

SAFEGUARDING CRITICAL FUNCTIONS OF THE FINANCIAL SYSTEM

Crisis playbook & action plans

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BACKGROUND

Promoting resilience, innovation and inclusion of the financial system in Latin America and the Caribbean in light of the COVID-19 crisis

Overview

- Economic outlook has changed significantly in the last few months. The effects caused by the spread of COVID-19 and containment measures had substantial impacts in the functioning of the economy, financial firms and the financial and non-financial infrastructure in Latin America and The Caribbean
- The financial sector plays a major role in navigating the COVID-19 crisis, not only as a contributor to countries' gross domestic product, but also as an enabler of economic activity
- The Association of Supervisors of Banks of the Americas (ASBA), in collaboration with Oliver Wyman, the Governance and Financial Inclusion (GIF) project and Inter-American Development Bank (IDB) Lab, worked on three reports to identify lines of actions and measures that could limit the impact of COVID-19 on the wider economy

Contents

01

Safeguarding Critical Functions of the Financial System

- Identifies financial and banking services that are critical for the functioning of the economy and financial stability and then
- Puts forward action plans to increase the resilience and preparedness of the financial system

02

Building up Immunity of the Financial system

- Outlines policy actions to address rising credit risk and preserve financial stability, considering the particularities of the COVID-19 crisis
- Introduces recommendations to deal with an overleveraged economy

03

Unlocking Financial Inclusion

- Analyses a selection of medium-term recommendations based on conversations with relevant stakeholders, both the public and private sector across the region
- Outlines policy options and provides case studies for each recommendations to illustrate best practices and shortfalls

Focus of this document

EXECUTIVE SUMMARY (1/2)

Shortlist of critical functions

- The financial sector will play a major role in navigating the COVID-19 crisis, not only as a contributor to GDP but also as an enabler of economic activity
- This report, prepared in collaboration with ASBA, shortlists critical functions provided by the financial system, based on a top-down **assessment of demand and supply under stress**:
 - Defined **scenarios with escalating level of stress**:
 - Scenario A: Severe economic impact during two quarters, followed by “U” recovery, with backbone of economy staying intact
 - Scenario B: Deep economic recession, followed by “L” recovery, with severe disruptions expected due to COVID-19 impact
 - Assessed **demand for critical functions** considering:
 - **Inherent demand**, which is a factor of market characteristics (e.g. prevalence of cash as means of payment) and business model (e.g. reliance on long term debt to fund operations)
 - **Vulnerability of a sector to economic stress**, which is a factor of the expected decrease in revenue and the cost structure of each sector
 - Analysed **supply** of critical functions based on substitutability:
 - **Substitutability across entities**, which considers the number of alternatives in the market providing the function and the ease to change between them
 - **Substitutability across functions**, which assesses whether the economic benefit of a specific function can be provided by another function (e.g. credit card payments instead of cash)
 - In a stressed scenario, we expect an **increase in demand** of functions related to **continuity of day-to-day activities**, and increase in vulnerability of supply of functions with **low substitutability**
 - **Most relevant critical functions in Latin America are cash services, retail payment services, remittances, and short term business lending**
 - Critical functions provided by the financial sector to banks and other financial entities, such as **securities clearing & settlement** and **wholesale payments**, also considered relevant as they enable functioning on the financial system

EXECUTIVE SUMMARY (2/2)

Policy recommendations to safeguard the provision of critical functions

- Immediate policy actions to preserve the provision of critical functions in the short term have as objectives:
 - **Cash services:** Continue to meet elevated demand for cash, ensuring uninterrupted access and distribution
 - **Payment services:** Ensure uninterrupted functioning of e-payment services, reduce hurdles to access, and establish alternative to cash for redundancy and efficiency considerations
 - **Remittances:** Safeguard flow of funds to the underbanked
 - **Short term business lending:** Safeguard availability of short-term credit in the economy, support implementation of government support programs and proactively manage credit risk
 - **Securities clearing & settlement:** Ensure adequacy of contingency plans and sufficient liquidity in the system
 - **Wholesale payments:** Ensure adequacy of contingency plans and fulfilment of critical operations
- In addition to defining short term actions to safeguard financial stability, supervisors must engage in **tactical actions** for immediate contingency planning and crisis response:
 - Set-up coordinated **emergency response**
 - Prepare for **crisis management**, monitoring areas of vulnerability to prioritise supervisory attention
 - Plan & support **post-crisis economic recovery**
- In the **medium term**, regulatory intervention associated to the COVID-19 crisis provides an opportunity to **promote resilience of the financial system, inclusion and innovation**, by taking strategic actions to:
 - Improve access to electronic payment systems and banking service
 - Provide access to lending facilities
 - Address rising credit risk
 - Promote digitalization at the client-facing front end and within the financial system's backbone

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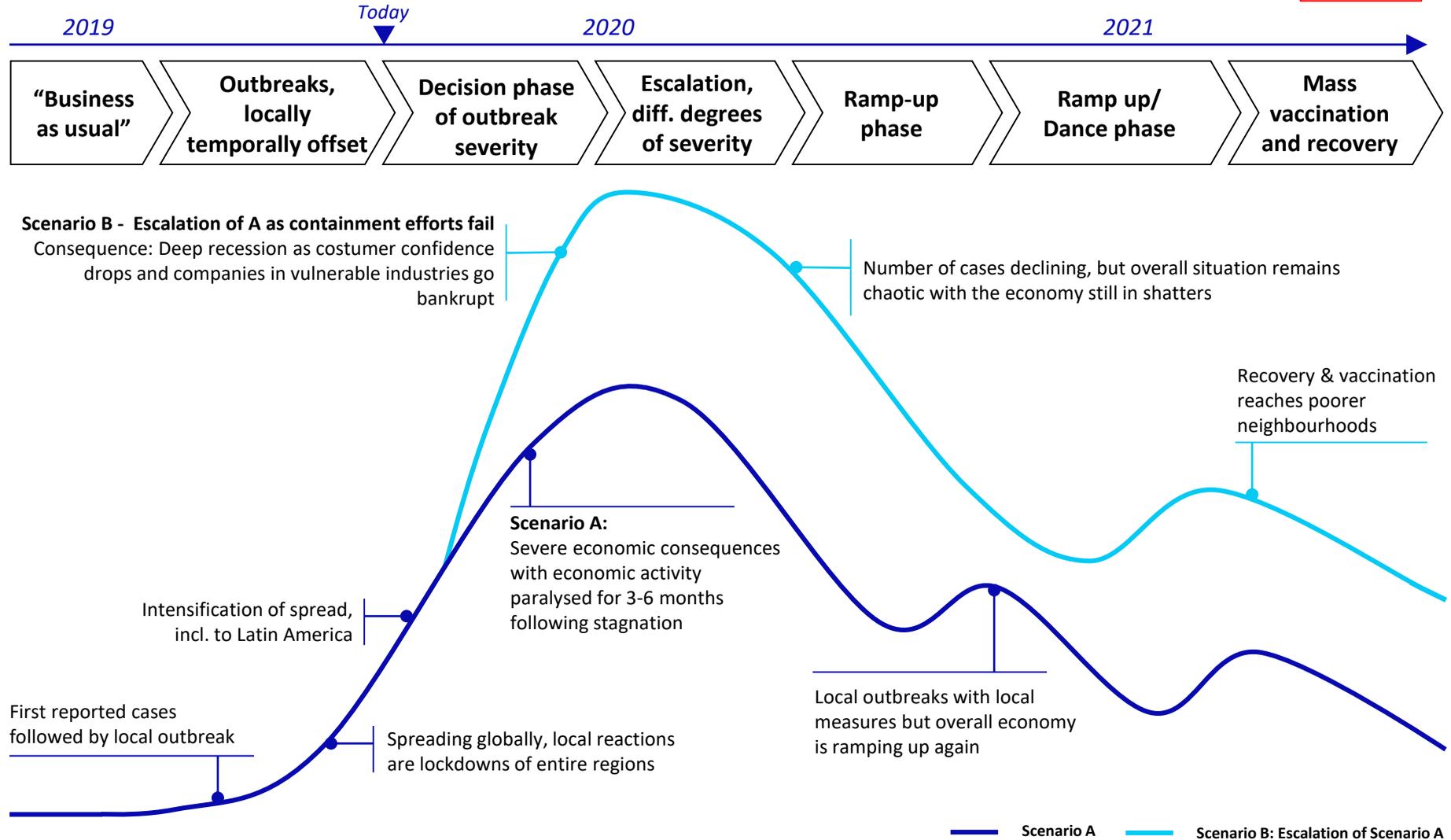
Section	Description
01 Scenario definition	<ul style="list-style-type: none">• Defined scenarios with escalating stress<ul style="list-style-type: none">– Scenario A: Severe economic impact– Scenario B: Deep recession with severe disruptions
02 Demand for critical functions/services	<ul style="list-style-type: none">• Assessed demand for functions/ services of financial sector in business as usual conditions• Identified vulnerability of households, businesses and public sector to stressed scenarios• Determined “demand under stress”
03 Supply of critical functions/services	<ul style="list-style-type: none">• Assessed conditions that shape supply of critical functions, including impact of stress• Combined vulnerability of supply with demand under stress to provide a shortlist of critical functions
04 Recommendations & action plans	<ul style="list-style-type: none">• Provided an overview of conditions required to ensure supply of critical functions identified• Defined recommendations to ensure continuity of critical functions, with focus on short term measures• Contextualized recommendations, leveraging case studies to identify best practices and shortfalls• Defined at high-level operational implications (e.g. steps for action, applicable tools, approx. timeline)

01

SCENARIO DEFINITION

SCENARIOS DEFINED TO ACCOUNT FOR ESCALATING STRESS, INTRODUCING DEEP RECESSION IN SCENARIO B

Illustrative



SCENARIO A: SEVERE DISRUPTIONS OF PUBLIC LIFE AND THE ECONOMY, BUT CRITICAL INFRASTRUCTURE REMAINS LARGELY INTACT

Situation: COVID-19 is spreading rapidly, infecting thousands of residents all over the country/region and of all social classes. The measures in place to contain the pace and intensity of the spread have severe consequences on public life and the economy, fostered by consequences of COVID-19 globally. The financial situation is tense.



