75 percent for the two latter regions. In contrast, full interoperability of POS terminals is reached in only about one-third of the economies in the EAP and LAC regions.

In the case of mobile money, results are less encouraging: 55 percent of the 98 jurisdictions that answered this question indicated there is no interoperability of mobile money services (not even for person-to-person transfers). "Full interoperability" and "good interoperability" are achieved in only 19 and 12 percent, respectively, of economies globally. The fact that mobile money is much newer than payment cards may explain this significant variation. No interoperability is more prevalent in the ECA, EAP and LAC regions, at 85, 73 and 62 percent, respectively, while full interoperability is more common in the SA region (3 of 4 responses or 75 percent).

Payment services provided through ATMs

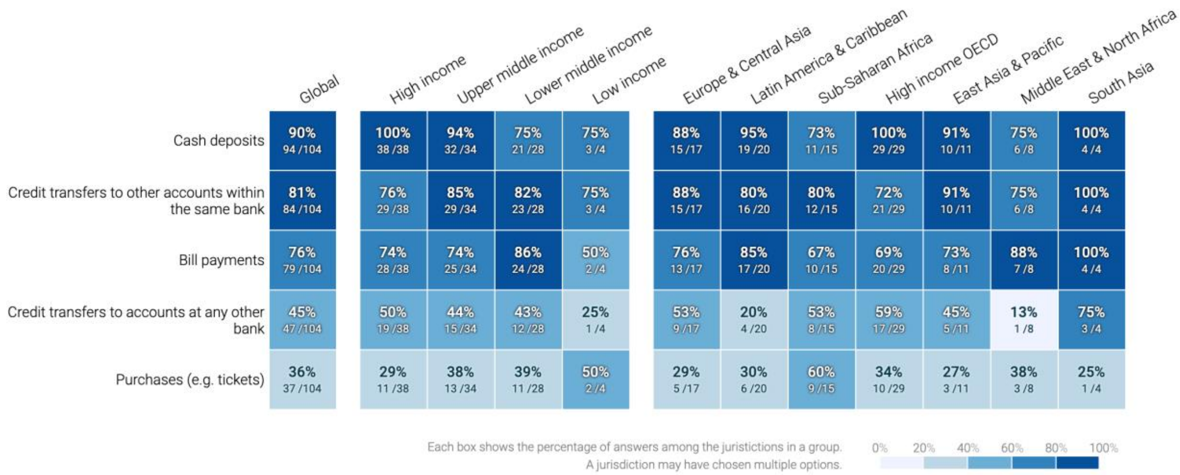
In many economies, a growing range of services is offered through ATMs in addition to cash withdrawals. **Chart III.6** shows the responses for six such services. Cash deposits, intrabank funds transfers and bill payments are offered through ATMs in 73 percent or more of the responding economies. Low-income economies rank at the bottom for all these three services. Interbank

[43] See the GPSS questionnaire for definitions of each of these categories.

[44] Separate questions were asked for ATMs and POS terminals, and for this reason it may be that one or more countries reported full interoperability only for ATMs or only for POS terminals.

funds transfers through ATMs are available in only 44 percent of the responding economies, with very similar percentages being observed in all country income categories except for low-income economies (the latter at only 14 percent or 1 out of 7 responses). On the other hand, low-income economies, especially in the SA region, lead in the provision of “other” services through ATMs.

Chart III.6: Payment services other than cash withdrawals provided through ATMs



Processing and settlement of ATM and POS transactions

In almost 90 percent of the reporting countries, domestic ATM transactions are processed (including clearing and settlement) within the country. Higher percentages are observed in high-income and lower middle-income economies with 93 percent of economies within each of these groups, while lower ones are observed in low-income economies at 78 percent. The ECA region is the one showing the lower percentage of countries that process ATM transactions domestically, at 65 percent. This same percentage reaches 100 percent in the economies belonging to the EAP, MNA and SA regions.

Also for ATMs, in 84 percent of the jurisdictions there is inter-network clearing and settlement resulting from the interconnection of most or all of the ATM networks in those jurisdictions. This percentage is similar across country income levels, except for low-income countries at only 56 percent. Moreover, the SA region had the highest percentage of countries (40 percent) that do not have their domestic ATM networks interconnected.

Meanwhile, in 12 countries some of the processing is done abroad: in 5 of these countries, ATM transactions are cleared through international networks but are settled locally in central bank money, while in 3 the same mechanism applies except for settlement being done in commercial bank money. In the 4 remaining cases ATM transactions are cleared and settled abroad.

For what concerns POS transactions, 80 percent of the central banks reported that the domestic POS transactions are processed within the country, which is lower than the 90 percent observed for ATM transactions. There are no significant differences across country income categories, and from the regional perspective domestic processing is more common than the global average in

EAP (100 percent) and in high-income OECD countries (88 percent). The lowest percentage is observed in economies in the ECA region.

Eighty-three percent of the reporting economies indicated that for POS transactions there is inter-network clearing and settlement, a percentage that is almost identical to the one for ATMs (i.e. 84 percent). Also, like in the case of ATM transactions, the lowest percentage is observed in the SA region (2 out of 4 responding countries).

Further, out of the 19 jurisdictions that indicated that POS transactions are not fully processed domestically, 53 percent mentioned that clearing and settlement is done abroad through international networks, reaching 100 percent in high-income OECD countries and in countries in the MNA region. Another 5 jurisdictions indicate that POS transactions that are cleared abroad settle locally in central bank money, while in the 4 remaining cases settlement occurs in commercial bank money.

<u>Interchange fees and merchant discount rates</u>

A total of 103 countries answered the questions on interchange fees for payment cards, while around 90 answered those related to merchant discount rates (MDRs).

In the first case, 47 percent of the responding central banks believe that interchange fee levels prevailing in the national card market are high, a percentage that drops to only 11 percent in the EAP region and 29 percent in high-income OECD countries. Already, two-thirds of the responding central banks have acted or are considering acting to address this issue. Action seems to be triggered solely or mostly by the *perception* of high interchange fee levels and not so much due to litigation as only 10 percent of jurisdictions reported litigation brought by merchants or by the government. Action has been taken in 88 percent of the jurisdictions in the MNA region and in 81 percent of those in the ECA region.

As for MDRs, 43 percent of the responding central banks believe that MDR levels prevailing in the national card market are high. Already 46 percent of the jurisdictions have taken action or are considering taking action to address this issue.[45] All 4 responding economies in the SA region indicated that they have already taken action or are considering taking action to address the high levels of MDRs. The percentages for other regions are much lower, at 56 percent in the SSA region and 50 percent or below in the remaining ones.

Litigation on high MDRs has been brought in only 9 percent of the jurisdictions by merchants and 3 percent by the government. Instances of litigation on high MDRs brought by merchants have occurred in 29 percent of the economies in the MNA region, compared to in less than 10 percent of the economies in the SSA region or in high-income OECD economies.

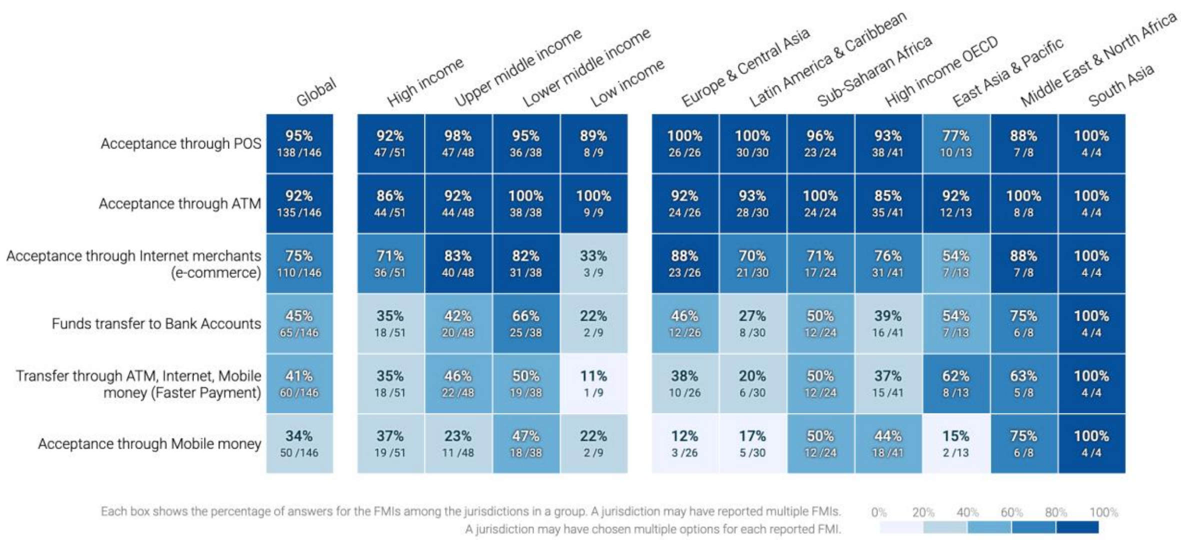
[45] Based on PSDG experience, action in many jurisdictions has consisted in authorities limiting the interchange fee (which represents a chunk of the MDR) with the hope that the market will find an optimum MDR, while other authorities have capped the MDR itself forcing the cards schemes to adjust interchange fees.

Main features of domestic payment card switches

This section of the survey asked information about the main card switches operating in each country (up to 3 switches per country). Responses covered 148 switches from 94 countries. The analysis in this sub-section considers the number of switches rather than number of countries.

Regarding the *types of payment transactions supported by the switches*, **Chart III.7** shows that, globally, 93 percent of the switches support payment card acceptance at POS terminals and 91 percent at ATMs. There is little variation across country income levels in the case of POS terminals and slightly more for ATMs. From a regional angle there are some differences though. All switches in the ECA, LAC and SA regions reported supporting payment card acceptance at POS terminals, while for ATMs this same percentage was reported by switches in the MNA, SA and SSA regions.

Chart III.7: Transactions supported by the switch (authorization, clearing and settlement)



Almost three-quarters of all switches also support payment card acceptance for e-commerce transactions, with low-income economies lagging in this indicator at only 33 percent.

Other types of payment transactions in **Chart III.7** are supported by less than half of switches globally. This includes funds transfers to bank accounts (44 percent of the cases), funds transfers through ATMs, Internet, mobile money or fast payments (41 percent), and payment acceptance through mobile money (34 percent). Domestic switches supporting these transactions is more common in upper middle-income economies and in lower middle-income economies, and especially in the MNA and SA regions. The LAC region ranks at the bottom in most cases.

As for the *ownership structure of the switches*, as shown in **Chart III.8**, 24 percent of them are owned by a consortium of a few large banks and 18 percent by a consortium of most of the banks in the country. Almost half are owned by other private sector entities, while 12 percent are owned by the public sector (mostly the central bank). Ownership by the public sector is more common in low-income economies: in 33 percent of them the switch is owned by the central bank. In terms of a regional analysis, ownership by non-bank private entities is more common in

High-income ECD economies. Ownership by a consortium of a few large banks is prevalent in the LAC region, with 60 percent of the switches having this type of ownership.

Chart III.8: Ownership of the switches

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Other private sector entities	46% 68/148	64% 34/53	31% 15/48	42% 16/38	33% 3/9	40% 10/25	27% 8/30	46% 11/24	74% 32/43	0% 0/13	56% 5/9	50% 2/4
Consortium of a few large banks	24% 35/148	9% 5/53	40% 19/48	26% 10/38	11% 1/9	28% 7/25	60% 18/30	8% 2/24	2% 1/43	31% 4/13	22% 2/9	25% 1/4
Consortium of banks in the country (80% or more of banks)	18% 27/148	23% 12/53	13% 6/48	18% 7/38	22% 2/9	16% 4/25	3% 1/30	29% 7/24	21% 9/43	38% 5/13	11% 1/9	0% 0/4
Central Bank	9% 13/148	0% 0/53	10% 5/48	13% 5/38	33% 3/9	8% 2/25	3% 1/30	17% 4/24	0% 0/43	31% 4/13	11% 1/9	25% 1/4
Other Government bodies	3% 5/148	4% 2/53	6% 3/48	0% 0/38	0% 0/9	8% 2/25	7% 2/30	0% 0/24	2% 1/43	0% 0/13	0% 0/9	0% 0/4

Each box shows the percentage of answers for the FMIs among the jurisdictions in a group. A jurisdiction may have reported multiple FMIs. 0% 15% 30% 45% 60% 74%

Chart III.9: Other services supported by card switches (different from payment acceptance)

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Provide transaction statistics and related analytical reports	73% 102/140	71% 35/49	76% 35/46	68% 25/37	88% 7/8	92% 23/25	66% 19/29	82% 18/22	70% 28/40	46% 6/13	57% 4/7	100% 4/4
Gateway for foreign transactions on domestic cards and foreign cards used in the country	64% 90/140	63% 31/49	67% 31/46	70% 26/37	25% 2/8	76% 19/25	69% 20/29	55% 12/22	70% 28/40	23% 3/13	71% 5/7	75% 3/4
Operate POS terminals	62% 87/140	55% 27/49	59% 27/46	73% 27/37	75% 6/8	80% 20/25	69% 20/29	59% 13/22	53% 21/40	31% 4/13	71% 5/7	100% 4/4
Operate payment card brand	55% 77/140	49% 24/49	54% 25/46	59% 22/37	75% 6/8	44% 11/25	59% 17/29	64% 14/22	45% 18/40	77% 10/13	57% 4/7	75% 3/4
Operate ATM terminals	53% 74/140	41% 20/49	52% 24/46	62% 23/37	88% 7/8	72% 18/25	55% 16/29	64% 14/22	35% 14/40	46% 6/13	29% 2/7	100% 4/4
Conduct market research	46% 64/140	53% 26/49	52% 24/46	30% 11/37	38% 3/8	48% 12/25	38% 11/29	45% 10/22	53% 21/40	38% 5/13	29% 2/7	75% 3/4
Host platform for prepaid cards, debit cards, credit cards, mobile money	44% 62/140	35% 17/49	41% 19/46	57% 21/37	63% 5/8	56% 14/25	34% 10/29	64% 14/22	30% 12/40	23% 3/13	71% 5/7	100% 4/4
Manage merchant relationships	41% 57/140	45% 22/49	35% 16/46	49% 18/37	13% 1/8	48% 12/25	38% 11/29	36% 8/22	40% 16/40	31% 4/13	43% 3/7	75% 3/4
Provide settlement guarantee to merchants	34% 47/140	39% 19/49	33% 15/46	30% 11/37	25% 2/8	28% 7/25	38% 11/29	27% 6/22	40% 16/40	15% 2/13	29% 2/7	75% 3/4
Act as counterparty for transactions cleared through the network	27% 38/140	20% 10/49	30% 14/46	32% 12/37	25% 2/8	40% 10/25	31% 9/29	27% 6/22	10% 4/40	31% 4/13	71% 5/7	0% 0/4
ATM cash management	21% 29/140	16% 8/49	22% 10/46	24% 9/37	25% 2/8	36% 9/25	31% 9/29	9% 2/22	13% 5/40	15% 2/13	14% 1/7	25% 1/4
Operates Mobile Money accounts	9% 12/140	2% 1/49	4% 2/46	22% 8/37	13% 1/8	0% 0/25	7% 2/29	14% 3/22	3% 1/40	0% 0/13	29% 2/7	100% 4/4

Each box shows the percentage of answers for the FMIs among the jurisdictions in a group. A jurisdiction may have reported multiple FMIs. A jurisdiction may have chosen multiple options for each reported FMI. 0% 20% 40% 60% 80% 100%

Regarding *settlement of domestic transactions*, globally in 59 percent of the cases final settlement of net positions takes place through the domestic RTGS system, followed by final settlement in commercial bank money inside the country (30 percent). Settlement in commercial bank money is more common in the SA, MNA and ECA regions (75, 50 and 46 percent of cases, respectively). Final settlement occurring in another country was reported by only 9 of the 145 switches, 3 each in the ECA, LAC and SSA regions.

In the *area of pricing*, full cost recovery (16 percent) and full cost recovery plus building a surplus (55 percent) are the two most common pricing models adopted by the switches. Only 7 percent of the switches offer their services free-of-charge. While in the SSA region 73 percent of switches operated on the basis of full cost recovery and building a surplus, this pricing model is followed in only 38 of the switches in the MNA region and 35 of those in the ECA region.

Finally, **Chart III.9** shows services other than payment transaction acceptance that are supported by card switches around the world.

PSP access to the switches

As with other payment infrastructures discussed in sections II and III, the survey asked information about the types of PSPs that can have direct or indirect access. Overall, responses follow the same trend as for ACH systems. Commercial banks have extensive direct access (90 percent), followed in a distant second place by supervised NBFIs (37 percent). Another 17 percent of the switches provide indirect access to the latter. In the other extreme, only a few of the other types of PSPs have direct or indirect access (see **Table III.20**).

Table III.20(g): Access to card switches by non-bank PSPs (different from supervised NBFIs)

PSP type	% of switches that allow direct access	% of switches that allow indirect access	Region where direct access is more common
MTOs	7%	7%	SSA (25%)
Unsupervised NBFIs	1%	7%	SSA (5%)
MNOs	6%	7%	SSA (20%)
Other non-financial institutions	13%	6%	SSA (31%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table III.20g.

Oversight and other roles of the central bank

A total of 66 economies (59 percent) reported that the central bank plays a role in domestic payment card switches. The central bank plays a role in two-thirds or more in economies of all income levels except for high-income economies where this percentage is only 37 percent.

Chart III.10 includes information of the responses from 65 economies where the central bank plays one or more roles with regard to switches**.** The central bank is the overseer of switches in 91 percent of the cases, followed by providing settlement services in 69 percent of them. Other roles such as being a shareholder of the switch or member of its board of directors are much less common (23 and 20 percent, respectively), and in only 15 percent of cases the central bank acts as the operator of the system.

Chart III.10: Roles played by the central bank in payment card switches

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Overseer	91% 59/65	100% 14/14	86% 19/22	91% 20/22	86% 6/7	92% 11/12	83% 10/12	86% 12/14	100% 10/10	100% 8/8	100% 6/6	67% 2/3
Provider of settlement services (e.g. settlement of interbank balances at the RTGS system)	69% 45/65	71% 10/14	73% 16/22	59% 13/22	86% 6/7	67% 8/12	67% 8/12	71% 10/14	70% 7/10	75% 6/8	50% 3/6	100% 3/3
Shareholder	23% 15/65	0% 0/14	27% 6/22	32% 7/22	29% 2/7	50% 6/12	8% 1/12	36% 5/14	0% 0/10	25% 2/8	17% 1/6	0% 0/3
Member of the board of directors	20% 13/65	7% 1/14	18% 4/22	32% 7/22	14% 1/7	33% 4/12	0% 0/12	36% 5/14	0% 0/10	25% 2/8	33% 2/6	0% 0/3
Operator	15% 10/65	0% 0/14	18% 4/22	18% 4/22	29% 2/7	25% 3/12	8% 1/12	14% 2/14	0% 0/10	13% 1/8	33% 2/6	33% 1/3

Each box shows the percentage of answers among the juristictions in a group.
A jurisdiction may have chosen multiple options.
0% 20% 40% 60% 80% 100%

High-income economies restrict the central bank role to overseer (100 percent) and provider of settlement services (71 percent), while economies in other country income categories tend to play additional roles. In addition to high-income economies, the oversight role is observed in all economies in the EAP and MNA regions, and in 92 percent of those in the ECA region. Additional roles of the central bank are more common in the ECA region followed by SSA, MNA and EAP.

In terms of membership in the board of directors, out of the 11 central banks that answered this question 10 of them indicated that the central bank has "voice" and "vote", while in the remaining one it only has "voice".

On the issue of settlement of the transactions processed by the switches, the survey included questions on *whether the central bank mandates some or all such transactions to be settled domestically*. Separate questions were included for debit and prepaid card transactions at ATMs and at POS terminals, and then also for credit card transactions at these two channels. The main results are shown in **Table III.22,** focusing on regional differences. In general, in high-income economies there is no central bank mandate for this purpose.

Table III.22: Central bank mandating domestic settlement of transactions processed by switches

Transaction type	Central bank mandates through regulation		Central bank "mandates" through moral suasion only	
	YES (% of 108 economies)	Regions where this is more common	YES (% of 108 economies)	Region where this is more common
Debit or prepaid card at ATM	28%	MNA (71%) and SA (50%)	11%	EAP (36%) and SSA (25%)
Debit or prepaid card at POS terminal	27%	MNA (57%) and EAP (45%)	11%	EAP (27%) and SSA (25%)
Credit card at ATM	22%	MNA (43%) and SA (38%)	9%	EAP (27%) and SSA (19%)
Credit card at POS terminal	22%	MNA (43%) and SA (38%)	9%	EAP (27%) and SSA (19%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table III.22.