Public Authorities

- Quickly closing all educational institutions, non-critical businesses and public events
- Managing situation with help of Law Enforcement agencies
- Offering tailored responses, e.g. to address situation in poor neighbourhoods and informal settlements
- Establishing temporary safety networks: Support packages & free health care
- Adjustments of regulations regarding, e.g., insolvency, payments, credits and rent
- Austerity measures: Reductions in government expenditures



Economy

- Slowdown of most industries, leading to short-time work and releases; contraction of both formal and informal sectors (loss of jobs, restrictions to hire etc.)
- Severe shortages/bottlenecks in financial sector



Health Care System

- At its limits but copes due to apt measures, ensuring staff remains safe
- Help of industry with production of medical & other entities (e.g. military) increasing number of hospital beds



Residents

- Stay home since they are properly informed and benefit from gov. relief programs



Critical Infrastructure

- Remains largely intact
- Enables efficient response to crisis

Despite thousands of infections and a severe slowdown of the economy, the situation is de-escalated within a few months. Recovery is a long and arduous process but due to apt measures possible within about 2 years

SCENARIO B: CONTAINING MEASURES FAIL LEADING TO A DEEP ECONOMIC RECESSION

Situation: COVID-19 is spreading rapidly and containment efforts fail. The health care system is quickly overburdened and incapable of dealing with new infections, especially as medical staff and equipment are limited. The economy collapses including critical infrastructure



Public Authorities

- Responses delayed and/or not monitored stringently
- Public officials get infected or are not willing or incapable of introducing adequate measures to – at least partially – absorb the negative externalities on its residents and the economy
- No or insufficient adjustments of regulations regarding payment, rent, insolvency etc. benefitting less well-off residents
- Government policies (economic as well as fiscal policies) besides other policy measures might be insufficient to foster quick economic recovery leading to prolonged phase of stress



Residents

- **Distress:** Residents unable to pay for loans and obligations; reacting by plundering (food/med. equipment), attacks on gov. and financial institutions



Economy

- Contraction of both formal and informal sector
- Goods at black markets only accessible to those financially better-off
- Solvency of financial system under strain



Health Care System

- Incapable of coping with number of infections, hospitals overcrowded with insufficient medical equipment
- Staff is partly infected
- Support from public authorities and industry is limited



Critical Infrastructure

- **Bankruptcy** of companies in vulnerable sectors (e.g. utilities, providers of basic services like logistics, etc.)

Structural damage as a result of corporate bankruptcies, Sovereign default risk affecting ability to inject further stimulus in 2021

02

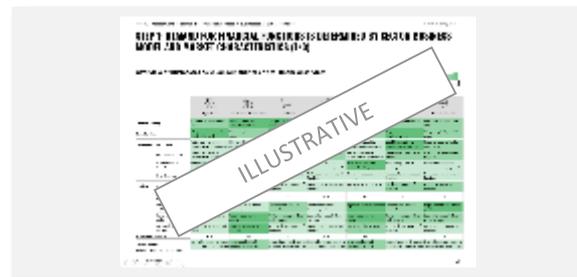
DEMAND FOR CRITICAL FUNCTIONS AND SERVICES

DEMAND FOR CRITICAL FUNCTIONS UNDER STRESSED SCENARIOS WAS ASSESSED TOP-DOWN, CONSIDERING INHERENT DEMAND AND SECTOR VULNERABILITY

Top-down approach – 3 simple steps

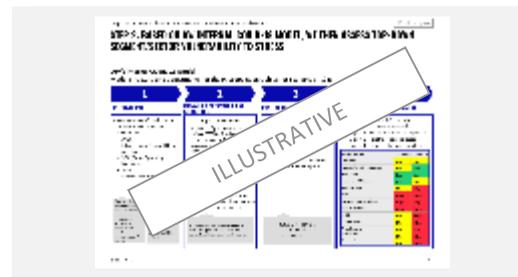
1 Assess “inherent” demand

- Define **long-list of critical functions** provided by financial sector for the analysis (detail in appendix)
- Define **aggregated customer segments** served by financial sector for the analysis (detail in appendix)
- Assess **inherent demand** of critical functions under “business as usual” (“BAU”) circumstances, **considering structural factors** (e.g. households will have stronger demand for deposits; heavy industries for project finance)



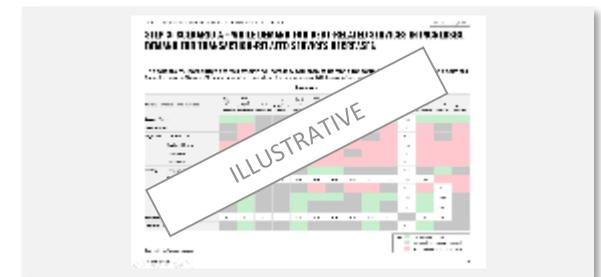
2 Assess vulnerability to stress scenarios

- Assess **impact of COVID-19 stress per customer segment, per scenario**, as follows:
 - For **businesses**, used internal OW COVID-19 vulnerability model structure to assess delta on profit margin % at sector level
 - For **households, government and financial sector**, used expert judgement based on scenario narrative
- **Impact is classified as high/medium/low** per customer segment



3 Conclude on level of demand “under stress”

- **Combined level of inherent demand** per critical function (step 1) **with impact of stress scenario** per customer segment (step 2)
- Applied rules and expert judgement, considering input from steps 1 and 2, and whether the functions is long-, or short- term
- **Classified demand under stress** as an “increase”, “decrease” or “no change”, both at segment and aggregate level





ASSESSED LEVEL OF INHERENT DEMAND BY CUSTOMER SEGMENT OF A GIVEN CRITICAL FUNCTION

Assumed **total** inherent demand per critical function & customer segment

Applied in both scenarios



1. Businesses

Critical Functions and Services														Inherent demand level in BAU
		Agriculture	Construction & Infra.	Food Retail	Healthcare & Pharma	Manufacturing	Retail	Tourism & Leisure	Transport & Logistics	Energy	Other Services	2. Households	3. Government	
Deposit-Taking		Mid	High	High	High	Low	Mid	Mid	High	High	High	Mid	High	High
Cash Services		High	Mid	High	Low	Mid	High	Mid	Mid	Low	Low	High	Mid	High
Payments	Cash vouchers	Low	Low	High	Low	Low	High	Mid	Low	High	Mid	High	Low	High
	Credit/ debit card	Low	Low	Mid	Mid	Low	Mid	Mid	Low	Low	Mid	Mid	Low	Mid
	E-payments & transfers	Low	High	Low	Low	High	Low	Low	High	Mid	Mid	Low	Mid	Mid
	Remittances	Mid	Low	Low	Low	Low	Mid	Mid	Low	Low	Low	Mid	n.a.	Low
Lending	Mortgage loans	Mid	Low	Low	Low	Low	Mid	Mid	Low	Low	Low	Mid	n.a.	Mid
	Credit card lending & Consumer finance	Low	Low	Low	Low	Low	Mid	Mid	Low	Low	Low	Mid	n.a.	Mid
	Short-term business debt & Trade finance	Low	Mid	Mid	Low	High	Mid	High	Low	Mid	High	n.a.	Mid	High
	Long-term business debt	Low	High	Mid	Low	High	Mid	Mid	Low	High	Mid	n.a.	Mid	High
	Project & Infrastruct. finance	Low	High	Low	Low	Mid	Low	Low	Low	High	Low	n.a.	Mid	Mid
Capital markets		Low	Mid	Low	Low	Mid	Low	Low	Low	Mid	Low	Low	Mid	Low
Clearing and settlement		Low	Low	Low	Low	Mid	Low	Low	Low	High	Low	Low	Mid	Mid

Source: Oliver Wyman Analysis

ASSESSED THE IMPACT OF STRESS SCENARIOS YIELDING AN ESTIMATE ON THE LEVEL OF VULNERABILITY PER SECTOR

Illustration of approach (Oliver Wyman’s simplified COVID-19 Model)

Assumed total impact of stress per sector

A Pre-COVID-19 P&L by business sector

Sector	Revenue	COGS ¹	Labour	OOX ²	Rent	Utilities	D&A	Net Income
Manufacturing	100%	53%	17%	13%	6%	1%	1%	9%

Impact of decrease on revenue differs depending of variability of P&L item

B Impact on revenues & cost structure

Sector	Decrease in Revenue	Revenue	COGS ¹	Labour	OOX ²	Rent	Utilities	D&A
Manufacturing	-50%	100%	50%	100%	20%	0%	20%	0%

C Post-COVID-19 P&L

Sector	Revenue	COGS ¹	Labour	OOX ²	Rent	Utilities	D&A	Net Income
Manufacturing	100%	80%	17%	23%	12%	1%	3%	-36%

D Sector vulnerability assessment

Sector	Delta % of Pre-COVID-19 Net Income	Pre-COVID-19 Profit margin	Loss-to-profit margin ratio
Manufacturing	-18%	9%	-2.0

Ratio between 1 and 3 so classified as “Medium” (~2 years to recoup losses)

Source: Oliver Wyman Analysis

1. Cost of goods sold; 2. Other operating expenses

D

Results of vulnerability assessment

Per customer segment/ sector

Segments/Sectors	Scenario A	Scenario B
1. Businesses		
Agriculture	Medium	Medium
Construction & Infrastructure	Medium	High
Food Retail	Low	Low
Healthcare & Pharma	Low	Medium
Manufacturing	Medium	High
Retail	High	High
Transportation & Logistics	High	High
Tourism & Leisure	High	High
Utilities	Medium	High
Other Services	Medium	High
2. Households		
	Medium	High
3. Government		
	Medium	High

High: ~3 years of profits to recover losses, Mid: ~1-3 years of profits to recover losses, Low: <1 year to recover losses



COMBINED INHERENT DEMAND WITH VULNERABILITY TO STRESSED SCENARIO TO CONCLUDE ON A LEVEL OF “DEMAND UNDER STRESS” PER FUNCTION – SCENARIO A

Assumed final demand “under stress” per critical function

Estimation based on (1) sectors’ inherent demand for financial functions and services and (2) the sectors’ degree of vulnerability to stress

■ Decrease in demand
 ■ No significant change in demand
 ■ Significant increase in demand

Critical Functions and Services	Businesses										2. Households	3. Government	Change in demand scenario A
	Agriculture	Construction & Infra.	Food Retail	Healthcare & Pharma	Manu- facturing	Retail	Tourism & Leisure	Transport & Logistics	Utilities	Other Services			
Deposit-Taking													
Cash Services													
Payments Cash Vouchers													
Credit/ debit card													
E-payments													
Remittances													
Lending Mortgage loans													
Credit card lending & Consumer finance													
Short-term business debt & Trade finance													
Long-term business debt													
Project finance & Infrastructure finance													
Capital markets													
Clearing and settlement													



COMBINED INHERENT DEMAND WITH VULNERABILITY TO STRESSED SCENARIO TO CONCLUDE ON A LEVEL OF “DEMAND UNDER STRESS” PER FUNCTION – SCENARIO B

Assumed final demand “under stress” per critical function

Estimation based on (1) sectors’ inherent demand for financial functions and services and (2) the sectors’ degree of vulnerability to stress

■ Decrease in demand
 ■ No significant change in demand
 ■ Significant increase in demand

Critical Functions and Services	Businesses										2. Households	3. Government	Change in demand scenario B
	Agriculture	Construction & Infra.	Food Retail	Healthcare & Pharma	Manu- facturing	Retail	Tourism & Leisure	Transport & Logistics	Utilities	Other Services			
Deposit-Taking													
Cash Services													
Payments Cash Vouchers													
Credit/ debit card													
E-payments													
Remittances												<i>n.a.</i>	
Lending Mortgage loans												<i>n.a.</i>	
Credit card lending & Consumer finance												<i>n.a.</i>	
Short-term business debt & Trade finance												<i>n.a.</i>	
Long-term business debt												<i>n.a.</i>	
Project finance & Infrastructure finance												<i>n.a.</i>	
Capital markets													
Clearing and settlement													

03

SUPPLY OF CRITICAL FUNCTIONS/SERVICES

SUPPLY FOR THE MOST RELEVANT CRITICAL FUNCTIONS WAS ASSESSED TOP-DOWN FOR THE 2 STRESS SCENARIOS

Top-down approach – 3 simple steps

Done jointly

1 Assess the conditions for supply of critical functions

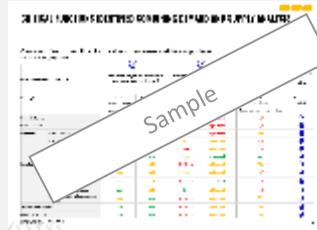
- Assessed **conditions that shape supply of critical functions**, along 3 main questions:
 - “How many players are available in the system to take on the provision of the critical function?”
 - “How easy is it to separate / transfer provision of the critical function across financial institutions in the system”?
 - “How substitutable are critical functions / products between themselves in the eyes of customers?”
- Classified “High” “Medium” “Low” based on **expert judgement**, considering high heterogeneity between regions

2 Assess implications of stress on supply of critical functions

- Assessed **possible changes on conditions around supply under stress** scenarios A & B, based on expert judgement – focused essentially on answering:
 - “Would the assessment in step 1 change if we were under one of the stress scenarios”?
- Concluded on **overall “vulnerability of supply” under stress** per critical function

3 Short-list critical functions combining demand & supply analysis

- Combined results from demand analysis (previous section) and supply analysis (this section) to **conclude on overall prioritization along critical functions** for **policy attention**, to proceed for deep-dive and recommendations in next section





ASSESSING THE CONDITIONS FOR SUPPLY OF CRITICAL FUNCTIONS AND IMPACT OF STRESS SCENARIOS, WE CONCLUDE ON THE OVERALL “VULNERABILITY OF SUPPLY”

Assumed vulnerability of supply of critical functions across entities and products

Based on SRB & FSB guidance and expert judgement, adjusted to geographical context and scope of project

		Ⓐ		Ⓑ		Ⓒ	Ⓓ	
		How many players are available to take the critical function on? (Substitutability <u>across entities</u>)		How easy is it to separate/ transfer provision? (Substitutability <u>across entities</u>)		How substitutable are functions/ products between themselves? (Substitutability <u>across products</u>)	Vulnerability of supply to COVID-19 stress <input type="checkbox"/> High vulnerability	
		Based on presence of competitors	Based on availability of non-bank solutions	Based on process automation	Based on standardization		Scenario A	Scenario B
Deposit-Taking		Mid	Low	High	High	Low		
Cash Services		Mid	Low	Mid	High	Low		
Payments	Cash Vouchers	Low	High	Mid	Mid	High		
	Credit/ debit card	Mid	Low	Mid	Mid	High		
	E-payments	High	Mid	High	Mid	High		
	Remittances	Mid	High	Mid	High	Mid		
Lending	Mortgage loans	Mid	Low	Low	High	Mid		
	Credit card lending & Consumer finance	Mid	Mid	Mid	High	Low		
	Short-term business debt & Trade finance	Mid	Mid	Low	High	Low		
	Long-term business debt	Mid	Low	Low	Mid	Low		
	Project & Infrastructure finance	Low	Low	Low	Low	Mid		
Capital markets		Mid	Low	Mid	Mid	Low		
Clearing and settlement		Low	Low	High	High	Low		



CRITICAL FUNCTIONS SHORTLISTED BASED ON THE COMBINATION OF DEMAND AND SUPPLY ANALYSIS

Prioritisation of critical functions for policy attention based on aggregated assessment of supply & demand

Critical Functions and Services	Change in demand under stress		Vulnerability of supply under stress scenario		Prioritization for policy attention (and for deep-dives in next section)	
	Scenario A	Scenario B	Scenario A	Scenario B		
Deposit-Taking	No change	Decrease			Low	
Cash Services	Increase	Increase			High	
Retail payments	Cash Vouchers	Increase			High	
	Credit/ debit card	Increase			High	
	E-payments	No change			Mid	
	Remittances	Increase	Increase			High
Lending	Mortgage loans	No change			Low	
	Credit card lending & Consumer finance	No change			Mid	
	Short-term business debt & Trade finance	Increase	Increase			High
	Long-term business debt	No change	Decrease			Low
	Project & Infrastructure finance	No change	Decrease			Low
Capital markets	No change	No change			Mid	
Clearing and settlement	No change	No change			Mid ¹	
Wholesale funding	<i>Financial sector specific functions excluded from demand and supply assessment – prioritization based on expert judgment</i>				Mid	
Wholesale payments					High	

1. Included as a deep dive in line with ASBA working group considerations

04

RECOMMENDATIONS & ACTION PLANS

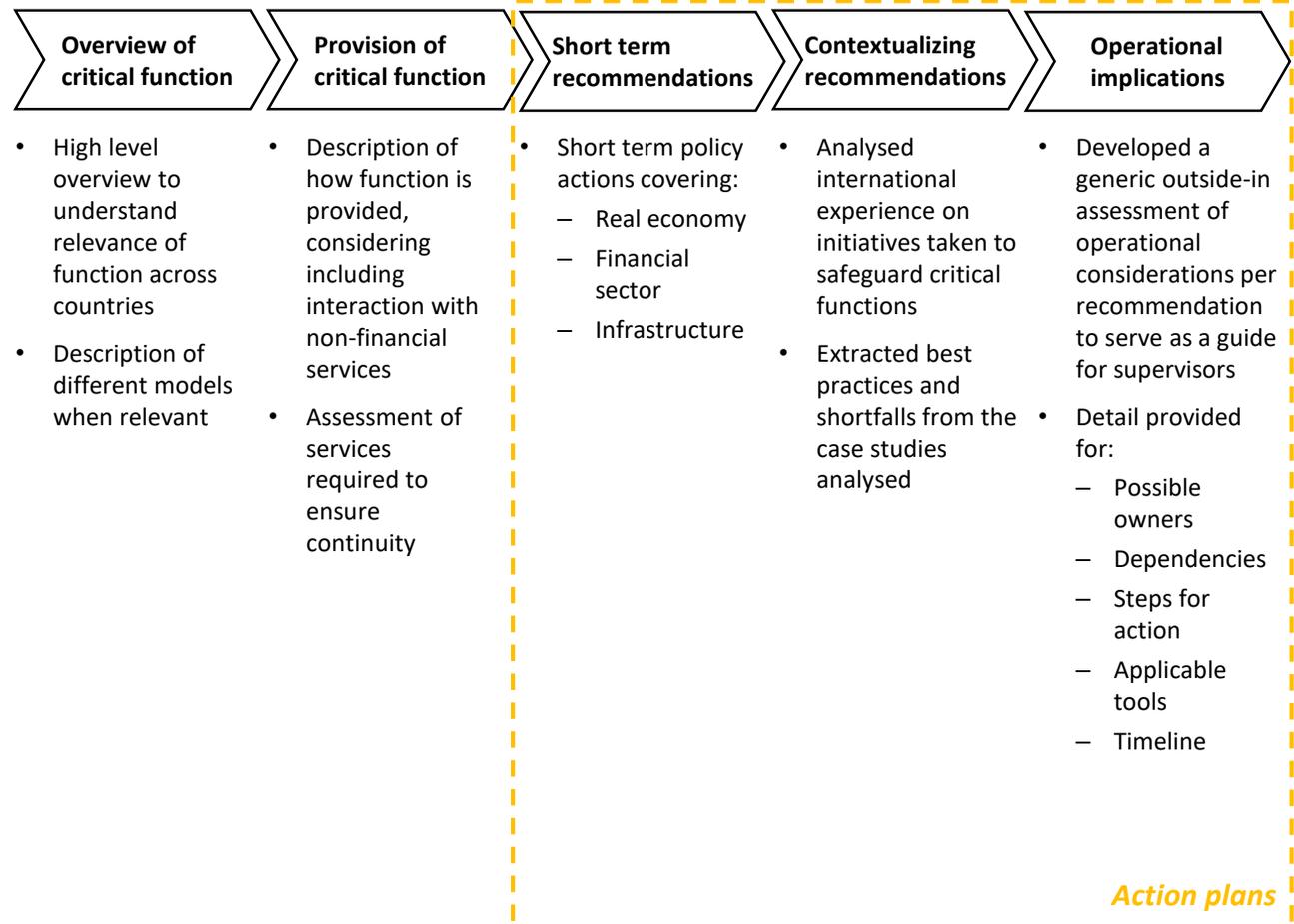
WE DEFINED ACTION PLANS TO SAFEGUARD CRITICAL FUNCTIONS

Our work intends to provide guidance not only applicable to the current situation, but also to future events that could hamper normal functioning of the financial sector, such as natural disasters.