Also, in the area of settlement, the survey asked whether the central bank has designated a national payment cards switch for settling domestic transactions. Of the 41 jurisdictions that rely on regulation or moral suasion for having domestic settlement of payment card transactions, in 56 percent of them the central bank has designated a national payment card switch for this purpose, being more prevalent in the ECA region with 83 percent of the cases.[46]

Measures to prevent fraud in payment card transactions

The measures to prevent fraud that were include in the survey were legal requirements on PSPs, industry-led standards (e.g. PCI DSS and EMV compliance, among others) and joint efforts of the banking industry and merchants' associations. Globally, 88 percent of the jurisdictions reported that there are legal requirements applicable to PSPs issuing payment to protect cardholders from fraud, while 85 percent also reported they follow industry-led standards. Moreover, 70 percent have engaged in common efforts to prevent and combat fraud.

Legal requirements are somewhat more common in high-income economies (93 percent) than in other country income levels (75 percent in the case of low-income economies). Regions under the global average are SA and LAC at 78 and 76 percent, respectively. Industry-led standards are observed in all country income level and regions, except for SA with only 50 percent. Finally, joint efforts to prevent and combat fraud are less common in low-income economies, especially in the SSA region.

NBFIs and non-financial institutions that issue cards and other non-cash payment instruments

Globally, issuance of non-cash payment instruments by NBFIs and non-financial entities is on the rise. The current situation as per the responses to GPSS 2018 is reflected in **Chart III.11**. Overall, issuance of non-cash payment instruments by these entities is still relatively limited, in a range

[46] The results for the high-income OECD countries and for the SA region are 100 percent, but this may not be representative as only one answer was provided in the first case and two in the second.

going from 22 percent and up to 35 percent for financial cooperatives and credit unions. Interestingly, depending on the type of entity the regions that are more permissible on this issue are high-income OECD countries and the SSA region. Low-income economies in general reach 100 percent for MNOs, while high-income economies reach more than 50 percent for financial cooperatives and credit unions and for other financial institutions, and 41 percent for non-financial entities.

Chart III.11: Issuance of non-cash payment instruments by NBFIs and non-financial entities

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Other financial institutions	41% 37/90	56% 20/36	31% 9/29	37% 7/19	17% 1/6	40% 4/10	30% 6/20	27% 4/15	67% 18/27	20% 2/10	60% 3/5	0% 0/3
Financial cooperatives and credit unions	38% 34/90	58% 21/36	31% 9/29	21% 4/19	0% 0/6	0% 0/10	75% 15/20	7% 1/15	63% 17/27	10% 1/10	0% 0/5	0% 0/3
Mobile network operators	34% 31/90	17% 6/36	34% 10/29	47% 9/19	100% 6/6	0% 0/10	25% 5/20	67% 10/15	22% 6/27	60% 6/10	40% 2/5	67% 2/3
Postal network	33% 30/90	39% 14/36	31% 9/29	26% 5/19	33% 2/6	50% 5/10	10% 2/20	53% 8/15	41% 11/27	10% 1/10	40% 2/5	33% 1/3
Other non-financial institutions	28% 25/90	42% 15/36	28% 8/29	11% 2/19	0% 0/6	10% 1/10	25% 5/20	13% 2/15	44% 12/27	20% 2/10	60% 3/5	0% 0/3
Microfinance institutions	23% 21/90	11% 4/36	21% 6/29	42% 8/19	50% 3/6	10% 1/10	20% 4/20	47% 7/15	11% 3/27	40% 4/10	20% 1/5	33% 1/3

Each box shows the percentage of answers among the juristictions in a group.
A jurisdiction may have chosen multiple options.
0% 20% 40% 60% 80% 100%

GOVERNMENT PAYMENTS

In the final part of the Retail Payment Systems and Instruments section of GPSS 2018, the survey aimed at obtaining information on the "most widely used" payment instruments for four broad categories of government payments and collections: i) Government to Person (G2P) payments; ii) Person to Government (P2G) payments; iii) Government to Business (G2B) payments; and, iv) Business to Government (B2G) payments. The questionnaire asked the respondent jurisdictions to indicate for each of the use cases the percentage of payments that are made through cash, paper instruments and electronic instruments. In order to do meaningful comparisons, percentages were categorized into high usage (> 75 percent), upper medium usage (> 50 percent but ≤ 75 percent), lower medium usage (> 25 but ≤ 50 percent), and low usage (25 percent or less).

It is worth noting that for most of the questions in this sub-section of the survey, responses were received from only about half, or in some cases even less, of the total number of respondents.

G2P and G2B payments

G2P payments have three main uses cases: i) public sector payroll; ii) pension payments; and, iii) cash transfers & social benefits. Key survey results are shown in **Table III.26**. For G2P payments, electronic payments are by far the most widely used instruments, with high levels of use in 85 percent of economies in the case of payroll, in 84 percent for pension payments and in 79 percent for cash transfers and social sector payments. All economies reported low usage of cash for all of these G2P use cases, with only one exception for cash transfers in one country in the LAC region.

Table III.26a: Use of electronic payment instruments for G2P and G2B payments

Payment type	Use case	"High usage" of electronic instruments (% of countries)	Regions where "high usage" of electronic payment instruments is *more* prevalent	Region where "high usage" of electronic payment instruments is *less* prevalent
G2P payments	Public sector payroll	85% of 55 respondents	High-income OECD, ECA and EAP (all 100%)	MNA (50%) and SA (67%)
	Pension payments	84% of 50 respondents	High-income OECD, ECA and EAP (all 100%)	MNA (33%) and SA (67%)
	Cash transfers and social benefit payment	79% of 48 respondents	High-income OECD, ECA and EAP (all 100%)	MNA (33%) and LAC (50%)
G2B payments	Procurement of goods and services	83% of 47 respondents	High-income OECD, ECA and EAP (all 100%)	SA (33%) and MNA (50%)
	Tax refunds	76% of 41 respondents	High-income OECD and ECA (both 100%)	SA (33%) and EPA and MNA (50%)
	Subsidies	79% of 38 respondents	High-income OECD, ECA and EAP (all 100%)	SA (33%) and MNA (50%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table III.26a.

In the case of G2B payments, the three key use cases are: i) procurement of goods and services; ii) tax refunds; and, iii) subsidies. As shown in **Table III.26a**, just like with G2P payments, electronic payment instruments are by far the most widely used instruments for these three use cases of G2B payments. In the case of procurement of goods and services, 83 percent of the economies reported high levels of usage of electronic payment instruments (though this is reported by only 25 percent of low-income economies). High level of usage of electronic instruments was reported in 79 percent of countries for subsidies and 76 percent of countries for tax refunds. In the case of low-income economies, however, all of them reported low usage of electronic payments for tax refunds and 80 percent reported low usage for subsidies.

All countries reported low usage of cash for G2B payments. Where electronic payments are not highly used, paper-based instruments are preferred instead of cash. For example, 25 percent of low-income economies indicated the usage of electronic payment instruments is low, and the remaining 75 percent of economies indicated the use of paper-based instruments is high.

<u>P2G and P2B payments</u>

The three main uses cases for P2G payments are: i) tax payments; ii) payment of services; and, iii) utility payments (where the utility is state-owned). Key survey results are shown in **Table III.29**. Overall, high usage of electronic payment instruments for P2G payments is significantly lower than for G2P or G2B payments. For tax payments, 59 percent of the economies reported high usage levels of electronic payments. This decreases to 56 percent for payment of services and to 50 percent for utility payments. High usage of cash is also more prevalent than in the case of G2P or G2B payments. Moreover, cash appears to be the direct substitute of electronic payments.

Table III.29: Use of electronic payment instruments for P2G and B2G payments

Payment type	**Use case**	**"High usage" of electronic instruments (% of countries)**	**Regions where "high usage" of electronic payment instruments is *more* prevalent**	**Region where "high usage" of electronic payment instruments is *less* prevalent**
P2G payments	Tax payments	59% of 34 respondents	High-income OECD (89%) and SSA (63%)	SA (0%) and LAC (33%)
	Payment of services	56% of 34 respondents	MNA (100%) and High-income OECD (89%)	LAC (29%) and ECA and SA (33%)
	Utility payments	50% of 28 respondents	EAP (100%) and High-income OECD (71%)	LAC (20%) and SA (33%)
B2G payments	Tax payments	73% of 37 respondents	High-income OECD and MNA (both 100%)	SA (0%) and EAP and LAC (both 50%)
	Payment of services	76%	High-income OECD and ECA (both 100%)	SA (0%) and SSA (38%)
	Utility payments	72% of 29 respondents	ECA and MNA (both 100%)	SA (0%) and SSA (43%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table III.29.

Finally, for B2G payments the main use cases are the same as for P2G payments. High levels of usage of electronic instruments were reported in 73 percent of economies for tax payments (compared to 59 percent for tax payments made by individuals), and such usage is notably higher in high-income economies (93 percent) than in all other country income categories. For utility payments and payment of services, high levels of usage of electronic payments were reported by 72 percent and 64 percent of the economies, respectively.

Regarding cash usage for B2G payments, high level of usage was reported mainly in lower middle-income and low-income economies and more particularly in SA and SSA regions. High usage of cash is more prevalent for utility payments and for the payment of other services.

In summary, electronic payments have gained substantial track for all types of government payments and collections. Advances in technology, communication infrastructure and payment systems and focus on financial inclusion have facilitated this. In general, low-income economies are still lagging in the adoption of electronic payment methods for government payments. Nevertheless, there is still room for more improvement for all types of economies in all use cases, most notably for those in the area of P2G payments.

Plans to migrate government payments and collections to electronic

Globally, 67 percent of the economies reported working on plan to migrate government payments to electronic in the near term. Of the 33 percent of economies that indicated no such plans, 19 belong to high-income economies where electronic payments have already been widely used for government payments. Interestingly, all low-income economies reported having plans to migrate government payments to electronic. From a regional angle, all economies in the SA region, 88 percent in MNA, 83 in SSA, 82 in EAP and 71 in the LAC region have such plan.

The majority of countries (57 percent) indicated that the migration of government payments to electronic is being driven mostly by financial inclusion objectives. The other main objective indicated by the remaining share of countries is to increase the efficiency of the national treasury and/or reduce operational costs.

Respondents were further requested to indicate the preferred payment instrument or method for this migration. Options included in the survey were bank account/debit card, pre-paid card and mobile money account.

For practically all use cases of G2P and G2B payments, respondents showed a strong preference for bank account/debit card: 98 percent for payments to government suppliers, 98 percent for tax refunds, 96 percent for pension payments, 95 percent for payrolls and 87 percent for cash transfers and social benefit payments. For social benefits payments, however, preference of low-income economies for bank accounts/debit cards was 67 percent, while the remaining 33 percent of these economies indicated preference for a mobile money account. By far, prepaid cards were the least preferred instrument for the planned migration.

National Treasury payment and collection processes

Jurisdictions were also asked to provide details on the process underlying the disbursement of government payments. For the various payment use cases, "straight-through" payments (i.e. whereby the National Treasury pays directly to the account of the end beneficiary upon request by the executing government agency) are still a minority across all country income categories and regions, although preference for this method is growing. According to survey results, depending on the use case about 40 percent of economies or more already use this method, most notably in upper middle-income economies and lower middle-income economies.

In any case, the preferred method is still for the National Treasury (or equivalent institution) to deposit funds to the accounts of the relevant government agencies, which in turn make the payment to the intended beneficiary. The latter method is used in 67 percent of cases for cash transfers and social benefits payments, in 60 percent of cases for payrolls, 59 percent for pensions and 53 percent for payments to government suppliers.

It should be noted, however, that some economies use both methods depending on the use case, or even for specific programs within the same use case.

With regard to collections of the central government (taxes, duties, rights, etc.), the survey aimed at collecting information on the processes through which funds are consolidated in a treasury single account (TSA), account services provided by the central bank (or other entity) in its role as the government's banker and the features of the TSA. Survey results are shown in **Chart III.12**.

Among these, to the question as whether funds are transferred directly to, and concentrated/consolidated at the TSA, 78 percent of the economies globally reported having such capability. The use of such process is seen in 86 percent among upper middle-income economies, 81 percent of lower middle-income economies.

Chart III.12: Usage of the Treasury Single Account

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
The funds are transferred/consolidated at the account of the National Treasury (gov. collections).	78% 66 /85	68% 19 /28	86% 25 /29	81% 17 /21	71% 5 /7	100% 14 /14	75% 12 /16	88% 14 /16	65% 15 /23	43% 3 /7	100% 5 /5	75% 3 /4
There is an agreement between Treasury and Central Bank or commercial banks for TSA account usage.	64% 47 /73	58% 14 /24	71% 17 /24	65% 13 /20	60% 3 /5	93% 13 /14	43% 6 /14	71% 10 /14	61% 11 /18	40% 2 /5	75% 3 /4	50% 2 /4
Government units have access to account/sub-account at Central Bank or Treasury.	56% 42 /75	43% 10 /23	62% 16 /26	60% 12 /20	67% 4 /6	71% 10 /14	57% 8 /14	73% 11 /15	41% 7 /17	40% 2 /5	50% 3 /6	25% 1 /4
TSA is designed to have accounts at Central Bank versus having account details only at Treasury.	48% 33 /69	41% 9 /22	43% 10 /23	55% 11 /20	75% 3 /4	54% 7 /13	23% 3 /13	79% 11 /14	38% 6 /16	25% 1 /4	60% 3 /5	50% 2 /4
Usage of temporary bank accounts is allowed but with transfer of funds to TSA same/next day.	47% 32 /68	35% 8 /23	48% 11 /23	59% 10 /17	60% 3 /5	62% 8 /13	29% 4 /14	62% 8 /13	31% 5 /16	25% 1 /4	75% 3 /4	75% 3 /4

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

23% 38% 54% 69% 85% 100%

From a regional perspective, concentration of funds in the TSA is more prevalent in the ECA and MNA regions (100 percent in both cases).

SECTION IV: FOREIGN EXCHANGE SETTLEMENT SYSTEMS

The foreign exchange (FX) market serves as the primary mechanism for making payments across borders, transferring funds, and determining exchange rates between different national currencies. According to data collected by the Bank for International Settlements, the US dollar (USD) continued to be the dominant currency, being on one side of 88 percent of all trades in April 2019.[47] Trading in FX markets reached USD 6.6 trillion per day in April 2019, up from USD 5.1 trillion in 2016.

The major risk in the FX market is the potential risk of loss of the principal amount due to the failure of the counterparty to pay the contracted currency (also referred to as principal or Herstatt risk). Principal risk is sought to be mitigated by ensuring that the final settlement of one currency occurs if and only if the final settlement of the linked currency also occurs – embodied as the principle of payment versus payment (PVP).

The survey collected information regarding the organization of FX markets, including data on the existence of a centralized FX market in the responding countries as well as details of OTC markets. GPSS then discussed mechanisms being used for managing principal risk including PVP settlement arrangements.

GENERAL FEATURES OF THE FX MARKET

Given the pervasiveness of a few world currencies that dominate global FX markets, it is not surprising to see that in close to a half of surveyed countries, one foreign currency accounts for 90 percent or more of total FX transactions, as shown in **Table IV.1**. This type of FX concentration is the most acute in the LAC region, where 80 percent of respondent countries (16 of 22) reported one foreign currency accounting for 90 percent or more of total FX activity. This most likely reflects that the USD is even more dominant as a foreign currency throughout the Americas.

Fifty-three percent of the central banks that responded to this section indicated that they offer current account services to banks and/or other institutions in at least one major foreign currency, this being more evident in low-income economies (89 percent) and, from a regional perspective, in the MNA region. These services are much less prevalent in high-income economies.

Furthermore, 19 central banks (19 percent of the total) indicated that in their jurisdictions there are restrictions on FX dealings. According to the responses received, these restrictions are negatively correlated with country income levels, i.e. their prevalence increases as country income decreases.

ORGANIZED FX MARKETS AND UNDERLYING SETTLEMENT ARRANGEMENTS

A total of 86 central banks out of 112 (77 percent) indicated that there is no centralized FX market in their country. Comparing to the previous iteration, two more countries reported having one. The LAC region has 9 of these centralized domestic FX markets, followed by the EAP and SSA regions each of which has 5 such markets.

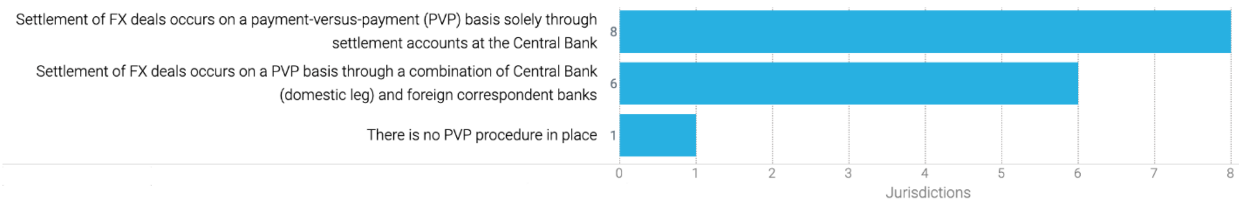
---

[47] See Bank for International Settlements (2020), *Triennial Central Bank Survey of Foreign Exchange and Over-the-counter (OTC) Derivatives Markets in 2019,* https://www.bis.org/statistics/rpfx19_fx.htm

Regarding the settlement arrangements of centralized FX markets, in 20 economies these are organized by the exchange where FX trading takes place, 8 of which are in the LAC region and 5 in the ECA region. In 5 of the remaining economies that have a centralized FX market, settlement is arranged bilaterally between the parties of an FX trade.

Within the settlement arrangements organized by an exchange, PVP is achieved in 14 of those arrangements (out of 15 that answered this question). **Figure IV.1** shows that in 8 of those 14 arrangements PVP occurs solely through settlement accounts at the central bank, while in the remaining 6 PVP occurs through a combination of central bank accounts (i.e. for the domestic leg) and foreign correspondent banks.

Figure IV.1: Settlement features of centralized FX markets



OTC FX MARKETS AND UNDERLYING SETTLEMENT ARRANGEMENTS

Regarding OTC FX markets, only 50 percent of respondents indicated that these have PVP arrangements in place, which is similar to the percentage observed in the 2015 iteration and shows that further efforts are needed to continue mitigating FX settlement risks. Higher percentages are observed in the SA, SSA and high-income OECD countries at 75, 65 and 63 percent, respectively (see **Table IV.3a**). In contrast, PVP arrangements are observed in only 24 percent of the economies in the ECA region that have OTC FX markets, in 38 percent of those in MNA and 41 percent of those in the LAC region.

Chart IV.1 shows the main features of PVP settlement arrangements for OTC markets. In 31 percent of the cases, central banks indicated the use of a common foreign correspondent bank to ensure PVP settlement. This arrangement is more common in the SA and SSA regions, and inexistent in the (few) responding countries of the ECA and MNA regions. In another 27 percent of the jurisdictions, the central bank, through the local RTGS or another system, provides accounts in foreign currency to ensure PVP settlement, a model that is followed in all MNA countries within this subset. Finally, 9 jurisdictions reported having a specific FX clearinghouse supporting OTC FX trades, 6 of which are in high-income OECD countries and the remaining 3 in LAC countries.

Chart IV.1: Mechanisms to facilitate PVP settlement of FX trades in OTC markets

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Common foreign correspondent bank	41% 15 /37	25% 3 /12	40% 6 /15	57% 4 /7	67% 2 /3	0% 0 /1	11% 1 /9	78% 7 /9	30% 3 /10	100% 2 /2	0% 0 /3	67% 2 /3
The central bank, through the local RTGS or other system, holds accounts in foreign currency	35% 13 /37	17% 2 /12	47% 7 /15	43% 3 /7	33% 1 /3	100% 1 /1	56% 5 /9	22% 2 /9	10% 1 /10	0% 0 /2	100% 3 /3	33% 1 /3
FX clearinghouse	24% 9 /37	58% 7 /12	13% 2 /15	0% 0 /7	0% 0 /3	0% 0 /1	33% 3 /9	0% 0 /9	60% 6 /10	0% 0 /2	0% 0 /3	0% 0 /3

Each box shows the percentage of answers among the juristictions in a group. 0% 20% 40% 60% 80% 100%

In the case of OTC markets without PVP arrangement, GPSS 2018 included questions to capture information of the time lag between the confirmation of settlement of the foreign currency leg and the domestic currency leg (see **Table IV.3b**). The parameters that were used were: (i) the lag does not exceed 2 hours; (ii) the lag exceeds 2 hours but is less than 24 hours; and, (iii) the lag exceeds 24 hours. The most common answers (48 percent of the cases) was a time lag that exceeds 2 hours but is less than 24 hours; followed by the time lag exceeding 24 hours (29 percent of the cases). In only 24 percent of the cases the lag does not exceed 2 hours.

Chart IV.2 shows that a time lag not exceeding 2 hours is relatively common only in upper middle-income economies and in the ECA region, each of these with 5 out of 11 responses (45 percent). A lag exceeding 2 hours but less than 24 hours is more prevalent in high-income economies, while a lag exceeding 24 hours occurs in about half of lower middle-income and low-income economies.

Chart IV.2: Time lag between the confirmation of settlement of the foreign currency leg and the domestic legs in markets without PVP

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Exceeds 2 hours but is less than 24 hours	48% 20 /42	64% 9 /14	36% 4 /11	40% 6 /15	50% 1 /2	45% 5 /11	43% 3 /7	50% 3 /6	70% 7 /10	25% 1 /4	0% 0 /3	100% 1 /1
Exceeds 24 hours	29% 12 /42	21% 3 /14	18% 2 /11	40% 6 /15	50% 1 /2	9% 1 /11	43% 3 /7	33% 2 /6	20% 2 /10	50% 2 /4	67% 2 /3	0% 0 /1
Does not exceed 2 hours	24% 10 /42	14% 2 /14	45% 5 /11	20% 3 /15	0% 0 /2	45% 5 /11	14% 1 /7	17% 1 /6	10% 1 /10	25% 1 /4	33% 1 /3	0% 0 /1

Each box shows the percentage of answers among the juristictions in a group. 0% 20% 40% 60% 80% 100%

SECTION V: INTERNATIONAL REMITTANCES AND OTHER CROSS-BORDER PAYMENTS

This section of GPSS 2018 first analyzes international remittances and then discusses other types of cross-border payments and the underlying developments in this area.

International remittance flows to low- and middle-income economies reached $529 billion in 2018, an increase of 9.6 percent over the previous record high of $483 billion in 2017. Excluding China, remittances to low- and middle-income economies ($462 billion) were significantly larger than foreign direct investment flows in 2018 ($344 billion). Global remittances, which include flows to high-income economies, reached $689 billion in 2018, up from $633 billion in 2017. However, in 2020 the global amount of remittances is expected to fall due to the COVID-19 pandemic, largely due to its negative impact on employment.

Given that for certain countries international remittances are equivalent to 20 percent or more of their GDP, significant global attention continues to be paid to facilitating the cross-border and domestic payment elements of these remittances. In terms of cost, from 2009 to 2019 the global average cost of sending international remittances fell by more than 2.8 percentage points, reaching 6.79 percent in the first quarter of 2020.[48]

Regarding other types of cross-border payments, as cross-border financial activities intensify as a result of trade and finance liberalization, authorities and private sector stakeholders in various countries continue to pursue projects of harmonization/integration of financial infrastructures.

INTERNATIONAL REMITTANCES

The GPSS approaches remittance services from a payment perspective, as cross-border, person-to-person transfers of a low-value. It aims to obtain information on the types of remittance service providers (RSPs) operating in various countries, how RSPs are regulated, and the main payment instruments used to channel international remittances. GPSS does not report statistics on the remittance flows by each country, or on the cost of sending remittances from one country to another. These two issues are reported in other WBG reports and sources.

At the outset, it should be noted that a central bank's perception of its local markets is not always aligned with trends observed for international remittances at the global level. This misalignment is more pronounced when it comes to reporting on operating models of RSPs, as opposed to legal and regulatory aspects.

Sending and receiving countries

At the global level, 41 percent of the respondent economies indicated they see themselves as a remittance-receiving country, 28 percent as a remittance-sending country and another 31 percent deemed to be both a remittance-receiving and remittance-sending country. Expectedly, high-income economies are mostly sending countries (58 percent), with a low share of these countries seeing themselves as remittance-receiving economies (8 percent). The situation is quite the opposite for low-income economies with 50 percent of them being remittance-receiving and

[48] Source: Remittance Prices Worldwide (RPW) database by the World Bank, https://remittanceprices.worldbank.org/en.

none remittance-sending economies. In terms of countries that designated themselves as both remittance-receiving and sending, high-income economies and upper middle-income showed similar percentages at 34 and 33 percent, respectively.

From a regional perspective, 52 percent of high-income OECD economies are remittance-sending, while the majority of economies in the ECA, LAC and EAP regions deemed themselves as remittance-receiving with 65, 60 and 55 percent, respectively. The MNA region tops the list of remittance-sending and receiving economies with 50 percent, followed by the SSA (44 percent) and SA (40 percent) regions.

<u>Licensing/authorization for providing remittance services as a principal</u>

This part of the survey questionnaire looks at the licensing/authorization of RSPs to offer remittance services in a given jurisdiction as a principal. The key results are shown in **Chart V.1**. Globally, international MTOs as well as local MTOs are subject to a licensing/authorization regime in about two-thirds of all economies. In the case of international MTOs, the need for a license varies from 64 percent in upper middle-income economies to 75 percent in low-income economies, while for local MTOs it varies from 60 percent in lower middle-income economies to 71 percent in both high-income and low-income economies. Moreover, according to survey results, about half of the economies surveyed require commercial banks to obtain a specific authorization or license in order to be able to provide remittance services.

Chart V.1: RSPs that require license/authorization

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
International MTOs (e.g. Western Union, Money Gram, UAE Exchange, Ria etc.)	68% 65/96	69% 24/35	64% 18/28	68% 17/25	75% 6/8	47% 7/15	76% 13/17	73% 11/15	70% 19/27	89% 8/9	50% 4/8	60% 3/5
Local MTOs	67% 64/96	71% 24/34	67% 20/30	60% 15/25	71% 5/7	63% 10/16	59% 10/17	67% 10/15	74% 20/27	89% 8/9	43% 3/7	60% 3/5
Commercial Banks	53% 42/79	52% 15/29	43% 12/28	67% 12/18	75% 3/4	47% 7/15	29% 4/14	90% 9/10	52% 11/21	67% 6/9	43% 3/7	67% 2/3
MTOs offering their services exclusively through the internet	44% 38/87	47% 16/34	46% 11/24	33% 7/21	50% 4/8	29% 4/14	38% 6/16	50% 7/14	58% 15/26	67% 4/6	17% 1/6	20% 1/5
Mobile network operators (MNOs) or other entities providing mobile money services	43% 39/91	32% 11/34	38% 10/26	52% 12/23	75% 6/8	29% 4/14	25% 4/16	60% 9/15	42% 11/26	75% 6/8	29% 2/7	60% 3/5
Postal network	42% 36/86	39% 13/33	50% 13/26	40% 8/20	29% 2/7	47% 7/15	20% 3/15	50% 7/14	44% 11/25	80% 4/5	14% 1/7	60% 3/5
Exchange bureaus / Exchange houses	38% 35/91	41% 14/34	44% 12/27	27% 6/22	38% 3/8	21% 3/14	19% 3/16	40% 6/15	50% 13/26	75% 6/8	57% 4/7	0% 0/5
MFIs	29% 25/85	29% 10/34	25% 6/24	30% 6/20	43% 3/7	23% 3/13	20% 3/15	23% 3/13	27% 7/26	71% 5/7	17% 1/6	60% 3/5
Financial cooperatives and credit unions	25% 22/87	26% 9/34	28% 7/25	25% 5/20	13% 1/8	29% 4/14	19% 3/16	7% 1/14	27% 7/26	67% 4/6	0% 0/6	60% 3/5

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

0% 20% 40% 60% 80% 100%

In terms of regional comparison, the need for International MTO and local MTO to have license or registration to provide remittances services is reported in most of the EAP countries (89 percent). In fact, the majority of the economies in all regions indicated the need for a license or authorization for international MTOs except in the ECA region where this requirement was reported by only 47 percent of the jurisdictions. In the case of local MTOs, the majority of the economies in all regions except for MNA (43 percent) require them to get a license/authorization.

The survey also asked respondents to indicate those RSPs that can offer remittance services as a principal *without* a specific license and/ or registration. In 16 percent of the responding economies, postal networks are permitted to offer remittance services without a specific license, reaching 29 percent of the economies in the SSA region, 24 percent of high-income OECD countries and 24 percent of countries in the SA region. Likewise, in 9 percent of the economies globally international MTOs can offer remittance services without a license or registration. Local MTOs can provide remittance services without any license/registration requirements in 5 percent of the jurisdictions.

<u>Use of agents and sub-agents</u>

This part of the survey asked if the use of agents in the provision of remittance services is permitted (e.g. for initiating remittance transactions in case of remittance sending economies, or for disbursements to final beneficiaries in case of remittance receiving economies). Nine different categories of financial and non-financial institutions were included.

Globally, in 87 percent of the economies the use of agents by RSPs is permitted, although among low-income economies this is only 75 percent. On a regional basis, high-income OECD countries reach 97 percent, followed by LAC at 90 percent. In contrast, in MNA use of agents is permitted in only 75 percent of that region's economies.

Regarding the types of entities that can perform the role of agents of RSPs, survey results are summarized in **Table V.6a**. These results show a general increase for all the RSPs in comparison with findings of the previous iteration.

Table V.6a: Entities that can act as agents of RSPs

Entity type	Can act as agent of an RSP (in %)	Regions with HIGHER % for each entity type	Regions with LOWER % for each entity type
Commercial banks	92%	MNA and SA (each 100%)	EAP (86%), LAC (88%)
Local MTOs	84%	MNA (100%), High-income OECD (92%)	SA (50%), ECA (67%)
Postal network	75%	SSA (82%), High-income OECD (81%)	LAC (63%), EAP, MNA (67%)
Exchange bureaus	61%	EAP (86%), MNA (80%)	SA (25%), ECA (38%)
Financial cooperatives and credit unions	59%	High-income OECD (74%), LAC (73%)	MNA (0%), SSA (36%)
MNOs	53%	SSA (83%), SA (75%)	LAC (29%), MNA (33%)
Retail outlets	53%	High-income OECD (74%), SSA (55%)	MNA (20%), EAP (38%)
Microfinance institutions	48%	EAP (58%), ECA (57%)	SA (25%), LAC (38%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table V.6(a).

The survey also asked about the use of sub-agents (i.e. entities acting as agents or on behalf of RSP agents). Globally, use of sub-agents is permitted in about half of the reporting economies (52 percent), although it is much more prevalent in low-income economies at 80 percent. From a regional perspective, the use of sub agents is higher in the LAC region (73 percent), followed by the SSA region (64 percent), high-income OECD countries (61 percent) and the MNA region (60 percent). In contrast, permission to the operation of sub-agents is very low across economies in the ECA, SA and EAP regions with percentages of 21, 25 and 29 percent, respectively.

Most relevant types of RSPs in terms of market share

The survey considered different types of entities that may be allowed to provide remittance services and responding central banks were requested to indicate and rank the three most important types of RSPs in their jurisdiction in terms of market share.

Globally, commercial banks (via banking channels, e.g. as correspondent banks) were reported as having the highest market share and being the most important RSP in 43 percent of the economies.[49] Another 32 percent ranked international MTOs as the most important, while 11 percent selected commercial banks in their role as agents. Commercial banks acting as agents were then regarded as the second most important RSP type in an additional 29 percent of economies, this same percentage reaching 24 percent in the case of international MTOs.

Commercial bank dominance is more pronounced in lower middle-income economies. From a regional perspective, in the SA region commercial banks as RSPs – either via banking channels (80 percent) or as agents of or in partnership with MTO (20 percent) – are dominant. In the ECA (59 percent), EAP (50 percent) and MNA regions (50 percent) also commercial banks through banking channels are the most important RSP type. In the SSA region, the combination of commercial banks through banking channels and as agents is the most important RSP type with 63 percent of the jurisdictions reporting that.

After commercial banks, international MTOs are reported to be the most important RSP across income levels and regions. Other types of RSPs only had a very limited share in the remittance market. For example, local MTOs and postal networks were the most important RSP in only 4 percent of the jurisdictions.

Most relevant payment instruments in terms of usage for remittances

Similar to the previous discussion on the relevance of the various types of RSPs, respondents were presented with various payment instruments used for remittances and were requested to indicate the three they believe to be the most used one(s) in their jurisdiction.

Cash (via MTOs, banks or other regulated RSPs) was reported as the most used payment instrument for remittances by 49 percent of the economies. Bank account-to-account transfers were selected as the most used one by another 28 percent of economies, and a further 10 percent indicated that cash through unregulated RSPs/families/friends is the most used one.[50]

[49] According to RPW, banks acting as principals are the most expensive type of RSPs with an average cost of 10.51%.
[50] According to RPW, mobile money is the least costly instrument to send and receive remittances.

Account-to-account transfers via banks were then rated as the second most used instrument in 30 percent of the economies, followed by cash via regulated service providers.

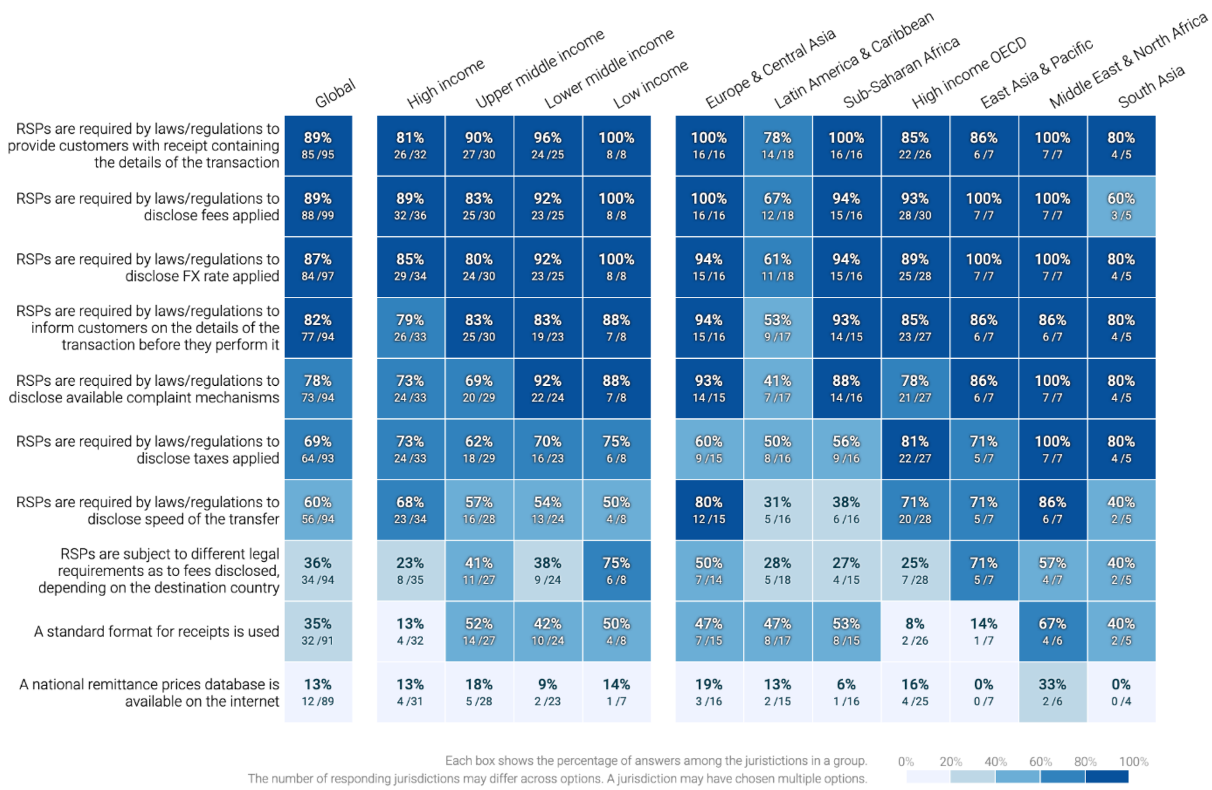
From a regional perspective, cash through regulated service providers was selected as the most used instrument in 71 percent of the responding economies in the MNA region, 64 percent in those of LAC and 63 percent of those in the ECA region. Meanwhile, account-to-account transfers via banks were deemed the most used instrument in 47 percent of the economies in the SSA region and in 40 percent of those in the SA region.

Interestingly, the use of other instruments such as payment cards or mobile wallets remains negligible in all economies/regions.

<u>Transparency in remittance services</u>

The survey outcomes on various measures of transparency and disclosure requirements for remittance services are shown in **Chart V.2**.

Chart V.2: Fulfillment of transparency requirements in remittance services



Overall, there have been significant improvements across income level and across regions in this area compared to previous GPSS iterations. Various regions report 100 percent compliance with multiple key aspects relating to transparency in the area of remittances. LAC as a region lags on most aspects, except for requiring a standard format for receipts and having a national remittance price database.

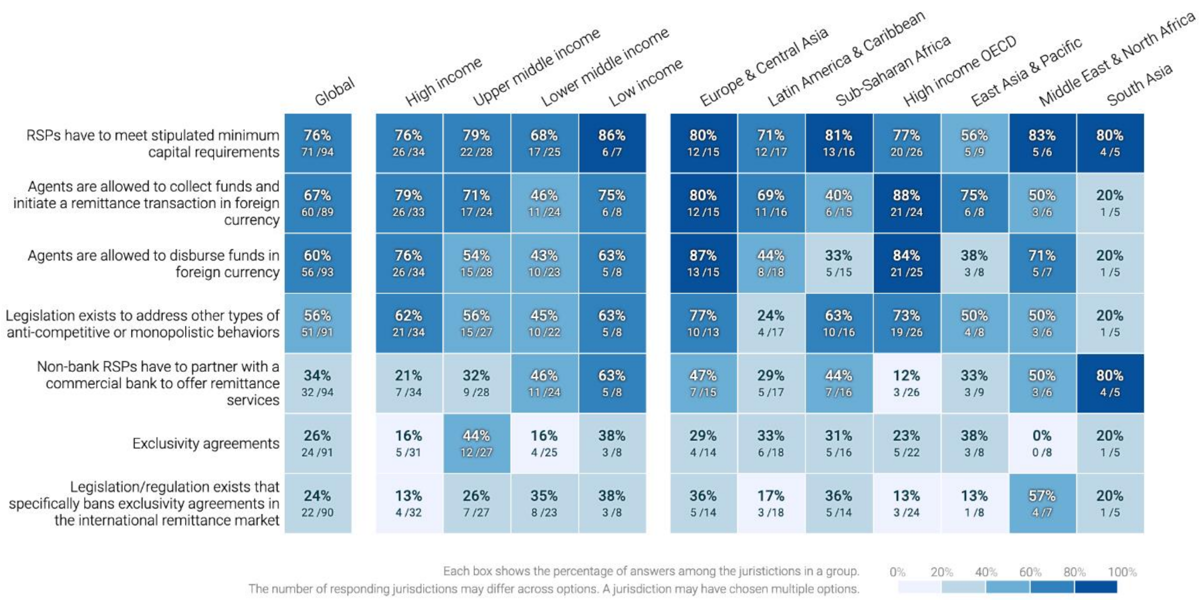
Competition environment

This part of the survey included questions on the essential elements affecting the market, players and competition. Results are shown in **Chart V.3**. In a majority of the jurisdictions, RSPs must meet stipulated minimum capital requirements (76 percent), agents are allowed to collect funds and initiate a remittance transaction in foreign currency (67 percent), and agents are allowed to disburse funds in foreign currency (60 percent). Of these three aspects, the minimum capital requirement is fairly common across all country income level categories and across regions.

Exclusivity agreements[51] are present in 26 percent of the surveyed economies worldwide, up from 18 percent in the previous survey. They are more likely to be present among upper middle-income economies (44 percent) and in low-income economies (38 percent). From a regional perspective, exclusivity agreements are more likely to be present in the EAP region (38 percent), followed by LAC (33 percent) and the SSA region (31 percent).

On the other hand, almost one-quarter (24 percent) of the economies reported the existence of legislation or regulation that specifically bans exclusivity agreements. This legislation is more common among low-income economies as well as those in MNA, SSA and ECA regions.

Chart V.3: Elements shaping the competition environment



Finally, 56 percent of the respondents indicated the existence of legislation addressing other types of anti-competitive or monopolistic behavior. This type of legislation is present among 77 percent of the ECA region economies, in 73 percent of High-income OECD economies and 63 percent of SSA economies. In contrast, only 20 percent of the economies in the SA region had this kind of legislation, followed by the LAC region (24 percent).

---

[51] An exclusivity agreement or condition is where an RSP allows its agents (or other RSPs) to offer its remittance services subject to the condition that such agents do not offer other remittance services. This practice can in some cases reduce competition and the choice of services for remitters and beneficiaries.

OTHER CROSS-BORDER PAYMENTS

This section explores the current initiatives of regional integration for payments, from basic bilateral links between NPS infrastructures to more advanced forms that imply a unified scheme and a common technical-operational platform, either centralized or decentralized.

Use of the SWIFT international network

As it is well known, the SWIFT international network (as compared to a closed users' group used for domestic transactions) is heavily used in correspondent banking and remittances-related financial transactions. This part of the survey aimed at obtaining information on the intensity of usage of this network providing the following standardized categories: i) more than 90 percent of banks are connected to the network; and, ii) less than 90 percent but more than 50 percent of banks are connected to the network.

Globally, 87 percent of the responding economies indicated the first option (reaching 100 percent in the MNA and SA regions), while 10 percent the second one (27 percent in the EAP region). In the 2015 and 2012 iterations the first option was chosen by 83 percent of the economies.

Further, in about 2 percent of the responding jurisdictions some banks or financial institutions access the SWIFT network through a SWIFT Service Bureau operated by the central bank, and in 1 percent of the economies some banks or financial institutions have access through the central bank's own connection to SWIFT. Compared to previous iterations, in 2012 Service Bureaus were used by 30 percent of the economies, dropping to 3 percent already by 2015.

Cross-border integration of payment systems

Respondents were requested to indicate the kind of interfaces currently available and also indicate anything those that they are planning for the near future.