Critical functions identified

-  **Cash services**
-  **Retail payment services**
-  **Remittances**
-  **Short-term lending**
-  **Securities clearing & settlement**
-  **Wholesale payments**
-  **Supervisory crisis mgmt. capabilities**

Approach followed for deep-dives on critical functions

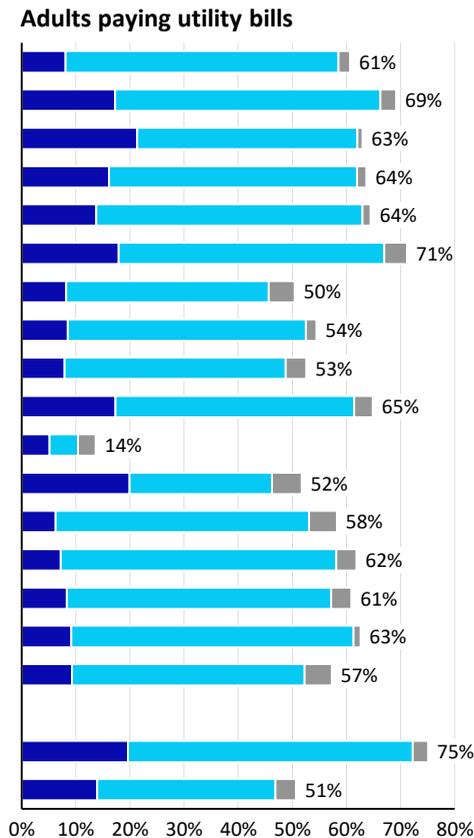
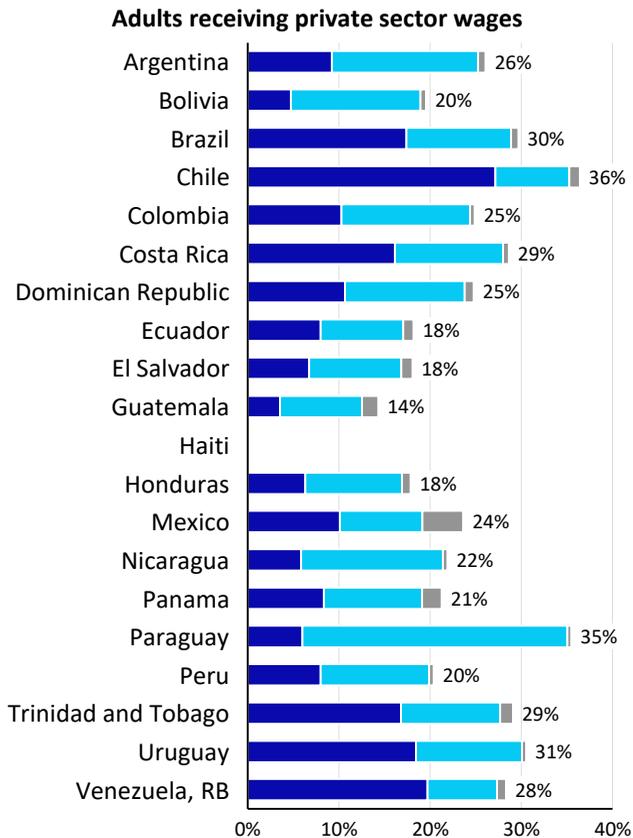


CASH SERVICES (1/5) - OVERVIEW

Cash has a significant presence in Latin America, with around half of wages in the private sector being received in cash and most of the transactions being performed in cash

Presence of cash in day-to-day activities

■ Into an account¹ ■ In cash only² ■ Using other method¹



Relevance on cash depends on whether reliance is driven by wages being paid in cash, which indicates high portion of unbanked individuals, or if cash is the preferred transaction method, which is easier to substitute

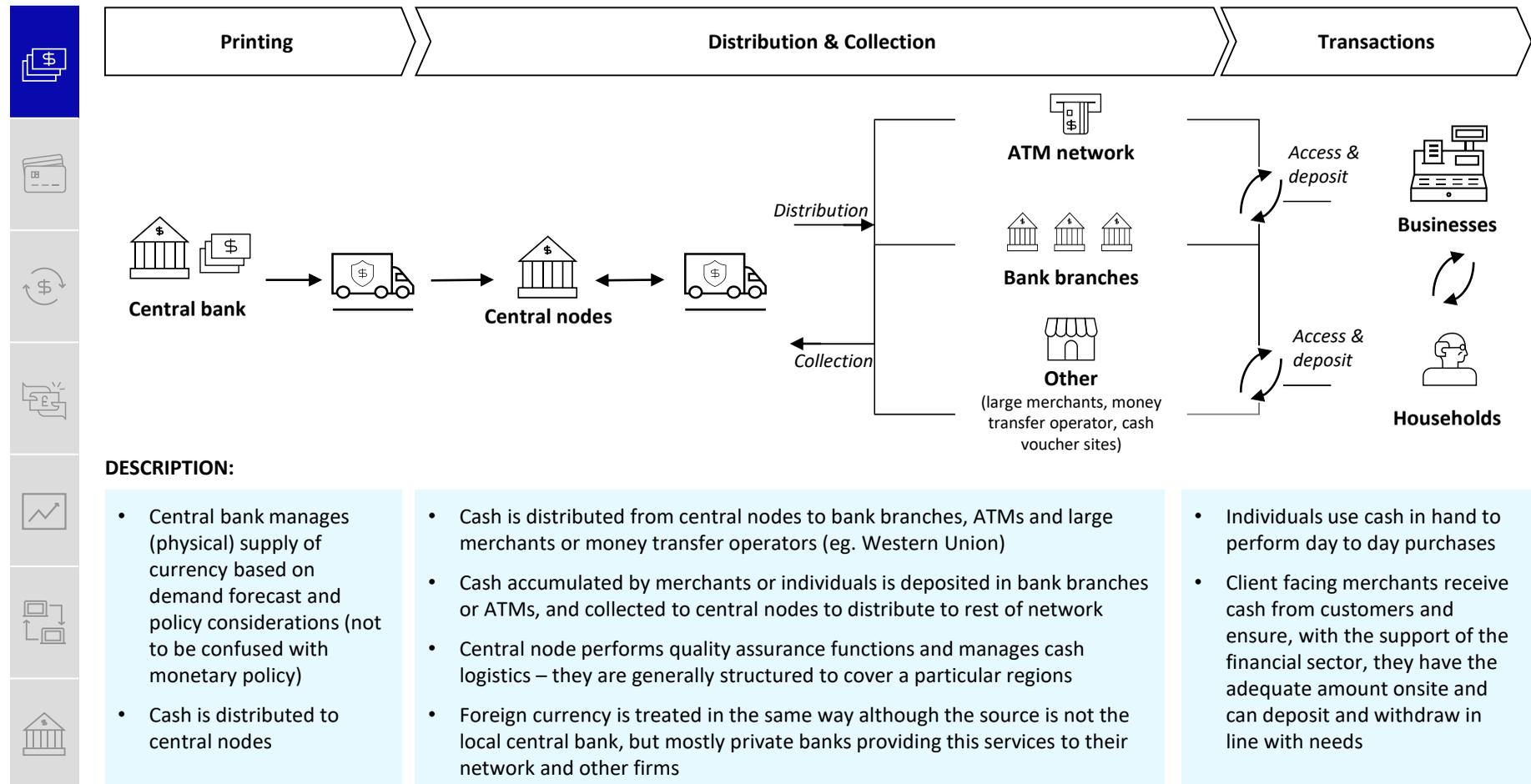
Source: Findex database, press search, company websites

1. Payments are classified using an account if the respondent reported receiving/making them directly into/from an account at a financial institution; via a card, which is assumed either to be linked to an account or to support a card-based account; or through a mobile phone; and using other method if they provided a "no," "don't know," or "refuse" response to all categories; 2. Cash only includes cash vouchers

CASH SERVICES (2/5) – PROVISION OF SERVICE

Management of cash logistics is essential to maintain adequate flow of cash

Provision of service



CASH SERVICES (3/5) – RECOMMENDATIONS

Objectives: Continue to meet elevated demand for cash, ensuring uninterrupted access and distribution

Short term recommendations

 Real economy-centric

 Financial sector-centric

 Infrastructure-centric

Measure	Actions required
 01 Reduce incentives to stock cash	<ul style="list-style-type: none"> Credibly reassure depositors of the continued availability of cash by ensuring the system works, through avoiding doubts on solvency and liquidity of banks or the convertibility of currency
 02 Ensure sufficient inventory of cash in central bank and within the banking system	<ul style="list-style-type: none"> Develop forecasts of cash demand based on behavioural scenarios and transaction pattern analysis Develop forecasts of FX cash demand Establish near-time monitoring of cash inventory and flows across the country (local currency and key FX), including at critical points of the banking system
 03 Limit demand on cash by safeguarding alternative payment methods	<ul style="list-style-type: none"> Ensure continued availability existing non-cash transfer mechanisms (wholesale and retail payments) Remove inadequate obstacles to access (eligibility criteria, transaction costs, opportunistic approach on security) Leverage use of vouchers/cash cards in areas with low banking penetration, taking advantage of existing systems (e.g. postal/lottery network) in place Use banking system for the implementation of state-led subsidy/benefit schemes
 04 Maintain capillarity of bank branches and ATMs to ensure access to cash	<ul style="list-style-type: none"> Develop substation plans for identified bottlenecks and “single point of failures” in the cash logistics chain (e.g. cash service centres providing services to other banks) Ensure continuity financial institutions have in place back-office functions to allow for the provision of services
 05 Provide continuity of cash logistics chain, safeguarding infrastructure providers	<ul style="list-style-type: none"> Safeguard infrastructure services required for the provision of cash logistics <ul style="list-style-type: none"> Transportation logistics, ATM provisioning Security services Keep channels to deposit cash open and efficient (retail and wholesale) to prevent accumulation of inventory outside banking system or at hotspots

CASH SERVICES (4/5) – CONTEXTUALIZING RECOMMENDATIONS

disruptive measures affecting cash supply can lead to significant economic impact and compromise social order

Selected case studies

Takeaways

	Demonetization in India	Mobile ATMs in Philippines
Relevance	<i>Illustrates quick adoption of e-payments and difficulty of predicting cash demand</i>	<i>Provides an example of safeguarding access to cash in remote areas</i>
Program design	<ul style="list-style-type: none"> On November 2016, government announced demonetization of ₹500 and ₹1,000 notes, stating they would be invalid the next day People had to exchange these notes for legal tenders (until Nov. 25th) or deposit them in their bank accounts (until Dec. 30th) 	<ul style="list-style-type: none"> Public-private partnership with fintech UBX to roll-out mobile ATMs to underserved and rural parts Ensures continuity of cash access and allows to pay-out the governmental COVID-19 support
Operational considerations	<ul style="list-style-type: none"> Policies on limit of exchange per transaction constantly changed, causing confusion Banks had to recalibrate their ATMs to distribute the ₹100 note (largest in circulation but not often dispensed) During the previous year, the government had introduced universal IDs, simplifying client onboarding 	<ul style="list-style-type: none"> Due to UBX' existing mobile platform (i2), it can provide these mobile ATM devices to financial institutions in a matter of days after signing up
Design considerations	<ul style="list-style-type: none"> Short exchange period caused large queues - deaths as crowds rushed to exchange cash RBI only given a week notice to start printing out notes – forecasts underestimated demand 	<ul style="list-style-type: none"> Combines efforts to safeguard the access of cash with paying-out governmental subsidies allowing quick and widespread adoption of
Impact	<ul style="list-style-type: none"> Cash shortages and significant economic disruption, especially among vulnerable Share of mobile and debit card payments spiked (e.g. paytm) - sustained after cash shortages disappeared 	<ul style="list-style-type: none"> Quick adoption: <ul style="list-style-type: none"> Shortly after launch UBX announced corporation with 2 large local players, adding 11,000 additional locations to its network

BEST PRACTICES

- Set-up of infrastructure to allow adoption of electronic payment system
- Coordination between public and private stakeholders

SHORTFALLS

- Ambiguous and inconsistent communication
- Insufficient consideration of policy implications in demand forecasts

Sources: Reserve Bank of India (2017): "Macroeconomic Impact of Demonetisation: A Preliminary Assessment", Internal Oliver Wyman Analysis

CASH SERVICES (5/5) – OPERATIONAL IMPLICATIONS

Measures related to cash logistics involve multiple stakeholders making coordination cornerstone to implementation

Operational Implications

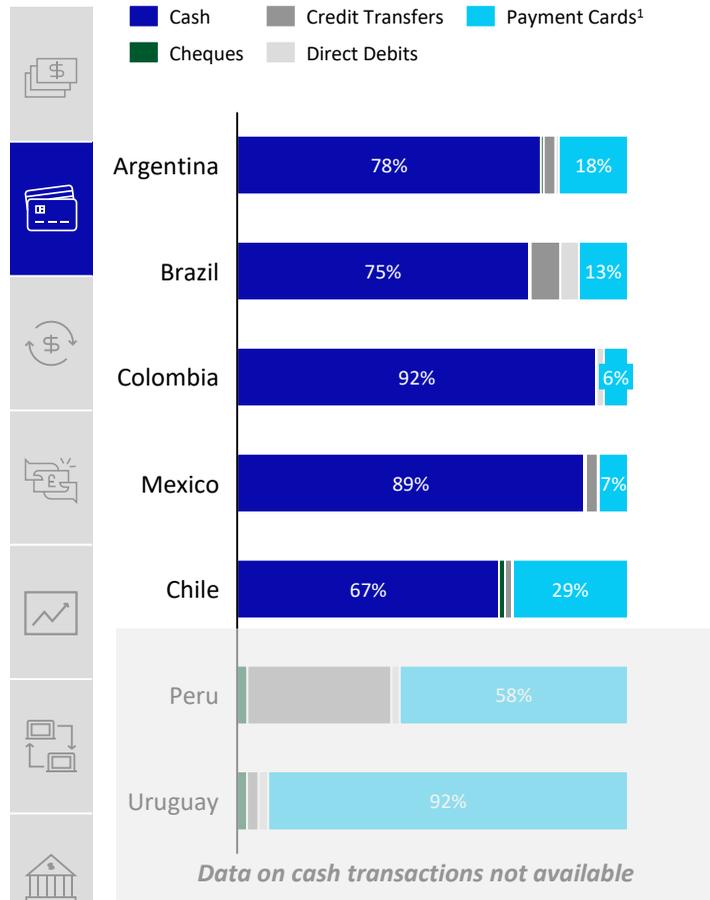
	<i>Reduce incentives to stock cash</i>	<i>Ensure sufficient inventory of cash in central bank and within the banking system</i>	<i>Limit demand on cash by safeguarding alternative payment methods</i>	<i>Maintain capillarity of bank branches and ATMs to ensure access to cash</i>	<i>Provide continuity of cash logistics chain, safeguarding infrastructure providers</i>
 Possible owners	<ul style="list-style-type: none"> Ministry of Finance / Central Bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Ministry of Finance / Central Bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor
 Inter-dependencies	<ul style="list-style-type: none"> Across government officials, to ensure consistency of message 	<ul style="list-style-type: none"> National bureau of statistics 	<ul style="list-style-type: none"> Competition authorities 	<ul style="list-style-type: none"> Other relevant ministries (e.g. industry) 	<ul style="list-style-type: none"> Other relevant ministries (e.g. industry)
 Initial steps for action	<ul style="list-style-type: none"> Establish clear communication guidelines Distribute among gov officials, incl. rural areas 	<ul style="list-style-type: none"> Gather transaction data Develop behavioural scenarios and forecast models 	<ul style="list-style-type: none"> Define policy, considering impact on rural and low income areas Establish a public/private forum to involve all stakeholders 	<ul style="list-style-type: none"> Request banks to identify bottlenecks and critical processes Evaluate contingency plans provided 	<ul style="list-style-type: none"> Identify critical channels and providers Define, jointly with relevant authorities, plans to ensure continuity of service
 Constraints	<ul style="list-style-type: none"> Lack of coordination between gov. and political parties could encourage social unrest 	<ul style="list-style-type: none"> Limited granularity/ quality of data Limited visibility of size informal economy 	<ul style="list-style-type: none"> Limited visibility of size informal economy and take-up of non-cash alternatives 	<ul style="list-style-type: none"> Banks could have not considered critical third parties in their planning 	<ul style="list-style-type: none"> Potential discoordination among areas - cash logistics providers could not fall under supervisor's mandate
 Tools	<ul style="list-style-type: none"> Communication and marketing toolkit 	<ul style="list-style-type: none"> Scenario planning 	<ul style="list-style-type: none"> Scenario planning 	<ul style="list-style-type: none"> Regulatory reporting on contingency plans 	<ul style="list-style-type: none"> Scenario planning
 Minimum design time	<ul style="list-style-type: none"> 1-2 weeks 	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 5-6 weeks 	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 2-3 weeks

RETAIL PAYMENTS SERVICES (1/6) – OVERVIEW

Cash is positioned as preferred payment method, however alternatives are available

Transactions

number of transactions, 2019



Source: Globaldata, press search, company websites
1. Payment cards includes credit and debit cards

Main payment models

Cash



- Cash remains preferred payment method due to its **ubiquity, simplicity and cost-effectiveness**
- It is mainly used for **small transactions** and **utility payments**, however widespread of instalment purchases has made it suitable for larger purchases

Vouchers



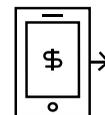
- Cash vouchers or pre-paid vouchers have positioned as a **convenient payment method**, particularly for unbanked individuals
- Represent a significant portion (up to 40%) of **e-commerce** sales throughout South America

Cards



- Use of cards as a means of payment is still limited as a consequence of high levels of **unbanked population** and reduced **PoS terminal availability**
- Regardless, there is significant disparity between credit/debit card ownership based on income, implying **high income classes** use it as a **preferred payment method**