According to survey results and as shown in **Chart V.4**, a total of 56 countries have established at least one type of link for cross border payments and settlement. This figure is very similar to the total of 54 countries reported in the previous iteration. Globally, 25 percent of reporting economies indicated they have interconnected their RTGS systems. High-income economies and low-income economies lead in this effort with 34 and 33 percent of these economies having this capability, respectively. In contrast, only 12 percent of low-income economies indicated they have developed this form of payment system integration.

Linking the local ACH with an ACH in another country(ies) has been achieved by 17 percent of economies globally. High-income economies had a higher percentage for this specific variable with 33 percent, while none of the economies in the lower middle-income and low-income categories had established such payment systems links. ACH interlinking is also most commonly observed in High-income OECD economies at 47 percent.

Another possibility surveyed was that of interconnecting the domestic card switch with the card switch in other jurisdictions. This was reported by only 11 percent of the economies globally, with higher percentages in the MNA and ECA regions (29 and 25 percent, respectively).

Chart V.4: Integration between payment systems in different countries

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Local RTGS	25% 26 /103	34% 13 /38	23% 7 /31	12% 3 /25	33% 3 /9	7% 1 /15	26% 5 /19	29% 5 /17	38% 11 /29	27% 3 /11	14% 1 /7	0% 0 /5
Local ACH with a direct interface to ACH in other countries	17% 17 /103	33% 13 /39	13% 4 /30	0% 0 /25	0% 0 /9	7% 1 /14	0% 0 /19	0% 0 /17	47% 14 /30	18% 2 /11	0% 0 /7	0% 0 /5
Domestic Card Switch with a direct interface to domestic card switch in other countries	11% 11 /101	11% 4 /37	20% 6 /30	4% 1 /25	0% 0 /9	25% 4 /16	0% 0 /18	12% 2 /17	7% 2 /27	9% 1 /11	29% 2 /7	0% 0 /5
Local ACH with a direct interface to RTGS in other countries	2% 2 /101	5% 2 /39	0% 0 /28	0% 0 /25	0% 0 /9	0% 0 /14	0% 0 /19	0% 0 /16	7% 2 /29	0% 0 /11	0% 0 /7	0% 0 /5

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

0% 9% 19% 28% 37% 47%

Regarding planned cross-border payment system links, 24 jurisdictions (out of 94, or 26 percent) expressed their intent to have such links established within the next two years, while a further 16 jurisdictions expressed their intent to have such links in more than two years. In the previous GPSS iteration, 23 countries expressed their intent to have such links established within the next two years and 21 in more than two years.

Plans for within the next 2 years are mostly concentrated in low-income economies. Globally, these plans mainly include ACH-to-ACH integrations (10 countries), integrating domestic card switches with an interface to a foreign card switches cross border (8 countries) and integrating RTGS systems across borders (4 countries).

In the case of plans for having links in more than two years, these are also concentrated in low-income economies and include mostly integration of RTGS systems (6 countries), of ACH systems (5 countries) and of card switches (4 countries).

SECTION VI: SECURITIES AND DERIVATIVES CLEARING AND SETTLEMENT SYSTEMS

Securities and derivatives clearing, settlement and recording systems are typically considered systemically important. Such systems and systems for clearing and settlement of funds are highly interdependent. For example, provision of liquidity in payment systems depends to a large extent on CSDs and SSSs where securities that are used as collateral are maintained and settled.

Moreover, following the 2008-2009 financial crisis, financial sector regulators, supervisors and overseers have established higher requirements than before for managing various risks that might arise in these FMIs and their compliance with the PFMI, in particular CCPs. The GPSS has accordingly been enhanced to cover major aspects of the risk management of these FMIs. The analysis in this section starts by providing an overview of the general features of securities clearing and settlement systems worldwide. Subsequently, the main features and risk management practices of the different FMIs, including business continuity arrangements, are discussed.

GENERAL FEATURES OF SECURITIES MARKETS

Thirty percent of the 108 respondents indicated that the securities markets in their respective jurisdictions are at a nascent stage, this percentage being slightly higher than that of the previous iteration. The largest number of jurisdictions that reported this situation was in the LAC region with 10 (48 percent of the total number of respondents from this region), followed by 9 in the SSA region (50 percent) and 5 in the EAP region (50 percent).

Globally, at least one stock exchange is currently in operation in 91 percent of the 108 economies, though this percentage is only 56 percent in low-income economies. Regarding existence of CCPs, 41 economies reported having at least one CCP in operation (same as in the previous iteration), and in the case of TRs this number was 17. In the case of CSDs, of the 110 respondents, 13 have indicated that they do not have a CSD operating in their jurisdiction.

CENTRAL SECURITIES DEPOSITORIES

General information

As mentioned earlier, 97 economies reported having at least one CSD in operation. The number of jurisdictions reporting immobilization or dematerialization of negotiable securities in one or more CSDs increased to 93 (86 percent) compared to 89 economies in the previous iteration. Of the 15 jurisdictions yet to achieve immobilization or dematerialization, these are concentrated in the EAP, LAC and SSA regions, with 4, 4 and 3 cases, respectively.

There are two or more CSDs in 37 economies, each handling only certain type of securities in 29 of them. In the remaining 8 jurisdictions, the two or more CSDs handle all type of securities (just like in those economies that only have one CSD).

In the remainder of this sub-section, the basis of the analysis switches from number of economies to number of systems.

Who the CSD operator is and type(s) of securities handled

A total of 40 systems (33 percent) are operated by central banks. This percentage is inversely correlated with country income levels, with the highest percentage (60 percent) in low-income economies and only 20 percent in high-income economies. From a regional perspective, a larger share of CSDs are operated by the central bank in the MNA, SSA and LAC regions (56, 52 and 48 percent, respectively).

The types of securities handled by CSDs are illustrated in **Table VI.2**. There are 65 CSDs handling both government and corporate securities, while 36 handle only government securities and the remaining 19 handling corporate securities only. Of the 65 CSDs that handle all types of securities, 27 are in high-income OECD economies followed by 10 in LAC economies and 7 in both ECA and SSA economies. This finding is similar to what was reported in the previous iteration of the GPSS. On the other hand, two-thirds of the CSDs handling only government securities are in the LAC and SSA regions, though relative incidence is slightly higher in the latter case at 48 percent.

Table VI.2(b): Types of securities handled by CSDs

Types of securities	YES (% of 120 systems)	Country income level category where this is MORE common	Country income level category where this is LESS common	Region where this is MORE common	Region where this is LESS common
Both government and corporate securities	54%	High-income (74%)	Low-income (30%)	High-income OECD (79%)	MNA (33%)
Only government securities	30%	Low-income (60%)	High-income (13%)	SSA (48%)	High-income OECD (10%)
Only corporate securities	16%	Upper middle-income (21%)	Low-income (10%)	SA (40%)	High-income OECD (12%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table VI.2(b).

Finally, ninety percent of the reporting CSDs use only one SSS. This trend is evident across all regions and income groups. Almost half of the 12 CSDs that use more than one SSS are in high-income OECD economies.

CSD main features and direct participation

As shown in **Chart VI.1**, in 89 percent of the cases globally, securities are in physical but immobilized form or are dematerialized,[52] and in 86 percent of the cases the CSD is also the official securities registrar. Daily reconciliation of securities balances (86 percent) as well as prohibition of overdrafts and debit balances in securities accounts (96 percent) are found to be common practices globally. All these features are common across all regions and all income groups.

[52] In the previous sub-section it was mentioned that 86 percent of *countries* (in contrast to *systems*) have achieved immobilization or dematerialization of securities.

Moreover, 98 percent of CSDs ensure segregation of their own assets from those of their participants, low-income economies being below the average at 80 percent.

Chart VI.1: CSD main features

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
The CSD ensures segregation between its own assets and the securities of its participants	98% 136 /139	98% 48 /49	100% 46 /46	100% 34 /34	80% 8 /10	100% 18 /18	100% 28 /28	92% 23 /25	98% 40 /41	100% 10 /10	100% 10 /10	100% 7 /7
The CSD prohibits overdrafts and debit balances in securities accounts	96% 135 /140	98% 48 /49	98% 45 /46	91% 31 /34	100% 11 /11	94% 17 /18	100% 28 /28	100% 26 /26	98% 40 /41	80% 8 /10	100% 10 /10	86% 6 /7
The CSD ensures segregation between those of CSD participants and those of clients	90% 125 /139	84% 41 /49	96% 44 /46	94% 32 /34	80% 8 /10	94% 17 /18	96% 27 /28	92% 23 /25	80% 33 /41	90% 9 /10	90% 9 /10	100% 7 /7
Securities are held in physical but immobilized form	89% 125 /140	90% 44 /49	87% 40 /46	94% 32 /34	82% 9 /11	72% 13 /18	82% 23 /28	92% 24 /26	95% 39 /41	90% 9 /10	100% 10 /10	100% 7 /7
The CSD is also the official securities registrar	86% 120 /140	84% 41 /49	87% 40 /46	91% 31 /34	73% 8 /11	78% 14 /18	93% 26 /28	81% 21 /26	80% 33 /41	100% 10 /10	100% 10 /10	86% 6 /7
The CSD conducts at least daily reconciliation of securities totals for each issuer	86% 120 /140	90% 44 /49	87% 40 /46	82% 28 /34	73% 8 /11	83% 15 /18	79% 22 /28	77% 20 /26	98% 40 /41	80% 8 /10	100% 10 /10	71% 5 /7
Beneficial owners are identified at the individual level in the CSD	64% 89 /139	49% 24 /49	70% 32 /46	76% 26 /34	70% 7 /10	50% 9 /18	79% 22 /28	80% 20 /25	44% 18 /41	80% 8 /10	80% 8 /10	57% 4 /7

Each box shows the percentage of answers for the FMIs among the jurisdictions in a group. A jurisdiction may have reported multiple FMIs.
The number of responding jurisdictions and reported FMIs may differ across options. A jurisdiction may have chosen multiple options for each reported FMI.

44% 55% 66% 78% 89% 100%

On a global scale, 64 percent of the CSDs have indicated that the beneficial owner is identified at the level of the CSD. This percentage is higher (80 percent) in the EAP, LAC, MNA and SSA regions, compared to only around 50 percent in the remaining regions.

For what concerns participation in the CSD, the most commonly observed trend is that commercial banks and broker-dealers are direct participants of the CSD (96 and 85 percent, respectively on a global basis). For commercial banks, the percentages for direct participation are fairly stable across country income level and regions but show more variation in the case of brokers-dealers: these entities are direct participants in 95 percent of CSDs in high-income economies, but in only about 80 percent of CSDs in all other country income categories. Direct participation of brokers-dealers is lower in the SSA and MNA regions. Other types of financial institutions (e.g. mutual fund operators, pension fund operators) having direct participation in the CSD varies even more across regions though globally it stands at 66 percent.

Regarding participation of CSDs in other CSDs (i.e. CSD links), globally 44 percent of the reporting CSDs have a direct participant status in other CSDs domestically or abroad. This feature is observed predominantly in CSDs in high-income OECD economies (74 percent) and in economies in the ECA region (63 percent). None of the CSDs in low-income economies are direct participants in other CSDs, however.

SECURITIES SETTLEMENT SYSTEMS

This sub-section on the main general features of SSSs was answered by a small number of jurisdictions/systems.[53] No low-income country answered this section of the survey.

General information

Sixty-nine percent SSSs (out of 28 responses to this specific question) indicated that they handle both government and corporate securities, while 5 handle only government securities and 4 only corporates securities. While the number of responses is not representative enough, the highest percentage for an SSS handling all types of securities is observed in the ECA region (2 out of 2) and the SA region (4 out of 4), and in 5 out of 6 SSSs in High-income OECD economies.

Two-thirds of the SSSs (out of 30 responses to this specific question) are operated by a CSD, reaching almost 80 percent in upper middle-income economies (11 out of 14 responses) and, on the other hand, only 25 percent in the SA region (1 out of 4 responses). However, the number of answers for each country income category or region might not be representative enough.

The SSS is used regularly for facilitating transfer of ownership of secondary market securities transactions in 93 percent of the cases (40 systems answered this question). In 25 percent of the cases, the SSS *only* settles stock exchange transactions, while in 75 percent of the cases it settles both stock exchange *as well as* OTC trades. The former possibility seems to be more common in the SSA region (2 out of 3 or 67 percent) and the SA region (3 out of 5 or 60 percent).[54]

Main settlement features

Globally, 34 percent of the SSSs (40 systems answered this question) indicated that a separate settlement process is followed for the settlement of government and corporate securities.

Regarding more specific settlement features, the use of shorter settlement cycles to reduce counterparty exposures is a positive measure being adopted. In around 67 percent of the reporting systems (30 systems answered this question), a rolling settlement cycle of T+2 or shorter period is used for settling *all* securities trades, while in another 20 percent this same settlement cycle is used for *the majority* of securities. According to the (limited number of) responses received, lower middle-income economies are leading in the use of shorter settlement cycles (100 percent of the 9 SSS that answered this specific question).

Settlement of the cash leg occurs in central bank money in 21 out of 32 reporting SSS, reaching 100 percent in high-income economies and in the MNA and SSA regions (only 2 responses in each).

Ninety-four percent of the respondents have DVP mechanism in place (32 of 34 responses). All SSSs in all regions except one in ECA and one LAC have DVP mechanisms in place.

Outcomes on usage of the various DVP models are shown in **Chart VI.2**. Overall, DVP model 1 is preferred by almost 70 percent of SSSs worldwide and is widely prevalent for the settlement of

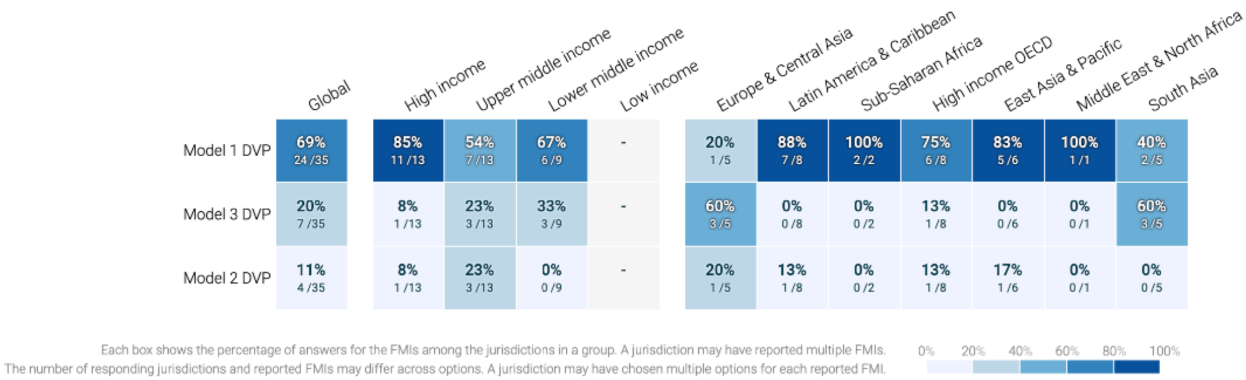
---

[53] This was probably a result of the way in which the introductory part of this sub-section of the questionnaire was formulated, as central banks could have been misled to respond only if they had 2 or more SSSs.

[54] In MNA, there only one response indicating the SSS only settles stock exchange transactions.

government securities and private debt securities. In the case of equities, DVP models 2 and 3 are widely used. Nevertheless, DVP model 3 is also relevant for the settlement of government securities, being reported as such by 7 out of 32 SSSs.

Chart VI.2: DVP models used



All the SSSs that reported using DVP model 2 or model 3 indicated that there is a guarantee fund or other risk management mechanism in place (other than the CCP) to ensure settlement will take place in the event the participant with the largest debit obligation is unable to settle its position.

Moreover, a securities lending mechanism has been implemented in 52 percent of the SSSs on a global basis, notably in 100 percent of the 8 reporting SSS in the EAP region.

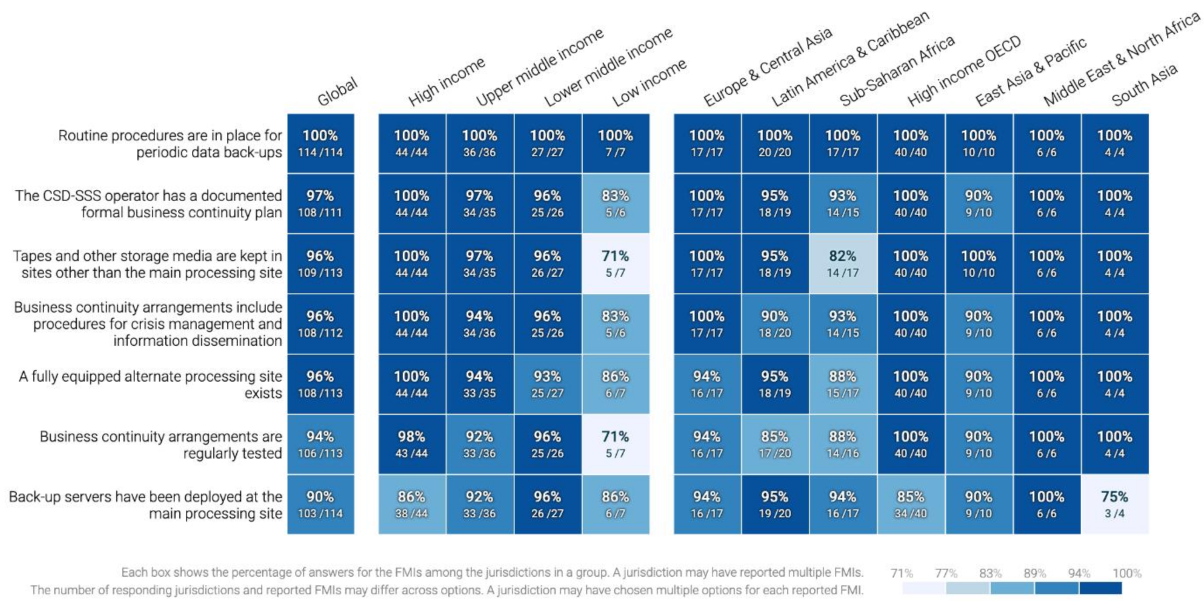
Finally, on the issue of direct participation in the SSSs, commercial banks and brokers-dealers are direct participants in most of the responding SSSs with 91 and 82 percent, respectively. This is followed with participation of other types of financial institution (62 percent) and of non-financial institutions (38 percent). Interestingly, direct participation of commercial banks reaches 100 percent in the SSSs in High-income OECD economies and in the EAP, MNA and SSA regions, but for brokers-dealers it reaches 100 percent in the SSSs in ECA and SA and also in High-income OECD economies.

CSD-SSS RESILIENCE AND BUSINESS CONTINUITY AND GOVERNANCE

Consistent with what observed for RTGS systems (see section II), based on the responses received for this part of the questionnaire it is clear that resilience and business continuity are clearly a top-of-mind issue for CSD-SSSs operators and regulators. Answers to the questions that were included in this part of the GPSS were provided for a total of 114 CSD-SSSs worldwide.

As shown in **Chart VI.3**, all of them indicated that they have routine procedures in place for periodic data back-ups, and 96 percent of them mentioned this includes tapes and storage media that are kept in sites other than the main processing site. All business continuity elements reach around 95 percent, with the highest percentage (100 percent) being observed in high-income economies while the percentages for low-income economies is closer to 80 percent for most of these elements. From a regional perspective, the strongest percentages are in high-income OECD economies and in economies in the MNA and SA regions, while the SSA region seems to be the weakest.

Chart VI.3: CSD-SSS resilience and business continuity



Regarding governance, results are also high although not as much as for resilience and business continuity (see **Chart VI.4**). Overall, governance seems to be stronger in high-income economies and weaker in low-income economies.

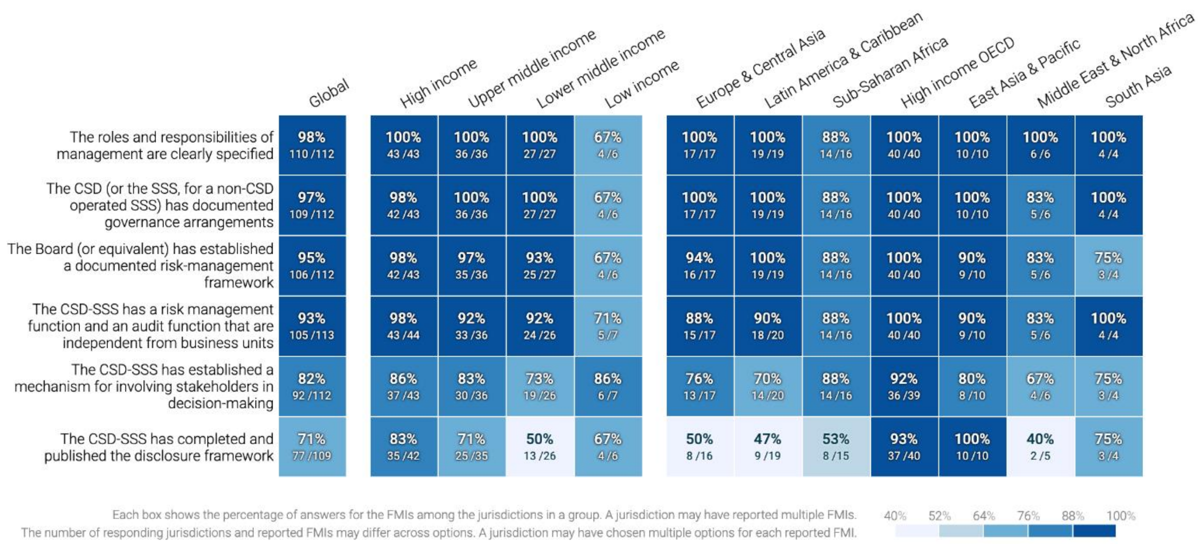
The vast majority of CSDs-SSSs (around 95 percent globally) have documented governance arrangement, including the board or its equivalent establishing a documented risk management framework with the roles and responsibilities of the management being clearly specified.

Ninety-three percent of reporting CSD-SSSs have an independent risk management function and an audit function which are separated from the organization's business units.

As part of the governance framework 82 percent of the CSD-SSSs globally have established a mechanism for involving stakeholders in the decision-making, reaching 92 percent in high-income OECD economies (36 out of 39 systems).

The item with the lowest percentage of positive answers is the completion and publication of the CPMI-IOSCO PFMI Disclosure Framework, reaching only 71 percent globally and only about 50 percent in lower middle-income economies and in economies in the ECA, LAC, MNA and SSA regions. On the other hand, all 10 CSD-SSSs in the EAP region report that they have completed and published this Disclosure Framework.

Chart VI.4: CSD-SSS governance



CENTRAL COUNTERPARTIES

As mentioned earlier, 41 economies reported having at least one CCP in operation. Answers to the questions in this section were provided for between 55 and 60 CCPs. Some of them serve markets in many jurisdictions.

No low-income country provided answers to this part of the questionnaire, while almost 60 percent of all reporting CCPs are in high-income economies.

<u>General information</u>

The general information sought from CCPs included type(s) of asset classes cleared, details on novation and open offer, cross-border operations and some general issues of settlement services. **Chart VI.5** shows some of the main outcomes.

Regarding types of assets cleared, globally it is observed that 68 percent of CCPs clear exchange-traded derivatives while 41 percent clear OTC traded derivatives, the latter being significantly more common in high-income economies than in upper middle and lower middle-income economies. Moreover, the majority of CCPs also clear cash products such as corporate equities (61 percent) and corporate bonds (54 percent). It is worth noting that the various asset classes are not mutually exclusive, which in practice means that the same CCP can clear both types of derivatives, and/or certain derivatives and cash products, several types of cash products, etc.

The process of novation is followed by 88 percent of CCPs while open offer is followed by 27 percent of CCPs. Novation is adopted across all regions and all income levels of economies.

Netting benefit is one of the outcomes of participating in a CCP arrangement. Accordingly, 89 percent of the CCPs globally provide multilateral netting facilities. Five CCPs in high-income OECD economies and one in the SA region guarantee the settlement of other FMIs.

Chart VI.5: CCP general issues

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
The CCP provides multilateral netting facilities	89% 50 /56	94% 29 /31	88% 14 /16	78% 7 /9	-	80% 4 /5	73% 8 /11	100% 1 /1	100% 26 /26	75% 6 /8	-	100% 5 /5
The CCP legally becomes the buyer to every seller, and the seller to every buyer via novation	88% 52 /59	91% 31 /34	94% 15 /16	67% 6 /9	-	80% 4 /5	82% 9 /11	100% 1 /1	93% 27 /29	75% 6 /8	-	100% 5 /5
The CCP clears Exchange-traded derivatives	68% 39 /57	72% 23 /32	69% 11 /16	56% 5 /9	-	60% 3 /5	55% 6 /11	100% 1 /1	74% 20 /27	63% 5 /8	-	80% 4 /5
The CCP clears cash products - Corporate equities	61% 35 /57	67% 22 /33	53% 8 /15	56% 5 /9	-	80% 4 /5	40% 4 /10	0% 0 /1	71% 20 /28	38% 3 /8	-	80% 4 /5
The CCP clears cash products - Corporate Bonds	54% 28 /52	50% 15 /30	57% 8 /14	63% 5 /8	-	80% 4 /5	30% 3 /10	-	52% 13 /25	63% 5 /8	-	75% 3 /4
The CCP clears cash products - Government securities	49% 27 /55	52% 16 /31	33% 5 /15	67% 6 /9	-	80% 4 /5	40% 4 /10	0% 0 /1	46% 12 /26	38% 3 /8	-	80% 4 /5
The CCP clears cash products - REPOs (Classical, Buy Sell-Back & Tri-party)	49% 24 /49	46% 13 /28	46% 6 /13	63% 5 /8	-	80% 4 /5	33% 3 /9	-	50% 12 /24	14% 1 /7	-	100% 4 /4
The CCP clears cash products - Other	43% 22 /51	34% 10 /29	50% 7 /14	63% 5 /8	-	80% 4 /5	20% 2 /10	-	42% 10 /24	38% 3 /8	-	75% 3 /4
The CCP clears OTC-traded derivatives	41% 23 /56	52% 16 /31	31% 5 /16	22% 2 /9	-	20% 1 /5	27% 3 /11	0% 0 /1	62% 16 /26	13% 1 /8	-	40% 2 /5
The CCP legally becomes the buyer to every seller, and the seller to every buyer via open offer	27% 15 /56	26% 8 /31	25% 4 /16	33% 3 /9	-	40% 2 /5	55% 6 /11	0% 0 /1	15% 4 /26	25% 2 /8	-	20% 1 /5
The CCP operates in more than one jurisdiction	25% 14 /57	41% 13 /32	0% 0 /16	11% 1 /9	-	0% 0 /5	0% 0 /11	0% 0 /1	48% 13 /27	0% 0 /8	-	20% 1 /5
The CCP guarantees settlement of other financial market infrastructures (FMIs)	11% 6 /56	16% 5 /31	0% 0 /16	11% 1 /9	-	0% 0 /5	0% 0 /11	0% 0 /1	19% 5 /26	0% 0 /8	-	20% 1 /5

Each box shows the percentage of answers for the FMIs among the jurisdictions in a group. A jurisdiction may have reported multiple FMIs.
The number of responding jurisdictions and reported FMIs may differ across options. A jurisdiction may have chosen multiple options for each reported FMI.

0% 20% 40% 60% 80% 100%

Finally, CCPs that operate in more than one jurisdiction are mainly found in high-income OECD economies.

Membership

Members in CCPs are mainly commercial banks, broker-dealers and other financial institutions. Globally, 80 percent of CCPs provide membership to commercial banks, 83 percent to brokers-dealers and 72 percent to other financial institutions.

The membership type could vary depending on whether the member can: i) enter transactions directly with the CCP (type “a”); ii) act as a direct settlement member, settling transactions on its own account (type “b”); iii) act as a direct settlement member and settle transactions on its own account and also on behalf of other participants (type “c”); and, (iv) settle transactions indirectly through another member (type “d”). In this regard, around 50 percent of the commercial banks and brokers-dealers globally have type “c” membership. Another 16 percent of commercial banks and 11 percent of brokers-dealers have type “b” membership.

In the case of other financial institutions, 38 percent can enter transactions directly with the CCP (i.e. type “a” membership) but only 32 percent have a type “c” membership.

Management of credit exposures

As can be seen in **Figure VI.1**, most of the CCPs worldwide have put in place risk management measures to manage their credit exposure such as capital requirements for participants, margin requirements, mark-to-market valuation, participant default procedures, loss sharing mechanism, conducting regular stress test of adequacy of resources in case of default, etc. Improvements in risk management practices that have been observed in the last few years could be ascribed to a certain extent to the implementation of the CPMI-IOSCO PFMIs.

Figure VI.1: CCP management of credit exposures

Of the 54 CCPs that answered this part of the survey,[55] 50 of them (93 percent) apply margin requirements; half of these CCPs are located in high-income OECD economies. Mark-to-market valuation is performed by 49 CCPs.

On the lower end, only 18 CCPs (34 percent) have routine access to credit from the central bank of issue and 19 apply prefunding of trades. This includes CCPs that operate in more than one jurisdiction and serve multiple markets. Routine access to central bank credit is more common in upper middle-income economies (44 percent) and especially in CCPs in the ECA region (75 percent).

Another key measure is whether the CCP maintains sufficient liquid resources to be able to withstand the default of the participant and its affiliates that would generate the largest aggregate payment obligation. This is observed in 42 reporting CCPs (out of 51 that answered

[55] Some question items were answered by a smaller number of CCPs, ranging from 49 to 52.

this specific item, or 82 percent). The stress testing of resources in case of default is performed by 49 CCPs. Further, the existence of a guarantee fund made-up with participant contributions was reported by 46 CCPs (85 percent). Only 29 percent of CCPs in lower middle-income economies have this guarantee fund, compared to 96 percent (25 out of 26 CCPs) in high-income OECD economies. Nineteen of 48 CCPs that responded to this question require prefunding of trades. Prefunding of trades is observed in all the 5 reporting CCPs in the SA region and is less common in high-income countries. Rules and procedures that support segregation and portability of collateral were reported by 42 CCPs.

Custody and settlement of securities and funds

Another facet of CCP risk management involves safe custody of the CCPs own assets and collaterals pledged by participants, and whether settlement occurs in commercial bank money or central bank money.

In the case of securities, globally, 51 CCPs representing 84 percent of the sample size hold their own securities and those pledged as collateral by their participants at a supervised and regulated CSD. This is observed across all regions with slight variations, ranging from 90 percent in high-income OECD countries (28 of 31 CCPs) to 73 percent of CCPs in LAC (8 of 11 CCPs). For what concerns cash, 72 percent of CCPs hold their own funds and those pledged as collateral by their participants with commercial banks and only 28 percent do so with the central bank.

Regarding settlement of final positions, 64 percent of CCPs settle their cash positions in central bank money, a percentage that rises to 78 percent in high-income economies and only 33 percent in lower middle-income economies, mainly those in the EAP, ECA and SA regions.

Links between CCPs

Forty-five of the 61 reporting CCPs indicated that they do not have any link with other CCPs. The phenomenon of links between CCPs is predominantly observed in CCPs in high-income OECD countries as out of the 16 CCPs that do have links with other CCPs globally, 15 are located in these countries. Further, only 3 CCPs reported having links with other domestic CCPs and all of them are in high-income OECD countries. (**Table VI.18**). All but one of the CCPs that have links with foreign CCPs are also located in high-income OECD economies.

Resilience and business continuity

Similar to CSD-SSSs, answers to this part of the survey reveal a very high commitment by CCP operators and regulators across all country income categories and regions in implementing robust business continuity and operational resilience measures. Overall, the LAC region is weaker in this specific aspect.

As shown in **Chart VI.6**, practically all CCPs (96 percent) already have a documented a formal BCP, and in the same percentage of CCPs the business continuity arrangement includes procedures for crisis management and information dissemination. Further, business continuity arrangements are regularly tested by almost 90 percent of CCPs, the main exceptions being 4 CCPs in the LAC region and one each in the EAP and SA regions. Testing involves settlement banks, liquidity providers and CSDs in almost all cases CCPs (i.e. in 45 out of 47 CCPs that perform these tests regularly). A fully equipped processing site exists in 90 percent of CCPs, and tapes and other storage media being are kept in different sites other than in the main processing site in the case of 96 percent of the CCPs.

Chart VI.6: Business continuity arrangements for CCPs

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
The CCP has documented a formal business continuity plan	96% 51/53	100% 31/31	94% 15/16	83% 5/6	-	100% 3/3	91% 10/11	100% 1/1	100% 26/26	86% 6/7	-	100% 5/5
Business continuity arrangements include procedures for crisis management and information dissemination	96% 51/53	100% 31/31	94% 15/16	83% 5/6	-	100% 3/3	91% 10/11	100% 1/1	100% 26/26	86% 6/7	-	100% 5/5
Tapes and other storage media are kept in sites other than the main processing site	96% 50/52	100% 30/30	94% 15/16	83% 5/6	-	100% 3/3	91% 10/11	100% 1/1	100% 25/25	100% 7/7	-	80% 4/5
A fully equipped alternate processing site exists	90% 47/52	93% 28/30	94% 15/16	67% 4/6	-	100% 3/3	73% 8/11	100% 1/1	100% 25/25	86% 6/7	-	80% 4/5
Business continuity arrangements are regularly tested at the level of the CCP	89% 47/53	90% 28/31	94% 15/16	67% 4/6	-	100% 3/3	64% 7/11	100% 1/1	100% 26/26	86% 6/7	-	80% 4/5
Back-up servers have been deployed at the main processing site	88% 46/52	90% 27/30	88% 14/16	83% 5/6	-	100% 3/3	82% 9/11	100% 1/1	92% 23/25	71% 5/7	-	100% 5/5
Business continuity arrangements testing includes involvement of settlement banks, liquidity providers and CSDs	85% 45/53	84% 26/31	88% 14/16	83% 5/6	-	100% 3/3	64% 7/11	0% 0/1	92% 24/26	86% 6/7	-	100% 5/5

Each box shows the percentage of answers for the FMIs among the jurisdictions in a group. A jurisdiction may have reported multiple FMIs.
The number of responding jurisdictions and reported FMIs may differ across options. A jurisdiction may have chosen multiple options for each reported FMI.

0% 20% 40% 60% 80% 100%

Governance and ownership

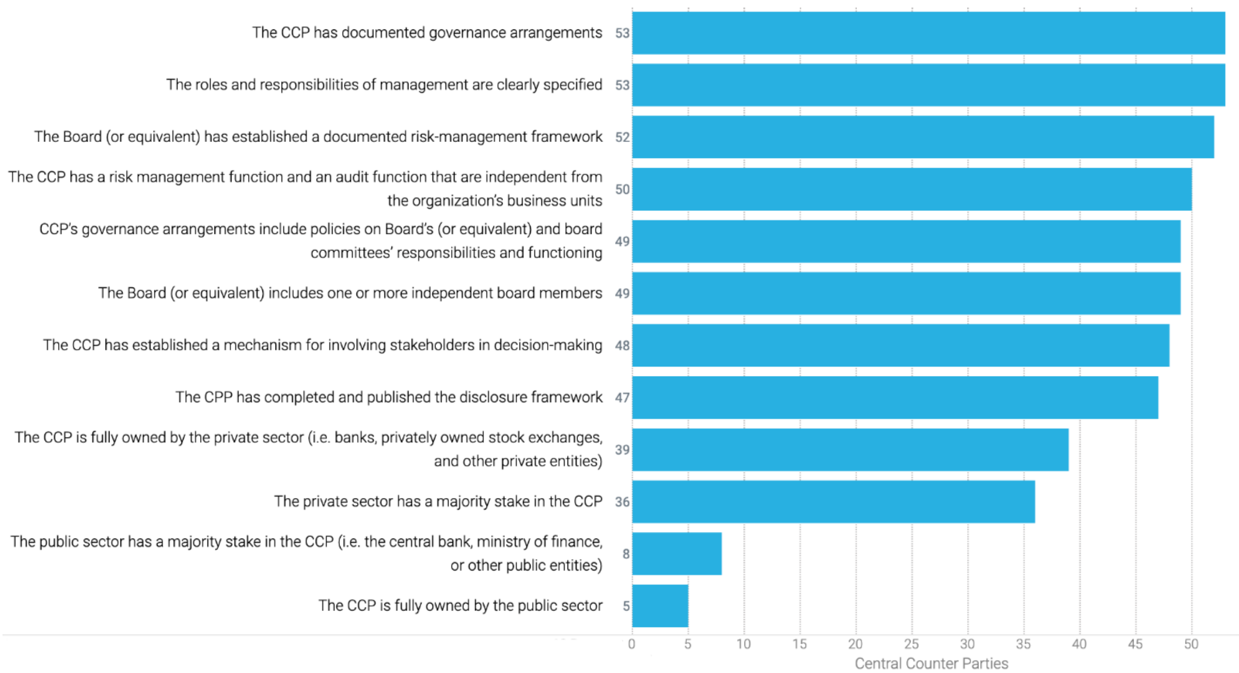
Regarding CCP governance, as can be seen from **Figure VI.2**, practically all CCPs (53 out of 54 or 98 percent) indicated that they have documented governance arrangements, with 91 percent indicating that these governance arrangements include policies on the responsibilities and functioning of the Board and its committees. Further, 91 percent of the reporting CCPs have one or more independent board members.

The regional analysis indicates that, with the exception of 4 CCPs in the LAC region, the CCPs in all other regions have a risk management function and an audit function that are independent from the CCPs business units.

Eighty-nine percent of the CCPs have established a mechanism for involving stakeholders in the decision-making process. The CPMI-IOSCO PFMIs Disclosure Framework has been completed and published by 87 percent of the CCPs, with most exceptions being in CCPs in the LAC region.

The ownership details of CCPs are also indicated in **Figure VI.2** . Globally, 75 percent of the CCPs are fully owned by the private sector, this being more evident in High-income OECD economies (92 percent) and in the LAC region (82 percent). In comparison, only 10 percent of CCPs globally are fully owned by the public sector. The remaining ones are jointly owned by the private and public sectors.

Figure VI.2 CCP governance



TRADE REPOSITORIES

The last sub-section of this part of the GPSS survey deals with trade repositories (TRs). Overall, TRs are yet to take strong roots in various regional jurisdictions as only a small number of them were reported as being in operation.[56] Low-income economies in general did not answer this part of the survey, which may indicate that there are no TRs in those economies. Also, economies in the EAP and MNA regions reported that they do not have any TRs.

Aggregate data is provided to the general public by 74 percent of TRs, and this is common across all country income level categories. Seventy-one percent of TRs reported that aggregate data on open positions and transaction volumes and values and categorized data (e.g. aggregate breakdowns of trading counterparties, reference entities, or currency breakdowns of products) is made available on the internet. Eighty-three percent of TRs (15 out of 18) have formal procedures in place to provide data to relevant authorities, with authorities having access to participant level data in 13 of those TRs.

Business continuity arrangements are regularly tested in 78 percent of the TRs and routine procedures are in place for periodic data backups in 89 percent.

[56] Depending on the specific question, there were 18 or 19 answers.

SECTION VII: NATIONAL PAYMENTS SYSTEM OVERSIGHT

As payment and settlement systems and services evolve, the objectives and scope of oversight are also expected to change over time. A robust NPS oversight function relies, among other elements, on some form of legal empowerment, an adequate internal organizational structure, the capacity to keep abreast of developments in the NPS and effective cooperation and coordination of the overseer – typically the central bank – with other financial sector authorities responsible for the regulation, supervision and oversight of payment systems and services.

This section of the GPSS 2018 explores general aspects of NPS oversight, including the formalization of this function, the clarity and transparency in communicating oversight policies, the scope of oversight and the instruments used in its execution. It also looks at cooperation arrangements involving financial sector authorities as well as market players.

GENERAL ISSUES

Ninety-one percent of the responding central banks indicated that the oversight function has been established and it is performed regularly and on an ongoing basis, and 93 percent mentioned that they have a specific unit or department responsible for this function. Also, in 85 percent of the surveyed economies the payments oversight function is organizationally segregated from operational tasks. This data is consistent with that of the previous iteration.

Overall, the highest percentages are observed in High-income OECD economies, while the LAC region is, according to the data, weaker than others in the area of oversight.

OBJECTIVES OF THE OVERSIGHT FUNCTION

Eighty-seven percent of responding central banks noted that their objectives in carrying out the payment system oversight function have been set down in a regulation or a policy document approved by the central bank Governor or by senior management. In high-income OECD economies as well as in the ECA and SSA regions this percentage is actually 94 percent or higher, while in the LAC region it only reaches 64 percent.

Moreover, more than 90 percent of the responding jurisdictions with a regulation or an approved policy document for NPS oversight also publicly disclose the objectives of the oversight policy.

Regarding the specific objectives of oversight, all the 97 responding central banks prioritize safety and efficiency. Additional oversight objectives were indicated globally as follows: consumer protection (43 percent), market competitiveness (39 percent), promoting financial inclusion (37 percent), avoiding market fragmentation (32 percent) and avoiding collusive practices (27 percent). Interestingly, high-income OECD economies seem to focus almost exclusively on safety and efficiency as only about one-tenth or less of the economies of this group indicated additional objectives. Those additional objectives are, on the other hand, quite relevant in the EAP, SA and SSA regions, and to a lesser extent also in the remaining regions. Overall, objectives for oversight other than safety and efficiency have a negative correlation with country income levels, meaning that economies with lower income levels have adopted more additional objectives than economies with a higher income level.

SCOPE OF OVERSIGHT

As shown in **Chart VII.1**, 93 percent of the responding central banks indicated that oversight covers *all* SIPS, regardless who operates the system, reaching 100 percent in the EAP, ECA, MNA and SSA regions and in high-income OECD countries, but only 74 and 50 percent in the LAC and SA regions, respectively.

Additionally, the 2018 iteration shows a broader scope globally to also include retail payment systems and payment instruments. Payment instruments oversight is especially relevant in the MNA, SA and SSA regions where central banks surveyed indicated they oversee these.

Payment services are being increasingly overseen, reaching 78 percent globally but 100 percent in the EAP, SA and SSA regions – though only 63 percent in High-income OECD economies.