E-payments



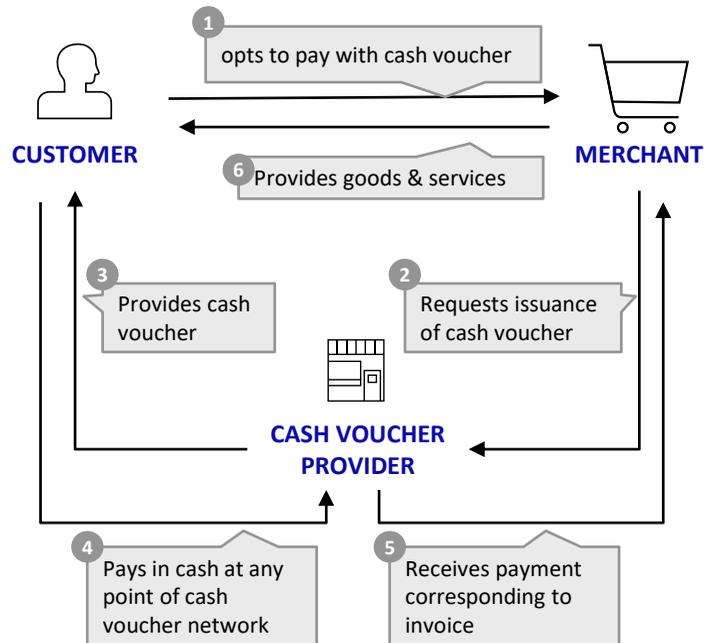
- New payment models are emerging due to the widespread of internet and mobile access
 - **Mobile wallets** store payment card information on a mobile device enabling access to financial institution – can also directly charge directly mobile operator
 - **Instant payments** allow the transfer of money from the payer bank account to the payee bank account almost immediately
 - **Payments by SMS and QR code**, allowing to perform payments using a mobile phone after scanning a code (included in invoices, supermarkets)

Detail provided in following slides

RETAIL PAYMENT SERVICES (2/6) – PROVISION OF SERVICE: CASH VOUCHERS

Cash vouchers allow to leverage large distribution networks and do not require users to have a bank account

Provision of service



DESCRIPTION:

- Customers chooses vouchers to pay utilities and merchants
- A voucher is issued by the cash voucher provider
- They paid in cash using the network of cash voucher providers
- Once they have paid the merchant receives the amount established by the voucher
- There is no need for the customer to have a bank count

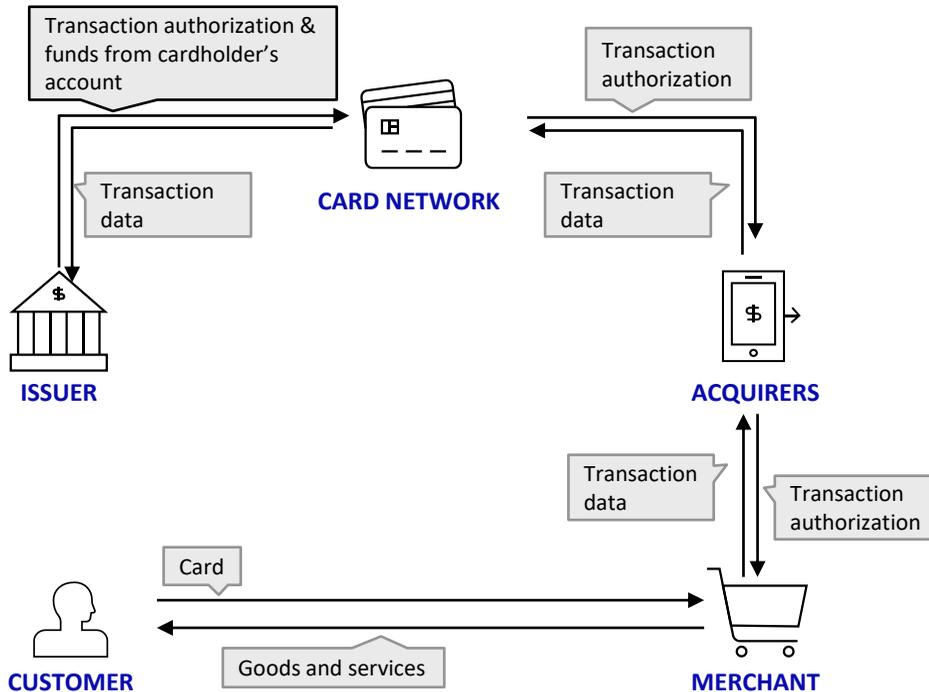
Selected example of providers

Provider	Overview
	<ul style="list-style-type: none"> • Operates in Mexico • Supported by wide retail chain with a franchisee-like model (20K stores vs. 13K branches in banking system) • Allows to pay for utility bills, online purchases and purchases in other merchants
	<ul style="list-style-type: none"> • Operates in Brazil • Supported by financial sector and distributed in merchants and lottery stalls • Allows to pay for utility bills, online purchases and purchases in merchants
	<ul style="list-style-type: none"> • Operates in Colombia • Has a wide network of points to receive payments • Allows to pay for utility bills, online purchases and purchases in merchants
	<ul style="list-style-type: none"> • Operates in Peru • Allows to pay for frequent payments (utility bills) and online purchases

RETAIL PAYMENT SERVICES (3/6) – PROVISION OF SERVICE: PAYMENT CARDS

Payment card services rely on the communication between service providers, across different stages of the value chain

Provision of service



DESCRIPTION:

- Customers chooses to pay with payment cards (credit, debit or prepaid)
- Aggregate transaction data is collected and validated by the corresponding parties with card networks leading the process
- Once validated, funds from customers are transferred from from their accounts and then transferred to merchants

Functions of Players

Functions

Examples

Issuers

- Cards' distribution (or outsourcing of distribution)
- Allow payment advance to merchant



Networks

- Definition of payment system rules
- Communication between acquirers and issuers



Acquirers

- Provide POS to merchants
- Advance of receivables
- Payments processing (can be outsourced) and forwarding of payment to merchant



RETAIL PAYMENT SERVICES (4/6) – RECOMMENDATIONS

Objectives: Ensure uninterrupted functioning of ePayment services, reduce hurdles to access and establish alternative to cash for redundancy and efficiency considerations

Recommendations

 Real economy-centric

 Financial sector-centric

 Infrastructure-centric

Measure	Actions required
   01 Increase reach and attractiveness of non-cash payment methods	<ul style="list-style-type: none"> • Adjust conditions for access to cater for larger groups of consumers and merchants (eligibility criteria, cost, fees), including consumers that don't hold bank accounts • Change conditions for transactions (fees, risk-sharing, authentication mechanisms) to be sufficiently attractive for transactions of all relevant ticket sizes • Focus on existing local schemes (e.g. cash vouchers) where flexibility and “time to market” are more advantageous • Review fraud-protection measures to strike the right balance between convenience, accessibility, speed and risk
 02 Safeguard continuity of retail payment backbone	<ul style="list-style-type: none"> • Require larger acquirers and issuers as well as shared services providers to prepare strong, crisis-specific contingency plans and redundancies • Identify cross-border interdependencies, identify related constraints (policy, technical), provide redundancies
   03 Safeguard continuity of infrastructure services	<ul style="list-style-type: none"> • Ensure the provision of the required communication infrastructure (user-facing, backbone), including building redundancies for core infrastructure • Maintain provision of POS terminals and required maintenance

RETAIL PAYMENT SERVICES (5/6) – CONTEXTUALIZING RECOMMENDATIONS

Public and private coordination is fundamental to position non-cash payment services as an alternative

Selected case studies

Takeaways

	Leveraging mobile wallets in Bangladesh	Waiving transaction fees in Saudi Arabia
Relevance	<i>Shows how governments can leverage mobile payment to incentivize shift away from cash</i>	<i>Provides an example of how public support schemes can be used to foster e-payment methods</i>
Program design	<ul style="list-style-type: none"> Provide state-support to hardest hit households (mostly unbanked) through mobile wallets 	<ul style="list-style-type: none"> Waive all transaction fees for retailers on POS systems (initially for 3 months but extended to 6 months) Increase in contactless spending limits
Operational considerations	<ul style="list-style-type: none"> Crucial partnership was formed with a number of private organizations (most notably Nagad, bKash, Rocket and SureCash) National network of retailers/agent points that accept payments through mobile wallets Conditions necessary to conduct government to citizen transfers through mobile wallets were already in place 	<ul style="list-style-type: none"> Private organizations that are forced to waive fees are reimbursed for their losses by the Saudi Arabian Monetary Authority Collaboration with card providers was needed to raise the spending limits
Design considerations	<ul style="list-style-type: none"> Recipients of support determined by local committees Possibility to draw cash from the wallet at an agent point available 	<ul style="list-style-type: none"> Initiatives can easily be implemented due to already existing network
Impact	<ul style="list-style-type: none"> Provided relief to lots of poor families while bypassing the corruption and contamination risks of cash 	<ul style="list-style-type: none"> Contactless payments have seen a 100% increase in March compared to the previous year

BEST PRACTICES

- Coordination between private sector and partnerships to implement initiatives
- Leverage existing distribution networks

SHORTFALLS

- Failing to account for limited penetration of non-cash payment services

RETAIL PAYMENT SERVICES (6/6) – OPERATIONAL IMPLICATIONS

Policy action related to reducing hurdles to access and increasing attractiveness - likely to require legislative action