Chart VII.1: Scope of the payments oversight function

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
All systemically important payment systems	93% 99/106	97% 38/39	88% 29/33	96% 26/27	86% 6/7	100% 17/17	74% 14/19	100% 16/16	100% 31/31	100% 11/11	100% 8/8	50% 2/4
Retail payment systems	87% 90/104	84% 32/38	85% 28/33	92% 24/26	86% 6/7	94% 16/17	74% 14/19	94% 15/16	83% 25/30	100% 10/10	88% 7/8	75% 3/4
Payment instruments	81% 81/100	71% 27/38	77% 23/30	100% 25/25	86% 6/7	75% 12/16	72% 13/18	100% 16/16	70% 21/30	89% 8/9	100% 8/8	100% 3/3
All relevant payment systems and services in the country even if the operator is a non-bank	81% 75/93	70% 26/37	85% 23/27	91% 20/22	86% 6/7	93% 13/14	56% 9/16	100% 15/15	69% 20/29	100% 9/9	100% 8/8	50% 1/2
Payment services	78% 81/104	63% 24/38	82% 27/33	92% 24/26	86% 6/7	69% 11/16	70% 14/20	100% 16/16	63% 19/30	100% 10/10	88% 7/8	100% 4/4
Non-Bank Payment Systems Operators (PSOs)	69% 66/95	46% 17/37	85% 23/27	83% 20/24	86% 6/7	79% 11/14	56% 9/16	94% 15/16	46% 13/28	100% 9/9	75% 6/8	75% 3/4
Non-Bank Payment Service Providers (PSPs)	66% 63/95	41% 15/37	81% 22/27	83% 20/24	86% 6/7	67% 10/15	50% 8/16	94% 15/16	36% 10/28	100% 9/9	100% 7/7	100% 4/4
Payment networks (e.g. SWIFT, VPN)	54% 51/95	57% 21/37	46% 13/28	52% 12/23	71% 5/7	47% 7/15	22% 4/18	73% 11/15	57% 16/28	67% 6/9	63% 5/8	100% 2/2
International remittance services	51% 49/97	24% 9/37	66% 19/29	63% 15/24	86% 6/7	69% 11/16	35% 6/17	81% 13/16	21% 6/28	78% 7/9	50% 4/8	67% 2/3
All relevant payment systems in the country as long as such systems are operated by commercial banks	46% 41/89	26% 9/35	58% 15/26	62% 13/21	57% 4/7	54% 7/13	47% 8/17	64% 9/14	19% 5/26	67% 6/9	50% 4/8	100% 2/2
Non-Bank Fintech	41% 37/90	28% 10/36	44% 11/25	52% 12/23	67% 4/6	23% 3/13	33% 5/15	67% 10/15	21% 6/28	80% 8/10	57% 4/7	50% 1/2
Central Bank-operated systems only	33% 31/95	14% 5/37	38% 11/29	50% 11/22	57% 4/7	25% 4/16	53% 9/17	53% 8/15	14% 4/29	33% 3/9	29% 2/7	50% 1/2

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

0% 20% 40% 60% 80% 100%

In general, similar to the case of oversight objectives, the scope of oversight is narrower in high-income economies than it is in economies with lower income levels.

Regarding the oversight of FMIs other than payment systems, the survey asked the extent to which the central bank has the primary responsibility for oversight of these FMIs vis-à-vis other financial sector authorities. In the case of CSD-SSSs for government securities, the central bank is the primary overseer in 77 percent of the cases globally, though this drops to 53 percent when the CSD-SSS only deals with corporate securities. For CCPs, the central bank is the primary overseer in slightly less than half of the economies (48 percent) and just 29 percent for TRs. Another financial sector authority is the primary regulator and supervisor for almost two-thirds of CCPs globally, and for 60 percent of CSD-SSSs that handle corporate securities only.

INSTRUMENTS OF OVERSIGHT

Ten oversight instruments were included in the survey questionnaire to gauge the preference of the 105 central banks surveyed. The key results are shown in **Table VII.5**.

Table VII.5: Preferred/most used instruments of payments oversight

Oversight instrument	Deemed "highly relevant" (global, in %)	Regions with HIGHER % for instrument being "Highly relevant"	Regions with LOWER % for instrument being "Highly relevant"
Monitoring	84%	SSA (94%), LAC (84%)	SA (67%), MNA (75%)
Issuing of regulations	77%	SA and SSA (100%)	ECA (76%), High-income OECD (43%)
Assessments with international standards	75%	High-income OECD (94%) and SSA (88%)	SA (33%), EAP (45%)
Collection of statistics and producing reports	74%	SA (100%), SSA (94%)	High-income OECD (65%), LAC (68%)
Licensing/no objection for systems/services	71%	SA (100%) and SSA (94%)	High-income OECD (39%), MNA (50%)
Setting standards to systems and services	60%	SSA (88%), LAC (67%)	SA (33%), MNA and High-income OECD (each 50%)
Dialogue and moral suasion	56%	High-income OECD (77%), MNA (75%)	EAP (36%), ECA (41%)
Consumer complaint reporting	48%	High-income OECD (82%), ECA (56%)	SSA (19%), MNA (25%)
On-site inspections	47%	SA (100%), SSA (75%)	High-income OECD (20%), LAC (33%)
Application of sanctions	41%	MNA (75%), LAC and SSA (each 50%)	ECA (24%), SA (33%)

Note: Please refer to accompanying excel sheets for a more detailed version of Table VII.5.

The preferred instruments include: monitoring (84 percent), issuing of regulations (77 percent), performing assessments based on standards (75 percent), collection of statistics and reports (74 percent) and licensing/no-objection for the operation of systems and services (71 percent).

Cooperation in the context of oversight

This part of the survey first asked information on whether there is relevant cooperation of the overseer with other authorities or other departments of the central bank *in the specific context of performing NPS oversight*, and the nature of this cooperation.

Relevant cooperation with bank supervisors exists in 67 percent of the cases, and in more than half of these it is ensured through a formal Memorandum of Understanding (MOU). In the case of securities regulator, relevant cooperation reaches slightly more than half of the cases. In other cases, relevant cooperation is significantly lower: consumer protection authority (29 percent), telecom regulator (24 percent) and data protection authorities (14 percent). However, cooperation with other central banks is relatively high at 66 percent.

Regarding cooperation with other stakeholders, 41 percent of the responding central banks reported having established a formal National Payments Council (NPC) or similar arrangement in place, this arrangement being especially common in low-income economies (86 percent) followed by high-income economies (45 percent). The overseer also consults regularly with senior management of PSPs in about one-third of the responding economies for strategic discussions decision-making.

Involvement of central banks in the pricing of payment services to end-users

Central banks were asked to describe their involvement in pricing to end-users of five different payment services: i) payments made via the RTGS systems; ii) other interbank credit transfers and direct debits; iii) payment cards; iv) mobile payments and other payments with e-money; and, v) remittances. At the same time, the following four options were given for central banks to choose the one that betters describe their situation: Involvement is limited to collection and dissemination of information; limited to voicing opinions regarding pricing; actively regulates prices; and, no involvement.

In general, the option of "no involvement" was selected by most central banks globally, reaching the highest percentage for remittances (73 percent), for e-money/mobile money payments (67 percent) and slightly more than 50 percent for the other types of payment services. From this it follows that active regulation of end-user pricing of payment services is low, reaching no more than 18 percent globally for customer payments made via the RTGS systems and even less for other types of payment services.

In high-income OECD economies, the majority of the responding central banks are not involved in pricing of payment services, regardless of the category in question. Central banks in the EAP and MNA regions were most likely to play an active role in regulating pricing of payment services, with 40 percent in EAP regulating pricing of customer payments made via RTGS systems, and 43 percent in MNA actively regulating pricing of retail payments including credit transfers/ direct debits, payment cards, e-money or mobile money accounts. In low-income economies, around 50 percent of the reporting central banks noted limiting themselves to voicing opinions regarding the pricing of payment services. These are mostly in the SSA region.

Also, in about 15 percent of cases globally involvement is limited to collection and dissemination of information for the various types of payment services. Collecting pricing data for dissemination and information purposes is rarely observed in the SA or SSA regions. At the same time, remittance prices seem to be the most popular area of data collection and dissemination in the ECA, LAC and SSA regions.

OVERSIGHT OF NON-BANK PSPS BY THE TYPE OF FUNCTION THEY PERFORM

This part of the survey asked about what aspects are covered by the applicable regulation(s) depending on the *function(s)* being performed by non-bank PSPs along the payments value chain (in contrast to the type of entity they are). As it is well known, the range of functions can be very broad, going from issuing transaction accounts, to providing bill or merchant aggregation services, to payment processing, to operating ATMs and POS, etc.

In essence, regulations imposing prudential requirements including a minimum capital are more used for those functions that involve issuing and managing accounts (in more than 80 percent of cases globally), and only in about 50 percent of the cases for functions that are more operational in nature like pure payment processing.

In contrast, regulations that set financial and operational requirements are now applicable for almost all types of PSP functions, ranging from 93 percent for the function of providing mobile money services to 64 percent for operating an ATM network. Moreover, PSPs, regardless of the function they perform are obliged to send reports to the overseer in practically all cases (more than 80 percent for all functions.

On-site inspection is reported to be a common tool for overseeing the various functions performed by non-bank PSPs, such as providing local money transfer services (90 percent), issuing e-money (89 percent), providing mobile money services (87 percent), issuing and personalizing payment cards (82 percent) and operating as a third-party processor for mobile money accounts (81 percent).

OVERSIGHT OF PSOS BY FUNCTION/TYPE

The number of answers received for this part of the survey was highly variable, as respondents apparently only answered if the specific PSO function/type was applicable in their jurisdiction.

According to survey results, PSOs are increasingly being included in the oversight regulations that set prudential requirements, including a minimum capital. These requirements are especially being imposed on PSOs that operate mobile money interoperability platforms (79 percent), especially in the EAP and SA regions. For PSOs that operate cheque clearinghouses or ACHs prudential requirements apply in about two-thirds of the cases.

Cyber resilience is also increasingly being covered for the following PSO functions globally: mobile money interoperability platform (84 percent), cheque clearinghouse (83 percent), ACH (82 percent), operating a systemically important infrastructure like g. SWIFT (80 percent), domestic card switch (76 percent), etc.

For the most part, PSOs need to obtain some form of license to carry out these functions, especially those providing mobile money interoperability platforms (89 percent), and those operating a CCH (83 percent). Licenses are reported to be more relevant in lower middle-income economies for most functions carried out by PSOs.

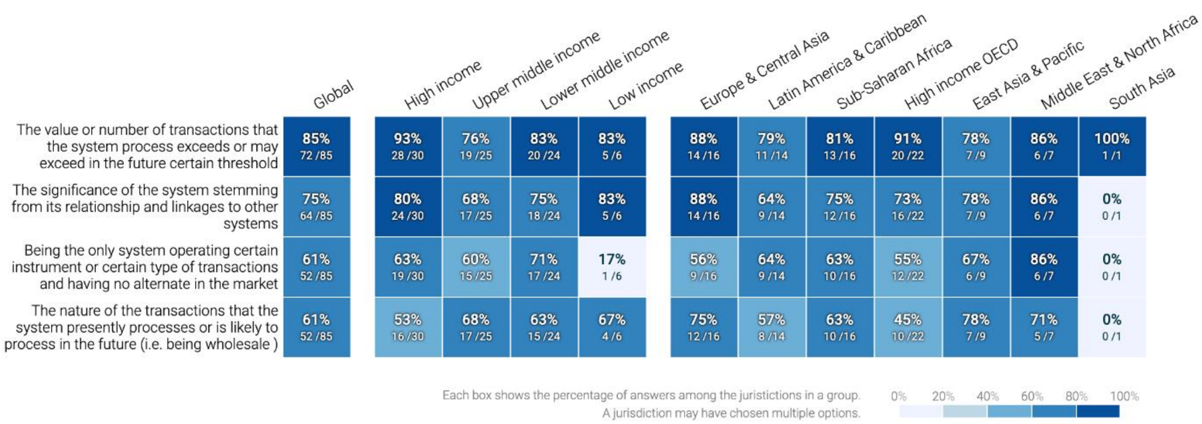
DETERMINATION OF A PAYMENT SYSTEM OR OTHER FMI AS SYSTEMICALLY IMPORTANT

The last part of this section of the survey aimed at obtaining information on the criteria that are used by the overseer for designating - or otherwise determining - a payment system or another FMI as systemically important. The key results are shown in **Chart VII.2**.

The main criterion is the value or number of transactions processed by the systems, which is used by 77 percent of overseers globally. This trend is fairly stable across regions. Interdependencies are the second most relevant criterion (69 percent).

Other relevant criteria that are used by slightly more than half of overseers for designation purposes are whether the system is the only system of its kind operating certain type of instruments or transactions in the market (and/or the lack of alternatives) and the nature of the transactions that are processed by the system. The latter criterion is less used in high-income OECD economies but is relevant in the EAP, ECA and MNA regions, all of them at 70 percent.

Chart VII.2: Criteria for determining systemic importance of a payment systems or other FMI



SECTION VIII. PAYMENT SERVICES

This section was included for the first time in GPSS 2018 to cover innovative payment services that are provided directly to end-customers. While it covers all types of PSPs, it places a special focus on non-bank PSPs. The latter have been increasingly offering services that were traditionally provided only by banks, such as merchant acquiring, other forms of payment card acceptance or operating ATM networks. These developments in payment services provisioning area are being facilitated to a large extent by new technologies and are nourished by the urge to reach new segments of customers. As discussed throughout this section, the results of the survey show that many countries are experiencing the introduction of these new payment services.

TYPES OF PAYMENT SERVICES

Chart VIII.1 shows the types of innovative payment services that are covered in this section and the corresponding survey results. Out of 99 responding jurisdictions, as shown in **Chart VIII.1** there was availability of the following services: i) Provision of payment gateways for e-commerce: 71 countries; ii) Mobile money services: 68 countries; iii) QR code payment acceptance: 60 countries; iv) Mobile money payment acceptance: 58 countries; v) Merchant aggregation services: 43 countries; vi) Bill payment aggregation: 40 countries; vii) White-label ATM networks: 37 countries; and, viii) Payment initiation services via third parties using APIs: 34 countries.

Chart VIII.1: Types of new payment services available

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Payment gateways for e-commerce	72% 71 /99	89% 34 /38	64% 18 /28	60% 15 /25	50% 4 /8	71% 10 /14	53% 9 /17	63% 10 /16	90% 26 /29	64% 7 /11	71% 5 /7	80% 4 /5
Mobile Money Services	69% 68 /99	55% 21 /38	71% 20 /28	76% 19 /25	100% 8 /8	36% 5 /14	71% 12 /17	88% 14 /16	59% 17 /29	91% 10 /11	71% 5 /7	100% 5 /5
Acceptance via QR Code	61% 60 /99	66% 25 /38	46% 13 /28	76% 19 /25	38% 3 /8	50% 7 /14	18% 3 /17	69% 11 /16	79% 23 /29	73% 8 /11	57% 4 /7	80% 4 /5
Acceptance via mobile money accounts	59% 58 /99	47% 18 /38	57% 16 /28	72% 18 /25	75% 6 /8	36% 5 /14	47% 8 /17	81% 13 /16	52% 15 /29	82% 9 /11	71% 5 /7	60% 3 /5
Merchant Aggregation	43% 43 /99	55% 21 /38	39% 11 /28	32% 8 /25	38% 3 /8	36% 5 /14	35% 6 /17	50% 8 /16	59% 17 /29	27% 3 /11	29% 2 /7	40% 2 /5
Bill Aggregation	40% 40 /99	50% 19 /38	25% 7 /28	48% 12 /25	25% 2 /8	29% 4 /14	24% 4 /17	50% 8 /16	55% 16 /29	27% 3 /11	43% 3 /7	40% 2 /5
Operating white label ATM Network	36% 36 /99	47% 18 /38	36% 10 /28	24% 6 /25	25% 2 /8	36% 5 /14	47% 8 /17	25% 4 /16	52% 15 /29	9% 1 /11	29% 2 /7	20% 1 /5
Payment initiation by third parties using APIs	34% 34 /99	55% 21 /38	21% 6 /28	24% 6 /25	13% 1 /8	21% 3 /14	6% 1 /17	19% 3 /16	69% 20 /29	18% 2 /11	43% 3 /7	40% 2 /5

Each box shows the percentage of answers among the juristictions in a group.
A jurisdiction may have chosen multiple options.

0% 20% 40% 60% 80% 100%

Higher income economies lead in many of the categories, like payment gateways for e-commerce, merchant and bill aggregators. In contrast, as indicated also in other sections of this report, lower income economies lead in the availability of mobile money services and the acceptance of payments with mobile money. For example, mobile money services are especially relevant in the EAP, SA and SSA regions, but only in less than 60 percent of the high-income OECD economies. For other types of payment services there seems to be no clear correlation between income levels and the availability of the service. LAC lags in many of the payment services discussed in this question.

MOBILE MONEY SERVICES

The GPSS asked about the models used for providing mobile money services. On this issue, 16 jurisdictions reported that they have a bank-led model, 18 reported that they have a MNO-led model, 15 reported that they have a mixed model (i.e. both banks and MNOs can provide the service), and other 18 jurisdictions reported that there is a different type of entity providing the service. Non-bank led models are more common in the SSA region, while in LAC in several countries the various models co-exist.

<u>Interoperability of payment services made available through mobile money accounts</u>

Regarding the interoperability of mobile money service providers, 41 out of 62 countries that responded this set of questions (66 percent) reported having no interoperability amongst them. Interoperability is more common in the MNA and SA regions, and less common in LAC and SSA. All but one of the 22 countries that reported having interoperability state that the respective protocol is based on using a central switch. Seven of these are actually the national card switches, while the remaining ones are different platforms.

Chart VIII.2: Interoperability of Payment Services made available through Mobile Money Accounts

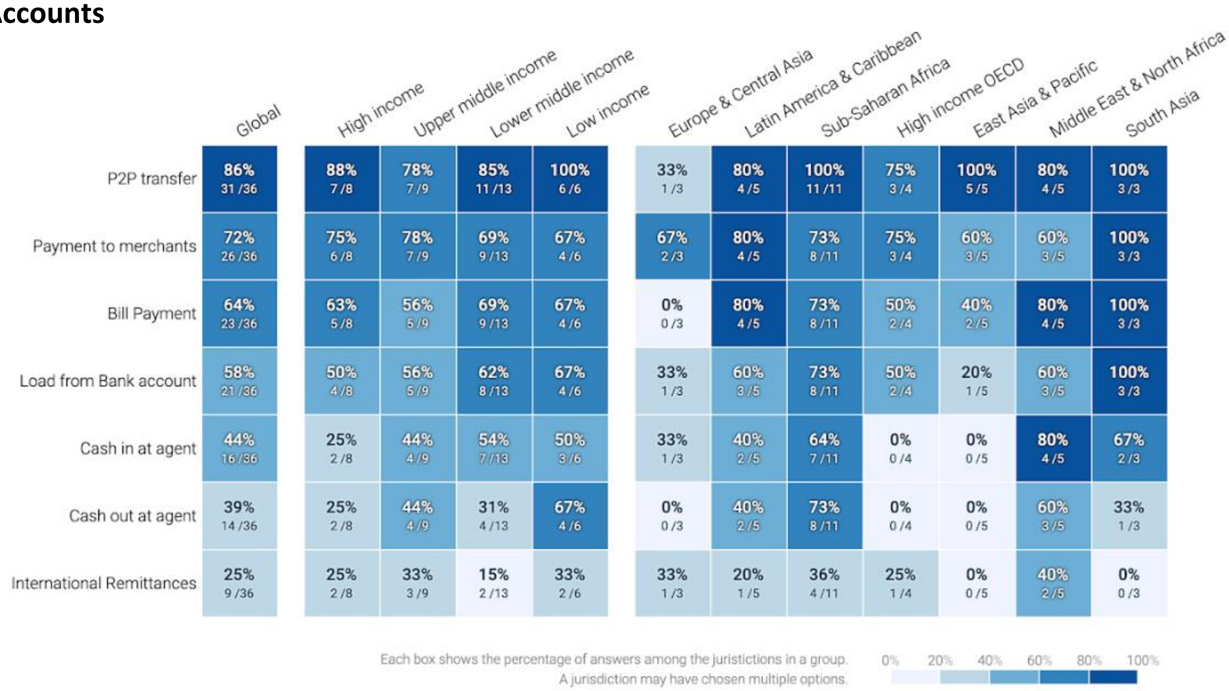


Chart VIII.2 shows information on the scope of interoperability of services that are available via mobile money. Interoperability is more common for person-to-person (P2P) funds transfers and lower for cash-outs at agents. From a country income perspective, interoperability for P2P transfers, payments to merchants, bill payments and transfers from bank accounts are similar to the global average. Regionally, the scope of interoperability is, in general, highest in the SA region, and lowest in ECA. Interestingly, some jurisdictions that have interoperability on merchant acceptance or loading from bank accounts do not have interoperability on P2P funds transfers.

Mobile money services that can be provided by agents

Out of the 45 countries that answered this question, cash-ins to the mobile money account are allowed in all but one country in the LAC region and one high-income OECD country. Cash-outs are also permitted in the vast majority of countries (89 percent), with the lowest percentages being observed in high-income OECD countries and in the SA region.

Agents are allowed to register new customers for CDD purposes in 78 percent of countries.

WHITE-LABEL ATM AND POS NETWORKS

ATMs

A small number of countries answered the specific questions on white-label ATM networks,[57] of which 13 reported having this type of networks in operation in their jurisdiction.[58] Nine jurisdictions have a single white label provider, while others have more than 1. Six jurisdictions indicated that the white-label ATM network providers have been licensed/authorized by authorities other than the central bank.

Two additional questions aimed at obtaining information on the relative importance of white-label ATMs. These were answered by a smaller number of countries. Regarding the share of ATMs that are white-label, 2 economies reported 100 percent of their ATMs being of a white-label type or belonging to a white-label arrangement, 2 others reported this share is above 70 percent, 3 others reported having between 10 and 33 percent, and 4 economies - less than 10 percent. The second question referred to the share of banks in the country that are using white-label ATM networks. Notably, 6 countries reported that above 90 percent of their banks are using them, even in cases where white-label ATMs are a small percentage of the total number of ATMs in the country.

POS terminals

Only 7 jurisdictions reported having white-label POS networks or non-bank POS acquirers.[59] Four jurisdictions indicated they have two or less of these networks, two others reported having 3 or 4 networks, and one jurisdiction indicated it has 14 white-label POS networks. There was no pattern across these jurisdictions regarding the regulator that licenses non-bank POS acquirers.

---

[57] White-label ATMs typically are ATMs that are not owned, managed or controlled by a bank or a bank consortium, and do not display the logo of a bank or the consortium.

[58] In contrast, at the beginning of this section it was mentioned that white-label ATMs were available in 37 jurisdictions.

[59] These are different from merchant aggregators.

BILL PAYMENT AGGREGATORS

This section of the GPSS 2018 also included questions on bill aggregators, most of which were answered by only a small number of countries. Therefore, data presented in this sub-section is less representative and should be looked at with care.

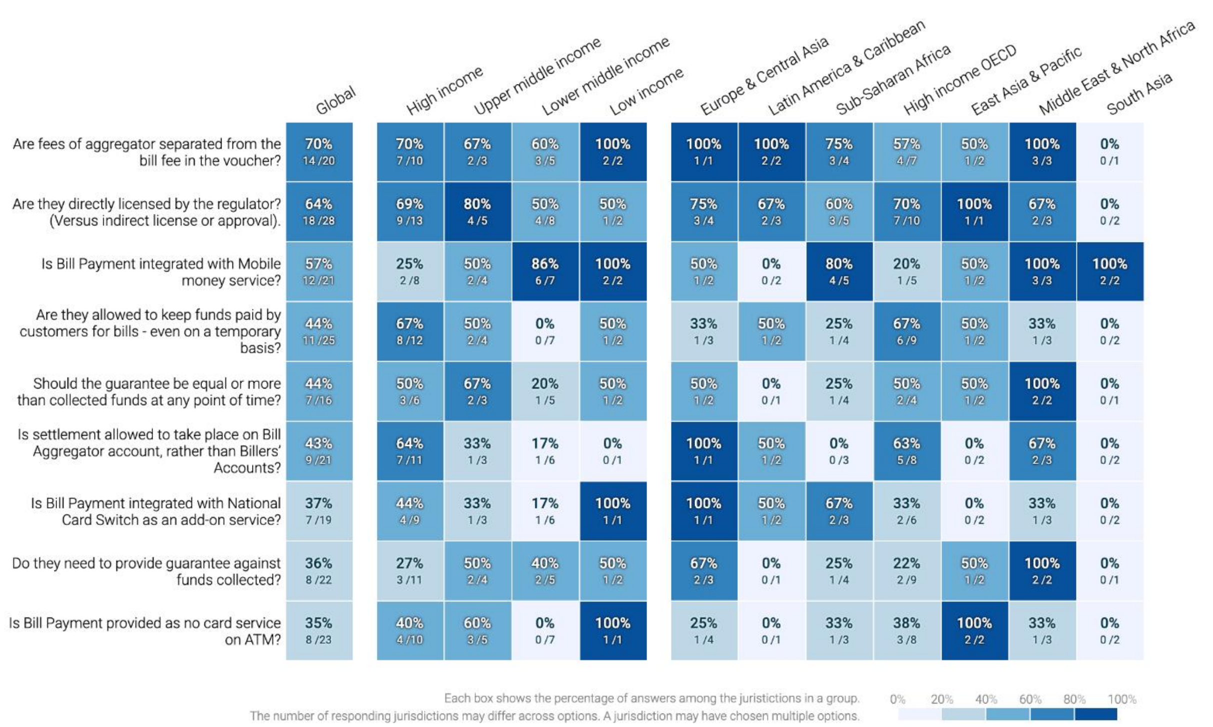
As expected, the economic sectors that are more commonly covered by bill aggregators are utilities, cable TV, Internet services and mobile telephony.

Nearly half of the reporting economies require bill aggregators to be licensed, while another one-quarter does not require a license at all. The remaining one-quarter require a license only if certain conditions are met, for example if the bill payment aggregator accepts electronic payments or if the size of the aggregator's activities exceeds certain thresholds.

Regarding the number of bill aggregators operating in the country, 12 economies reported having less than 10 bill payment service providers, while another 7 economies stated they have between 10 and 100 such providers.

The channels that bill payment aggregators use to collect payments vary widely. Cash payments at agents of bill aggregators continue to be an important channel for bill payments. Using Internet banking to pay bills is more commonly available compared to paying with cards or debit to a bank account via POS terminals or via ATMs. Moreover, bill payment seems to be an increasingly important use case for mobile money.

Chart VIII.3: Services that can be provided by bill payment aggregators



Some interesting features of bill payment aggregators reported are shown in **Chart VIII.3**. Forty-four percent of the responding jurisdictions stated that bill aggregators are allowed to keep funds paid by customers for bills, even if only on a temporary basis. Only 36 percent of the respondents required the bill aggregators to provide guarantee against the collected funds. Fifty-seven percent of the respondents indicated that they require settlement to take place on the billers' accounts rather than the bill aggregators' accounts.

As mentioned earlier, bill payment is a relevant use case for mobile money, and most respondents in the MNA, SA and SSA regions indicate that bill payment services are indeed largely integrated with the mobile money service offering.

As an indicator of transparency, 70 percent of the respondents stated that they require the separation of aggregator fees from the original bill in the voucher.

MERCHANT AGGREGATORS

Forty-four jurisdictions reported having merchant aggregators.[60] Out of this total, 33 have up to 5 merchant aggregators, 4 have between 5 and 10 aggregators, 2 have between 10 and 30 merchant aggregators, and 5 have more than 30 merchant aggregators. Within the latter category, one high-income OECD reports having nearly 100 merchant aggregators.

Chart VIII.4: Merchant aggregator key features

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
Are aggregators/facilitators required to perform a full CDD on merchants?	66% 23/35	73% 8/11	44% 4/9	67% 8/12	100% 3/3	50% 2/4	17% 1/6	78% 7/9	75% 6/8	100% 4/4	67% 2/3	100% 1/1
Are aggregators allowed to include government units as merchants?	66% 23/35	91% 10/11	57% 4/7	38% 5/13	100% 4/4	67% 2/3	0% 0/3	55% 6/11	100% 9/9	75% 3/4	50% 2/4	100% 1/1
Are aggregators/facilitators allowed to perform Simplified Due Diligence (SDD) on small merchants?	57% 17/30	80% 4/5	50% 5/10	36% 4/11	100% 4/4	25% 1/4	40% 2/5	80% 8/10	100% 4/4	25% 1/4	50% 1/2	0% 0/1
Are Aggregators required to be licensed?	56% 29/52	55% 11/20	54% 7/13	53% 8/15	75% 3/4	50% 3/6	25% 2/8	75% 9/12	56% 9/16	75% 3/4	75% 3/4	0% 0/2
Are aggregators obliged to provide merchant information to acquirer bank?	45% 17/38	38% 5/13	36% 4/11	45% 5/11	100% 3/3	25% 1/4	29% 2/7	75% 6/8	40% 4/10	75% 3/4	25% 1/4	0% 0/1
In SDD, are small merchants allowed to be identified through a single registry document?	41% 9/22	75% 3/4	29% 2/7	25% 2/8	67% 2/3	0% 0/2	20% 1/5	57% 4/7	100% 3/3	25% 1/4	0% 0/1	-
In SDD, are small merchants allowed to be identified as Individuals, due to lack of business documentation?	30% 7/23	25% 1/4	25% 2/8	25% 2/8	67% 2/3	0% 0/2	17% 1/6	57% 4/7	33% 1/3	25% 1/4	0% 0/1	-

Each box shows the percentage of answers among the juristictions in a group.
The number of responding jurisdictions may differ across options. A jurisdiction may have chosen multiple options.

0% 20% 40% 60% 80% 100%

Questions on licensing and other regulatory requirements and merchant aggregator features were answered by a relatively small number of economies (see **Chart VIII.4**). Only 56 percent

[60] Merchant aggregators are entities that enter into a single merchant agreement with an acquiring institution for a number of smaller merchants whom they represent. The merchant aggregator typically handles all the typical merchant acquiring processes including onboarding and settlement. Merchant aggregators exists both in the physical and ecommerce space.

stated that merchant aggregators or facilitators are required to be licensed (out of 52 answers). In 23 out of 35 countries (66 percent), merchant aggregators are required to perform full CDD of their merchants, although in a few other cases simplified due diligence is permitted,[61] especially for micro enterprises. Also, 44 percent reported that aggregators are obliged to provide merchant information to acquirer bank. Finally, 66 percent of respondents affirmed that aggregators and facilitators could serve government units as merchants.

Few economies reported about the maximum turnover rate per merchant if working through an aggregator. The reported figures are similar to the ceiling applied by international card schemes (USD 100,000).

Lastly, 36 percent of 44 respondents indicated they have regulations obliging the merchant aggregator to pay the merchant within a particular period of time after the funds pertaining to the payment card transaction have been credited to the aggregator's account. This obligation exists more commonly in high-income OECD economies.

QR CODE USAGE FOR PAYMENTS[62]

Fifty-five economies reported having QR code payment acceptance. Currently, QR code payments appear to be more common in the MNA, SA and SSA regions.

The number of merchants accepting QR code appears to be reaching significant numbers. In several economies with populations exceeding 30 million inhabitants, the number of merchants that accept QR code payments already exceeds 1 million, which is similar to the number of merchants accepting payments with cards in those same economies.

In practically all cases there are multiple QR code service providers for payments, in some cases exceeding 5 or even more than 10. Interoperability among them is still low: only 30 central banks reported they have issued regulations enforcing EMV or other standards to enforce interoperability among QR code schemes. On the other hand, 74 central banks said they do not have any applicable interoperability standard.

---

[61] For example, aggregators can accept a single document to identify the merchant, and in some cases they can accept the personal ID of the owner to register a micro or even a small enterprise.

[62] QR codes is a relatively innovative method use mostly in person-to-business payments. It offers a low-cost alternative to traditional POS terminals by leveraging the mobile (smart) phone channel.

SECTION IX. FINTECH

Different definitions of "Fintech" have been used by international bodies and national authorities. For the purposes of this survey, Fintech refers to advances in technology that have the potential to transform the provision of financial services, spurring the development of new business models, applications, processes and products.[63] In the payments space, Fintech can be leveraged to improve the design of transaction accounts and payment products, make them ubiquitously accessible, enhance user experience and awareness, and achieve efficiency gains and lower market entry barriers. At the same time, these benefits come with certain risks.

Regulatory authorities are keen to foster Fintech's potential benefits and to mitigate possible risks, and many international and regional bodies are examining various aspects of Fintech in line with their respective mandates. For example, the International Monetary Fund (IMF) and the WBG developed the Bali Fintech Agenda in October 2018, which includes 12 principles acknowledging the potentially far-reaching social and economic positive impact of Fintech, particularly in low-income economies, small states, and for the underserved.[64]

With this as the background, a Fintech section was introduced in GPSS 2018. This section starts with an analysis of the landscape of various Fintech services, followed by approaches taken to regulate Fintech activities. It continues with an analysis of the linkage between Fintech innovation and financial inclusion, treatment of cryptocurrencies, crypto-assets, crypto-exchanges and similar solutions, and central bank digital currencies (CBDC). Finally, the section concludes with a review of regulatory responses to potential risks and concerns.

FINTECH MARKET AND PERMITTED ACTIVITIES

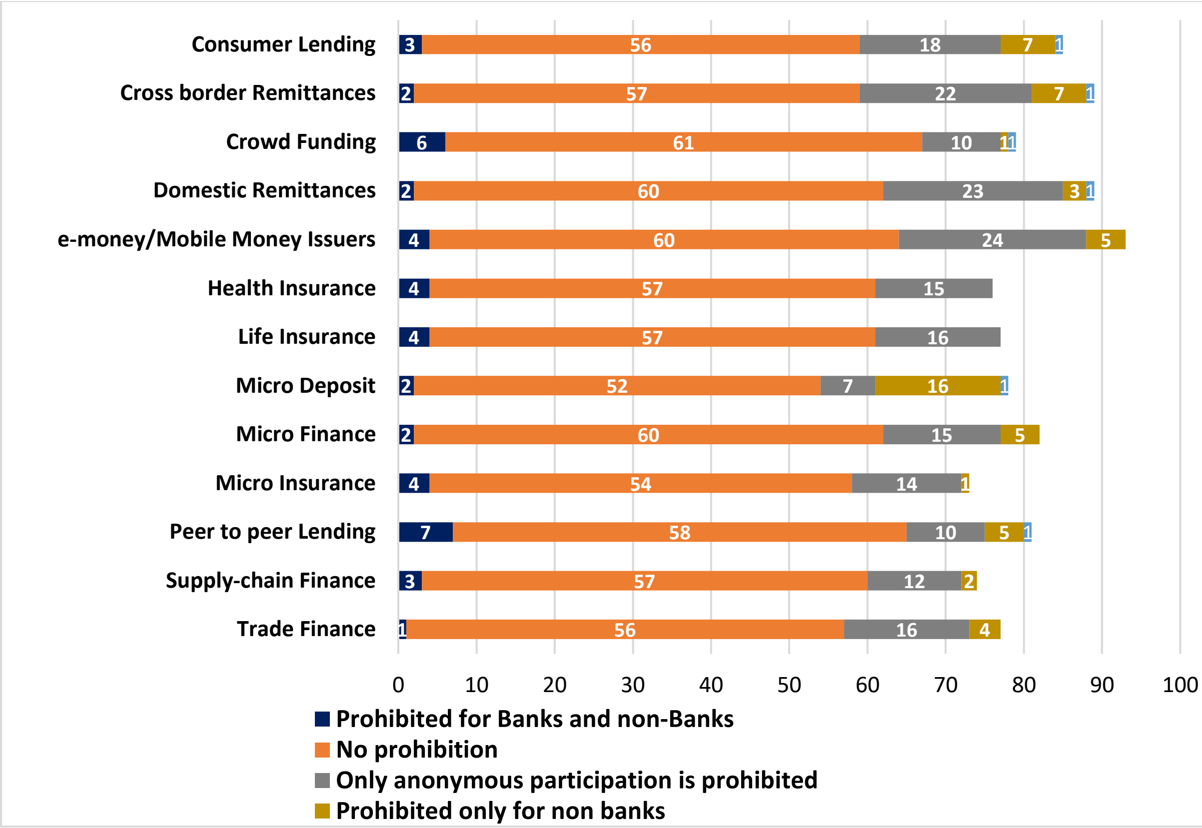
More than 60 percent of all survey respondents permit Fintech activity by both banks and non-banks in the areas of consumer lending, cross-border remittances, domestic remittances, crowdfunding, peer-to-peer lending, e-money/mobile money, insurance, microfinance, microdeposit, supply chain finance and trade finance (see **Figure IX.1**).

From a regional angle, while most respondents in the LAC and SSA regions do not prohibit most Fintech activities, most respondents in the ECA and the SAR regions prohibit anonymous participation of end-users in domestic and cross-border remittances and trade finance activities. Two out of three respondents from the SAR region also prohibit anonymous participation in e-money/ mobile money schemes, insurance, microfinance and consumer lending activities. **Table IX.1** captures details of all permitted and restricted activities (including cryptocurrencies and related activities, which are discussed later in this section).

[63] CPMI and WBG (2020), *Payments aspects of financial inclusion in the fintech era*, April, https://www.bis.org/cpmi/publ/d191.pdf

[64] IMF and WBG (2018). *The Bali Fintech Agenda,* October, https://www.imf.org/en/News/Articles/2018/10/11/pr18388-the-bali-fintech-agenda

Figure IX.1. Permitted Fintech activities (Global)



REGULATION OF FINTECH ACTIVITIES

The survey revealed a range of approaches adopted by the responding jurisdictions in their choice of regulator for various Fintech activities (see **Figure IX.2**) – with the central bank being the primary regulator in most of these jurisdictions for activities such as domestic and cross-border remittances, microfinance, microlending, microdeposit, trade finance, and mobile money.[65]

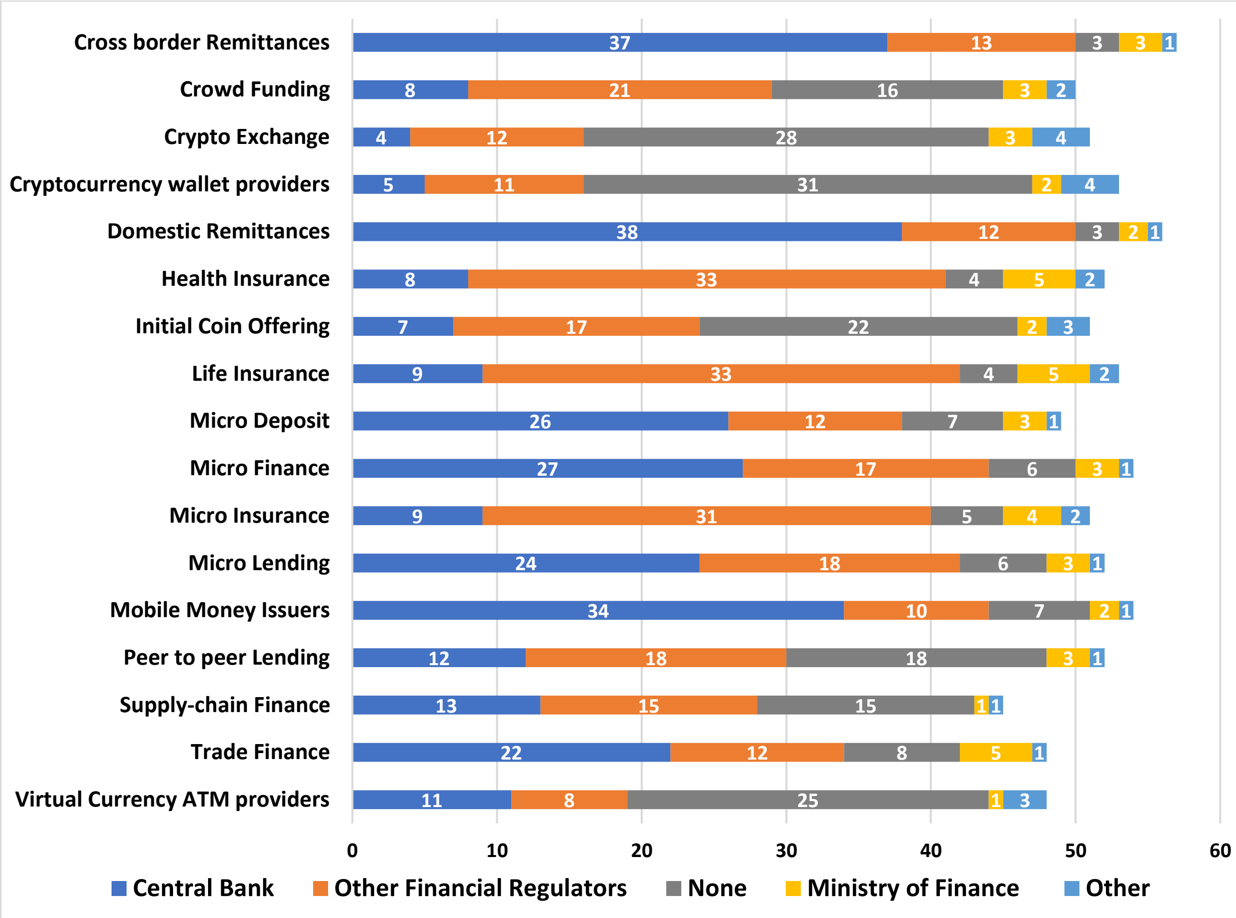
According to survey data (**see Table IX.4**), in about half of the high-income economies, financial regulators other than the central bank regulate microlending, microfinance and microdeposits, while this percentage is above two-thirds in lower middle-income and low-income economies.