Operational Implications

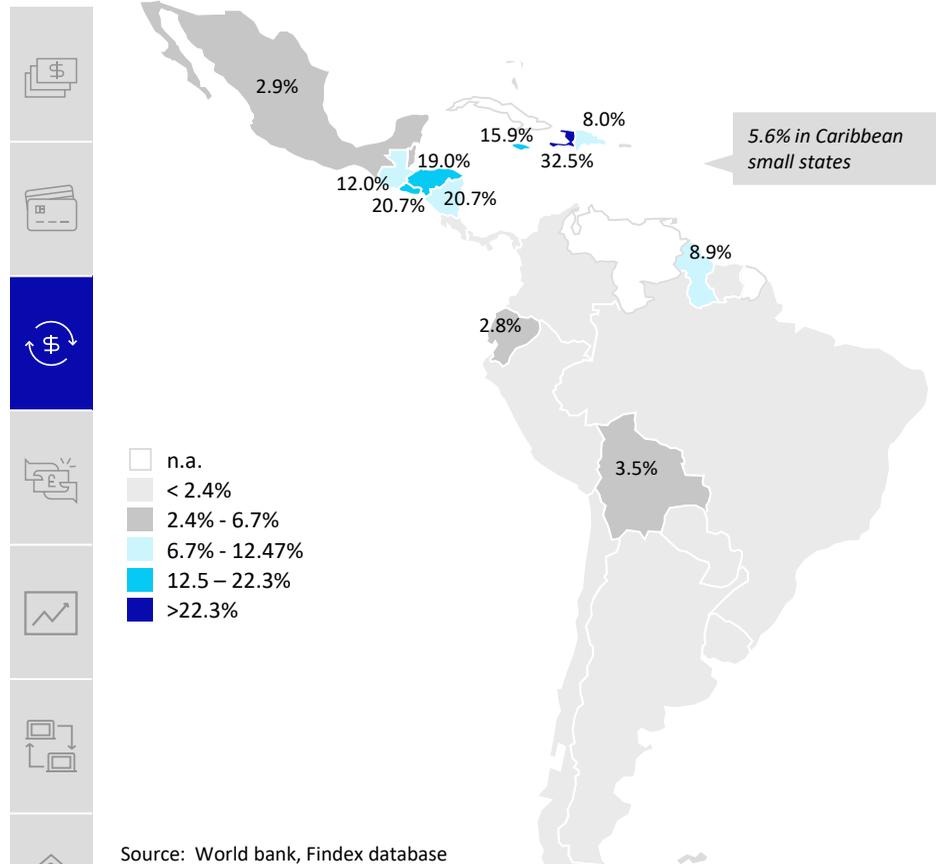
	<i>Increase reach and attractiveness of non-cash payment methods</i>	<i>Safeguard continuity of retail payment backbone</i>	<i>Safeguard continuity of infrastructure services</i>
 Possible owners	<ul style="list-style-type: none"> Ministry of Finance / Central Bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor
 Inter-dependencies	<ul style="list-style-type: none"> Competition authorities, legislator 	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> Other relevant ministries (e.g. telecommunications)
 Initial steps for action	<ul style="list-style-type: none"> Set-up discussions with industry stakeholders to identify conditions hindering access Provide recommendations to government to ensure non-cash payment methods are considered in policy design 	<ul style="list-style-type: none"> Request banks to identify bottlenecks and critical processes Evaluate contingency plans provided 	<ul style="list-style-type: none"> Identify critical services and providers Define, jointly with relevant authorities, plans to ensure continuity of service
 Constraints	<ul style="list-style-type: none"> Limited granularity/ quality of data to adequately estimate uptake 	<ul style="list-style-type: none"> Need for cross-border coordination Banks could have not considered critical third parties (e.g. IT infrastructure providers) in their planning 	<ul style="list-style-type: none"> Potential discoordination among areas – infrastructure providers could not fall under supervisor’s mandate
 Tools	<ul style="list-style-type: none"> Scenario planning 	<ul style="list-style-type: none"> Regulatory reporting on contingency plans International forum’s to discuss cross-border coordination 	<ul style="list-style-type: none"> Regulatory reporting on contingency plans of non-bank services
 Minimum design time	<ul style="list-style-type: none"> 6-8 weeks 	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 2-3 weeks

REMITTANCES (1/5) – OVERVIEW

Represent a significant source of income, particularly in central America and the Caribbean region

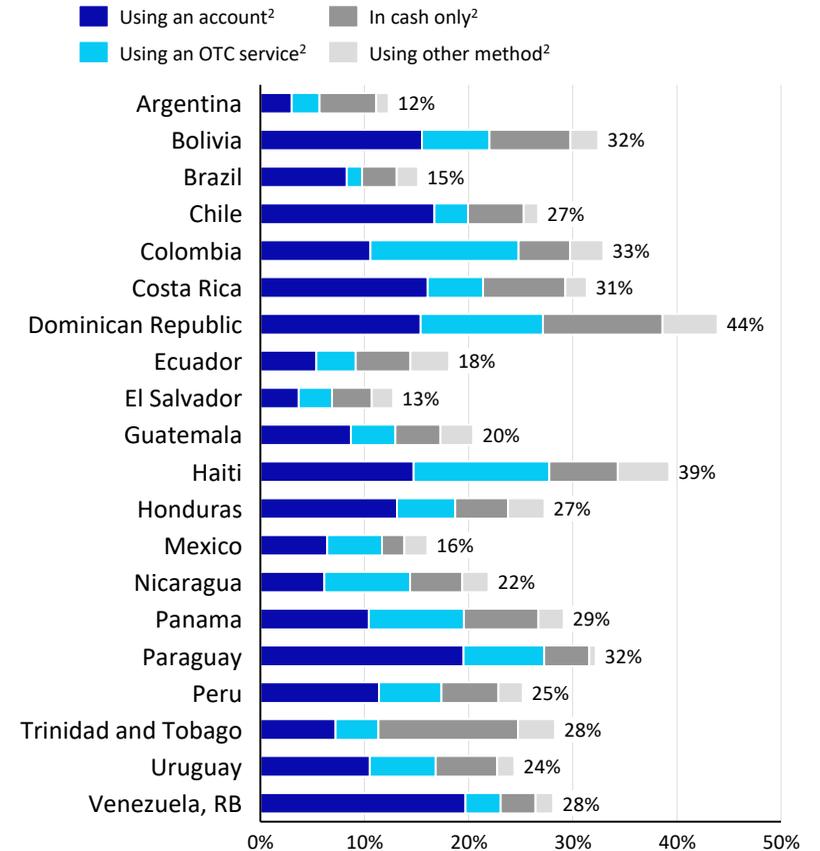
Personal remittances received as a % of GDP

2018



Adults sending or receiving remittances (%)

2017



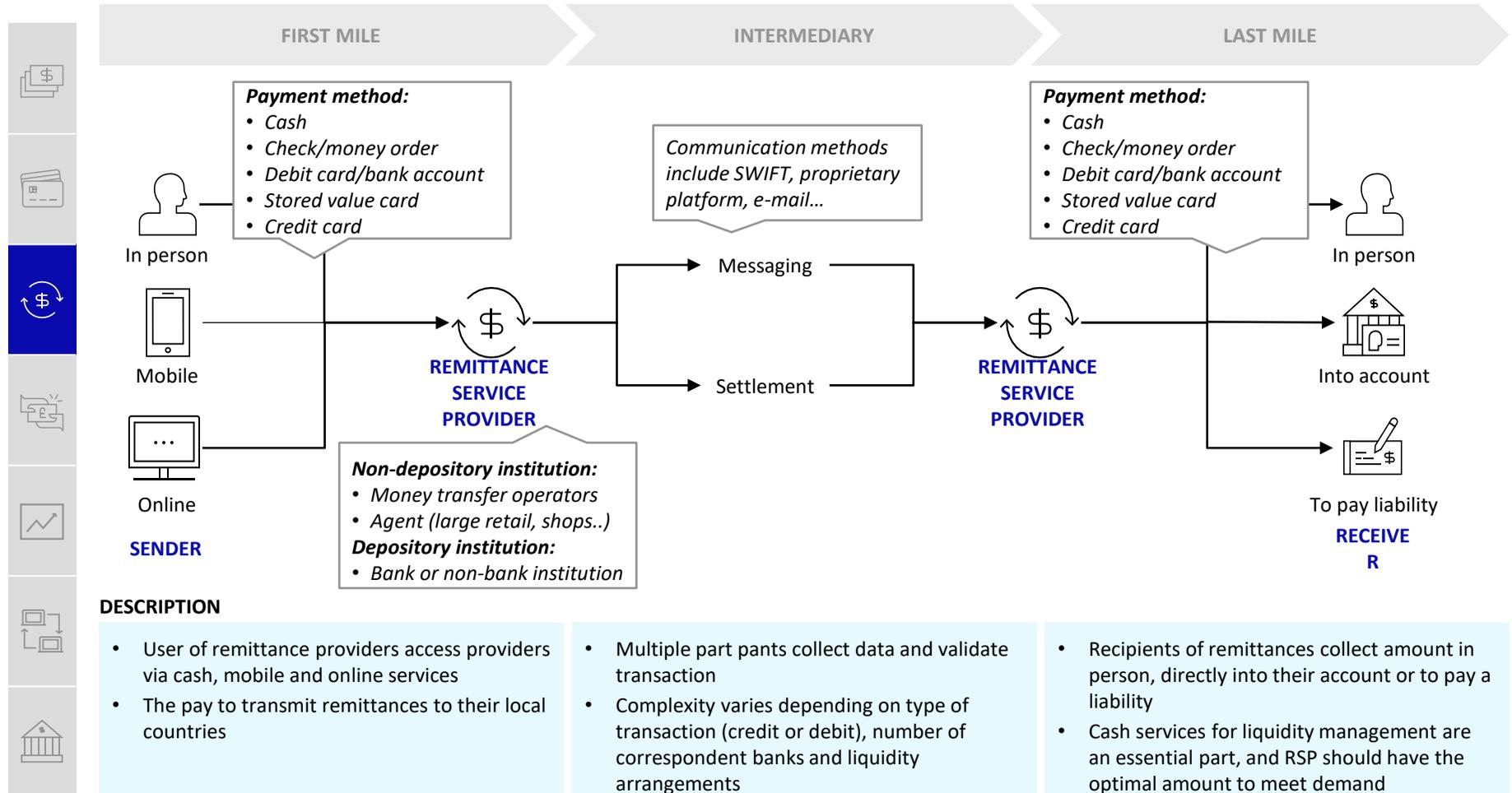
Source: World bank, Findex database

1. Caribbean small states include Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Monserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago; 2. Payments are classified using an account if they reported having sent or received domestic remittances through an account; using an OTC service if they reported having sent or received domestic remittances through an OTC service but did not report having done so through an account; in cash only if they reported having sent or received domestic remittances only in cash; and using other method if they provided a "no," "don't know," or "refuse" response to all categories