The greatest variation in choice of regulator between country groups is apparent in regulation of crowdfunding, peer-to-peer lending, trade finance and cryptocurrency activities, including that a larger percentage of economies do not regulate these activities. From a regional perspective, while cryptocurrency wallets, crypto exchanges, initial coin offering, peer-to-peer lending, crowdfunding and supply chain finance activities are unregulated in at least two-thirds of the economies in the ECA and LAC regions, most of economies in the EAP and MNA regions regulate these activities through their central bank, other regulators or the ministry of finance. The two

[65] In several countries, the banking and NBFI supervisory function is inside the central bank.

SAR economies that responded this specific question stated that they have no regulator responsible for cryptocurrency and virtual currency related activities (See **Chart IX.1**).

Figure IX.2. Fintech activities by regulator type (Global)

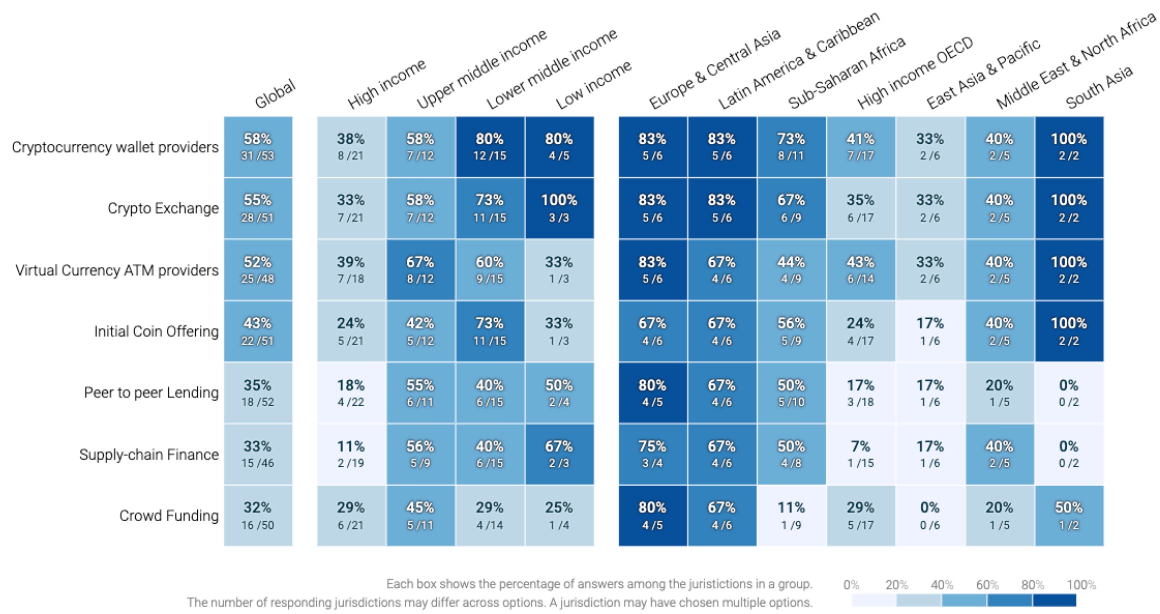


Licensing approaches vary across respondent economies. While 50 of the 110 respondents did not have specific plans to introduce regulations to license Fintech companies, 34 already have such regulations in place, and another 12 are planning to have such regulations in place by 2021.

Regulators have been adopting a variety of approaches to license Fintech companies (see **Table IX.3**) including applying existing licensing regimes to them (50), differentiated regulation for each type of Fintech activity (25), approaches applying limits to the service (19), the sandbox approach (16) and issuance of no objection letters (15). From a regional angle, most economies in the SSA region prefer to issue no-objection certificates (70 percent), while those in the EAP region prefer differentiated regulation (83 percent). Moreover, 75 percent of authorities in the MNA region prefer to issue new laws when gaps are identified and prohibit such activities until then.

Among countries that have established regulatory sandboxes,[66] the testing environments are mostly owned by central banks or other regulators (see **Table IX.6**). Interestingly, the sandbox teams at most regulators (10 out of 16) are likely to be separated from the payment department.[67] Sandbox testing phases most commonly last between 6 months to a year (10). Only one regulator has a testing phase of more than 2 years.

Chart IX.1. Fintech activities with no assigned regulator



FINTECH AND FINANCIAL INCLUSION

More than half of the 93 respondents consider Fintech as one of the vehicles for financial inclusion, as shown in **Table IX.8**. Low- and middle-income economies are more likely to look to Fintech as a vehicle for financial inclusion: 70 percent of the upper middle-income economies, 63 percent of the lower middle-income economies and all responding low-income economies. Twenty percent of the rest of the respondents are considering or studying the potential of Fintech as means to achieve financial inclusion.

On specific Fintech applications, high-income economies are more likely to have Fintech lending platforms (including peer-to-peer and crowdfunding) for MSMEs (63 percent) and to permit the use of cloud computing for bank accounts or other types of financial services accounts (52 percent). Upper and lower middle-income economies are more likely to implement open banking requirements allowing third-party companies access to bank accounts or other types of financial services accounts using APIs (46 percent). Seventy-one percent of the low-income economies have been considering the use of Fintech platforms for international remittances.

---

[66] A sandbox is generally a regulator-controlled environment that allows private sector participants to test their products and services prior to formal licensing or registration. Alternatively, regulatory sandboxes can be used to evaluate regulations or policies that may impede beneficial new technologies or business models (see CPMI and WBG 2020).

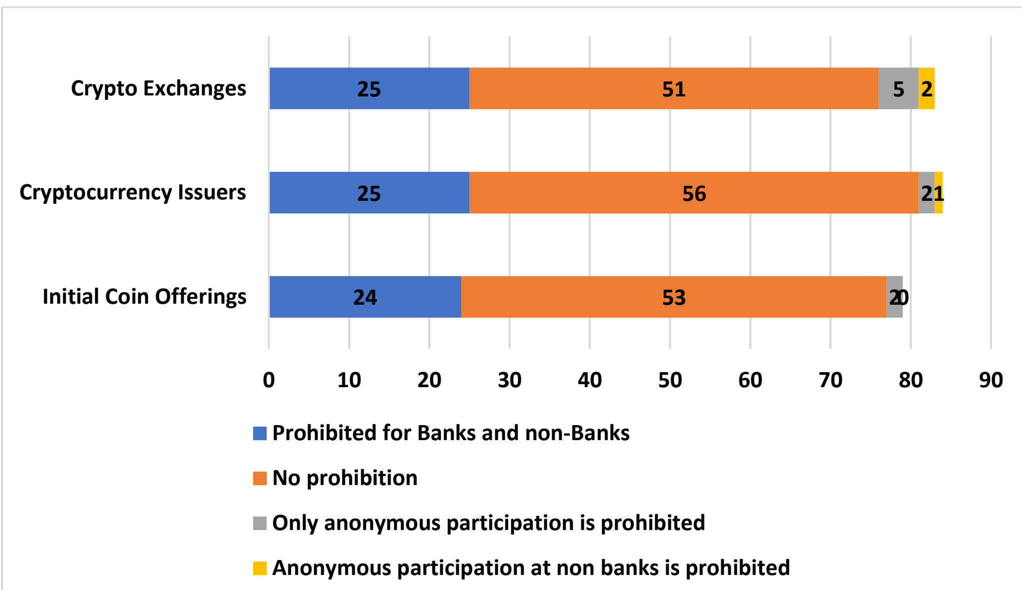
[67] One possible reason is because the regulatory sandboxes often have a scope that goes beyond payments.

From a regional perspective, Fintech is considered as a vehicle for financial inclusion throughout the EAP region (100 percent) and in most of the countries in SSA (81 percent), but to a lesser extent in LAC (53 percent) and ECA (42 percent) regions. Among high-income economies, EU economies lead the rest in the implementation of open banking requirements and issuance of guidance on cloud computing.

CRYPTO-CURRENCIES, CRYPTO-ASSETS OR SIMILAR SOLUTIONS

A large contrast between high-income economies and the rest is observed in the treatment of cryptocurrency-related activities (see **Figure IX.3** and **Table IX.1**). More than three-quarters of the high-income economies allow initial coin offerings, crypto-currency exchanges or crypto-currency issuers, while the figures are more mixed for low and middle-income economies. The SAR, EAP and MNA regions are most restrictive, with more than two-thirds of the countries in each of these regions prohibiting one or more of the following activities: initial coin offerings, crypto-currency exchanges and crypto-currency issuers for both banks and non-banks. None of the EU countries that responded have prohibited initial coin offerings or crypto-currency issues, and only three countries do not allow anonymous participation in crypto-exchanges.

Figure IX.3. Treatment of crypto activities (Global)



CENTRAL BANK DIGITAL CURRENCIES

More than half of the respondents (54 percent) are studying the pros and cons of CBDCs but have not taken a decision on it yet, as shown in **Table IX.2.** One-third of the responding economies have not conducted studies at all, and another 15 percent have already decided not to issue CBDC after studying the technological, monetary and financial stability aspects. High-income and lower middle-income economies have been more active in exploring CBDCs (57 percent each). From a regional perspective, almost two-thirds of the countries in the ECA, SSA and EAP regions are studying this issue. Countries in the SAR and LAC regions are evenly divided between those that are studying the possibility of issuing CBDCs and those that have not studied the issue at all – at 40 percent each for SAR, and 43 percent each for LAC.

FINTECH RELATED RISKS, REGULATORY CONCERNS AND RESPONSES

Fintech poses new risks and might elevate existing risks, which leads to new regulatory challenges. Forty-three percent of the 96 respondents identified Fintech as having a potential negative impact on financial stability – this number increases to 57 percent (4 out of 7) when low income economies are considered (see **Table IX.9**). More than two-thirds of the high-income economies (70 percent) and more than half of the upper middle-income economies (52 percent) have issued advisories on specific risks associated with Fintech. At a regional level, while the financial stability risks associated with Fintech are a concern for more than one-third of the regulators in LAC, SAR, ECA and SSA regions, there are significant differences in the approaches taken by countries in issuing advisories on Fintech-related risks. For example, while more than half the respondents in the EAP and LAC regions have issued such advisories, only 33 percent of the MNA region respondents have done so.

As for other regulatory concerns related to Fintech, protection of consumer funds is a near-universal area of concern (57 out of 58 respondents or 98 percent). Other areas of concern include KYC/CDD process for remote CDD (81 percent), lack of customer understanding and awareness of risks (81 percent), cyber resilience of the Fintech solution (74 percent) and soundness of the Fintech platform (72 percent). These concerns were highlighted by all regional groups. In the MNA region, regulators flagged the importance of applying limits on the service (such as limits on number of customers or ceilings on account or transactions volume or value) as a tool to protect consumer funds (see **Table IX.5**).

On regulatory responses to these risks and challenges, a little over half the respondent countries subject their Fintech providers to AML/CFT obligations and monitoring – with middle-income economies (18 out of 49 respondents) lagging behind low-income (6 out of 7 respondents) and high-income economies (23 out of 36 respondents) in this regard (see **Table IX.9**).

Two-thirds of the high-income economies among the respondents have established requirements for operational resilience, including specific standards for technical and information security, with the EU being a leader in establishing such measures. At a regional level, only half of the economies in EAP, SSA, SAR regions and slightly less than half in the ECA region (46 percent) have taken similar measures. The LAC region lags behind the rest on this front, with only 4 out of 18 regulators applying these measures to Fintech providers. Finally, while more than 50 percent of the authorities in LAC have enhanced or modified their requirements related to technology-facilitated outsourcing requirements, other regions have not been similarly proactive in this regard (see **Table IX.9**).

The survey also revealed that RegTech and SupTech are yet to gain widespread popularity among regulators/ supervisors and financial sector players. Only 18 percent of the economies have financial sector players actively using RegTech tools. About one-third of the regulators are either considering, have implemented or have planned to implement the use of SupTech tools to supplement their own supervisory framework (see **Tables IX.9**).

SECTION X. REFORMING THE NATIONAL PAYMENTS SYSTEM

Reforming the NPS requires a sharp focus on main elements, ranging from payment instruments and infrastructure, financial and non-financial institutions, legal framework and market arrangements (such as conventions, regulations and contracts) that define the playing field. Reform efforts have proved more effective when they a holistic approach is adopted rather than piecemeal one.

This section looks closely at the current trends in reforming the NPS across these elements. It starts with a landscape of reforms efforts by area, and by stage of the reform's implementation. It continues with the analysis of factors that triggered these reforms. Finally, it focuses on the approaches followed in the latest reform effort.

GENERAL INFORMATION

Most jurisdictions globally have continued their engagement in payment system reforms. Eighty-one percent of surveyed jurisdictions are planning or are already implementing one or more reforms to their NPS. This marks a small decrease from the 89 percent registered in 2015. Out of all the reforms reported, 37 percent were at the discussion stage, 18 percent at the "definition of requirements" stage, 30 percent at the development stage and 15 percent at the implementation stage.

Reforms are planned or are being undertaken in 87 percent of upper-middle-income, 93 percent of lower-middle-income and 88 percent of low-income economies. By contrast, only 66 percent of high-income economies are engaging in reforms. SA is the most reform-oriented region (100 percent), trailed by SSA and EAP with 94 and 91 percent, respectively.

ELEMENTS OF THE NPS BEING REFORMED

Globally, most common reforms areas involve retail payments (in particular, the introduction or modernization of fast payments), reforms to the legal and regulatory framework and, to a somewhat lesser extent, reforms related to government payments.

In general, the legal and regulatory framework was the most popular area being reformed with 32 percent of all economies reporting this situation. Regions below this percentage include the EAP region and high-income OECD countries. In contrast, 47 percent of countries in the LAC region and 60 percent of those in the SA region are embarking in reforms in this area.

Interestingly, reforms to RTGS systems and other FMIs are being undertaken mostly in low-income economies with 50 and 67 percent, respectively, compared to global percentages of 13 percent for RTGS systems (11 countries) and 9 percent for other FMIs.

Among 30 countries that are implementing fast payments, 9 are upper middle-income economies, 8 in each high-income and lower-middle-income economies, and 4 in low-income economies. Other areas of retail payments being reformed include mobile payments (24 percent at the global level), ACHs (23 percent), payment card systems (19 percent) and cheque clearing systems (13 percent).

Only 14 percent of economies globally are reforming their NPS oversight function, with upper middle-income economies leading with 23 percent.

FACTORS THAT TRIGGERED REFORMS

As shown in **Chart X.1**, increasing the overall efficiency of the NPS and responding to technological innovation were the top motivations for engaging in reforms, cited, respectively, by 91 percent and 88 percent of reforming jurisdictions. The third most important reason was the need to expand access of the population to financial products and services; this was—reported by 74 percent of respondents. However, the latter was mainly a concern of low-income and lower middle-income jurisdictions, all off which cited expanding financial access as a driving force for reforms. On the other hand, it was the case for only 41 percent of high-income jurisdictions (and only in 29 percent of high-income OECD economies).

Chart X.1: Factors that triggered reforms

	Global	High income	Upper middle income	Lower middle income	Low income	Europe & Central Asia	Latin America & Caribbean	Sub-Saharan Africa	High income OECD	East Asia & Pacific	Middle East & North Africa	South Asia
The need to increase the overall efficiency of the payment system	91% 95/104	92% 34/37	88% 28/32	93% 25/27	100% 8/8	76% 13/17	100% 18/18	94% 16/17	86% 24/28	100% 11/11	100% 8/8	100% 5/5
Response to technological innovations	88% 91/104	81% 30/37	88% 28/32	96% 26/27	88% 7/8	82% 14/17	78% 14/18	100% 17/17	79% 22/28	100% 11/11	100% 8/8	100% 5/5
The need to expand access to financial products and services in the population	74% 77/104	41% 15/37	84% 27/32	100% 27/27	100% 8/8	88% 15/17	78% 14/18	100% 17/17	29% 8/28	91% 10/11	100% 8/8	100% 5/5
Response to demands from market participants for better payment/settlement services	68% 71/104	65% 24/37	63% 20/32	78% 21/27	75% 6/8	53% 9/17	56% 10/18	82% 14/17	61% 17/28	82% 9/11	88% 7/8	100% 5/5
The need to reduce systemic risk	63% 65/104	54% 20/37	53% 17/32	78% 21/27	88% 7/8	29% 5/17	61% 11/18	88% 15/17	46% 13/28	91% 10/11	88% 7/8	80% 4/5
Response to demands from end-users for better payment and settlement services	57% 59/104	51% 19/37	63% 20/32	63% 17/27	38% 3/8	65% 11/17	56% 10/18	47% 8/17	46% 13/28	64% 7/11	63% 5/8	100% 5/5
Response to demands from market participants for new types of service providers	47% 49/104	32% 12/37	44% 14/32	67% 18/27	63% 5/8	53% 9/17	33% 6/18	65% 11/17	25% 7/28	73% 8/11	63% 5/8	60% 3/5
Response to demands from government institutions for better payment services	46% 48/104	30% 11/37	47% 15/32	59% 16/27	75% 6/8	41% 7/17	44% 8/18	65% 11/17	25% 7/28	64% 7/11	50% 4/8	80% 4/5

Each box shows the percentage of answers among the juristictions in a group.
A jurisdiction may have chosen multiple options.
25% 40% 55% 70% 85% 100%

Other reasons for reforms include the need to reduce systemic risk (63 percent), responding to demands from market participants for better payment and settlement services (68 percent), and demands from end-users and from the government for better payment services (57 and 46 percent, respectively).

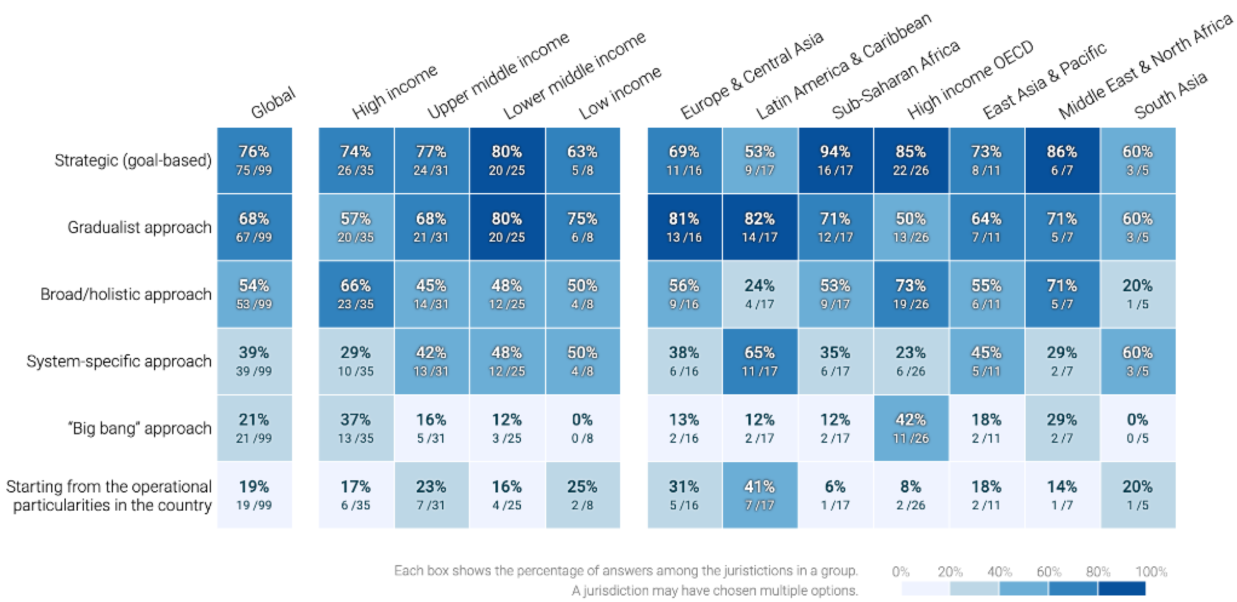
These less common reasons display clear geographic patterns. For example, nearly 90 percent of jurisdictions in EAP, MNA and SSA regions indicated the need to reduce systemic risk as a motivation, but this was the case in only 29 percent of respondents from the ECA region and 46 percent of high-income OECD economies. Also, response to demands from government institutions for better payment services drives reforms in 75 percent of low-income and 80 percent of SA economies, while being of much lower importance in other regions.

Approach to the Reforms

Reported NPS reforms mostly follow a goal-driven, strategic approach, as shown in **Chart X.2**. This is the case for 76 percent of all jurisdictions, while for only 19 percent the "operational particularities of the country" formed the starting point for modernization. However, the latter was the case in 41 percent of the countries engaged in NPS reforms in the LAC region.

Slightly more than half of all economies (54 percent) followed a "holistic" approach, while 39 percent are planning or are executing reforms in a system-specific manner. This, however, also shows relevant variations depending on country income levels and regions: 66 percent of high-income economies adopted the holistic approach compared to 50 percent or less in all other country income categories. Likewise, over 70 percent of high-income OECD and MNA economies subscribed to a holistic approach, while over 60 percent of economies in the LAC and SA regions have opted for system-specific reforms.

Chart X.2: Approach followed in the reforms



Finally, most economies preferred adopting a "gradualist" approach to their reform(s) compared to a "big bang" approach. Globally, the gradual approach is followed by 68 percent of jurisdictions planning or implementing reforms. The "big bang" approach is relatively popular only in high-income economies and in high-income OECD economies, being preferred by approximately 40 percent of the economies engaged in reforms (compared to 21 percent globally and 0 percent in low-income economies and in the SA region).