REMITTANCES (2/5) – PROVISION OF SERVICE

Provision of remittance services varies depending on market characteristics – typically dominated by non-depository institutions with cash payments playing a relevant role

Provision of service



REMITTANCES (3/5) – RECOMMENDATIONS

Objectives: Safeguard flow of funds to the underbanked

Recommendations

 Real economy-centric

 Financial sector-centric

 Infrastructure-centric

Measure	Actions required
       01 Maintain network of remittance service providers	<ul style="list-style-type: none"> • Consider services provided by FMI to remittance service providers as critical, safeguarding and facilitating access to cash services and wholesale payments • Establish possibility to settle from/into clients' bank accounts (wire) if required • Encourage use of digital and mobile channels, requiring remittance service providers to test capacity of mobile solutions
02 Encourage remittance flows	<ul style="list-style-type: none"> • Provide incentives to foreign remitters (e.g. tax breaks) • Subsidize transaction fees to encourage use of service • Implement regulation to foster decrease in fees (streamline KYC regulation, reducing barriers of entry to encourage competition)
03 Substitute lost income for remittance receivers	<ul style="list-style-type: none"> • Include segments of population reliant on remittances in government support schemes • Distribute government aid considering remittance receivers might not have a bank account – scheme could potentially serve to increase penetration of electronic payments and banking services

REMITTANCES (4/5) – CONTEXTUALIZING RECOMMENDATIONS

Policy decision on whether to strengthen remittance network, encourage remittance flows, or substitute lost income

Selected case studies

Incentives to remitters in Pakistan

	Relevance	<i>Provides an example of how remittance flows can be encouraged through a private-public partnership</i>
	Program design	<ul style="list-style-type: none">Abolish withholding tax on money that has been received from remittances through formal channelsIntroduce a ‘National Remittance Loyalty Programme’ that will provide incentives to remitters through a mobile app and debit/credit cards
	Operational considerations	<ul style="list-style-type: none">The incentive program will require partnerships with private parties to implement the planUnclear if it will also help the unbanked
	Design considerations	<ul style="list-style-type: none">The success of the program will depend for a part on the quality of the incentives offered current options include among other things:<ul style="list-style-type: none">Frequent flyer passesDiscounts (up to 50%) on schools of the Overseas Pakistani FoundationVouchers to save on purchases at a number of locations
	Impact	<ul style="list-style-type: none">The government hopes that this will ensure a continuation of foreign cash-flows back to Pakistan, given decrease due to COVID-19

Takeaways

BEST PRACTICES

- Coordination between public and private stakeholders
- Leverage existing payment services network

SHORTFALLS

- Variety of incentives makes implementation difficult
- Informal remittances channels not considered



REMITTANCES (5/5) – OPERATIONAL IMPLICATIONS

Measures should be taken in coordination with other initiatives supporting flow of funds to low income areas

Operational Implications

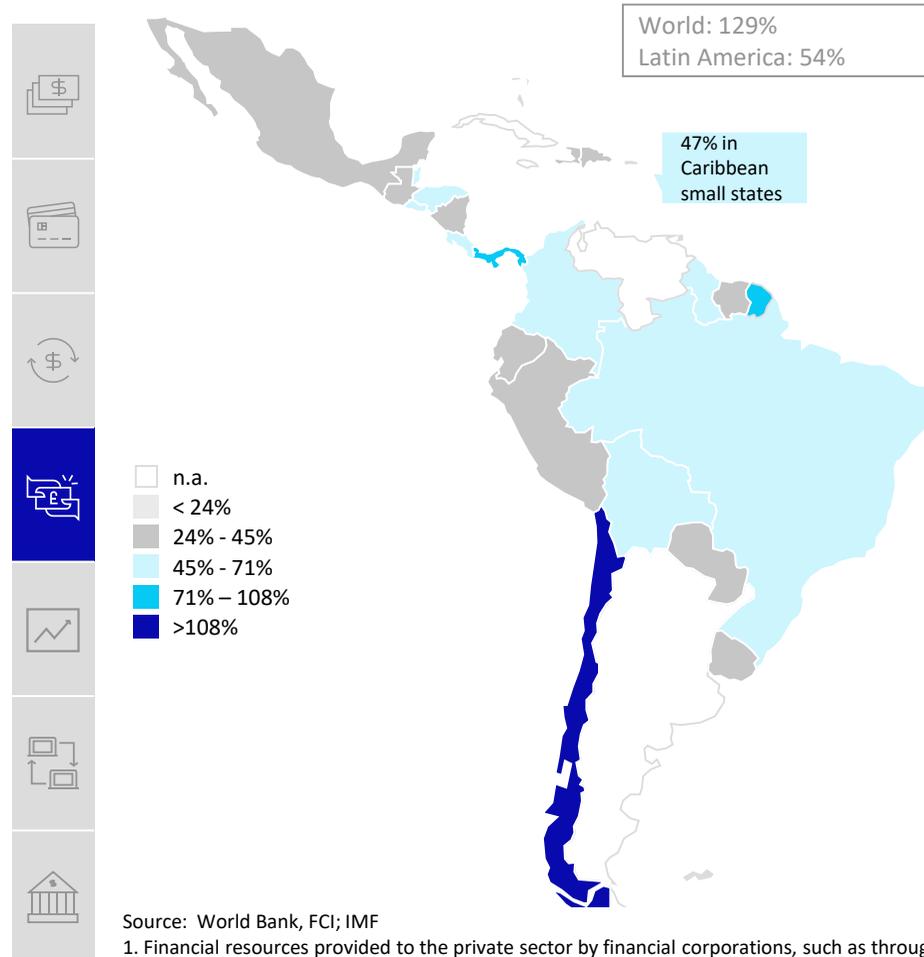
	<i>Maintain network of remittance service providers</i>	<i>Encourage remittance flows</i>	<i>Substitute lost income for remittance receivers</i>
 Possible owners	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Ministry of Finance / Central Bank / Supervisor 	<ul style="list-style-type: none"> Ministry of Finance / Central Bank / Supervisor
 Inter-dependencies	<ul style="list-style-type: none"> Other relevant ministries (e.g. industry) 	<ul style="list-style-type: none"> Competition authorities, legislator 	<ul style="list-style-type: none"> Legislator, national bureau of statistics
 Initial steps for action	<ul style="list-style-type: none"> Establish clear communication guidelines Distribute among gov officials, incl. rural areas 	<ul style="list-style-type: none"> Set-up discussions with industry stakeholders to identify conditions affecting transaction fees Size impact of introducing incentives 	<ul style="list-style-type: none"> Size dependency on remittances and decrease of flows Assess channels to distribute aid, considering high levels of unbanked population
 Constraints	<ul style="list-style-type: none"> Banks could have not considered remittance providers as critical areas in their planning Limited data granularity 	<ul style="list-style-type: none"> Limited data granularity to estimated impact of measure 	<ul style="list-style-type: none"> Limited data granularity to estimate dependency of remittances
 Tools	<ul style="list-style-type: none"> Regulatory reporting on contingency plans Scenario planning 	<ul style="list-style-type: none"> Top-down scenario planning 	<ul style="list-style-type: none"> Top-down estimation
 Minimum design time	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 6-8 weeks 	<ul style="list-style-type: none"> 4-6 weeks

SHORT-TERM BUSINESS LENDING (1/5) - OVERVIEW

Lending to business sector and use of trade finance products is below global average, with divergences between countries

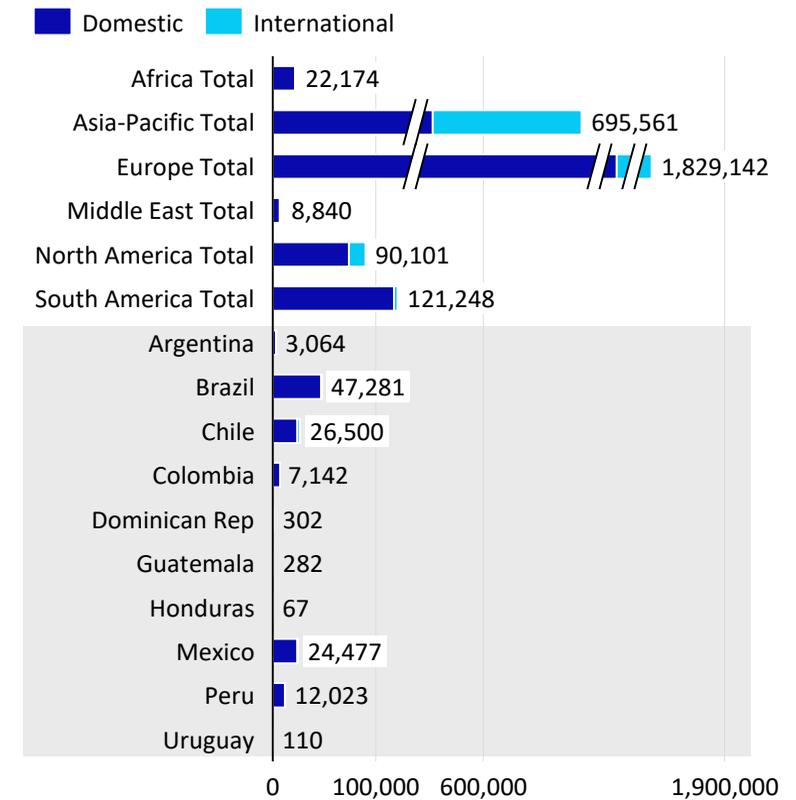
Domestic credit to private sector (% of GDP)¹

2018



International & domestic factoring volumes²

€m, 2018

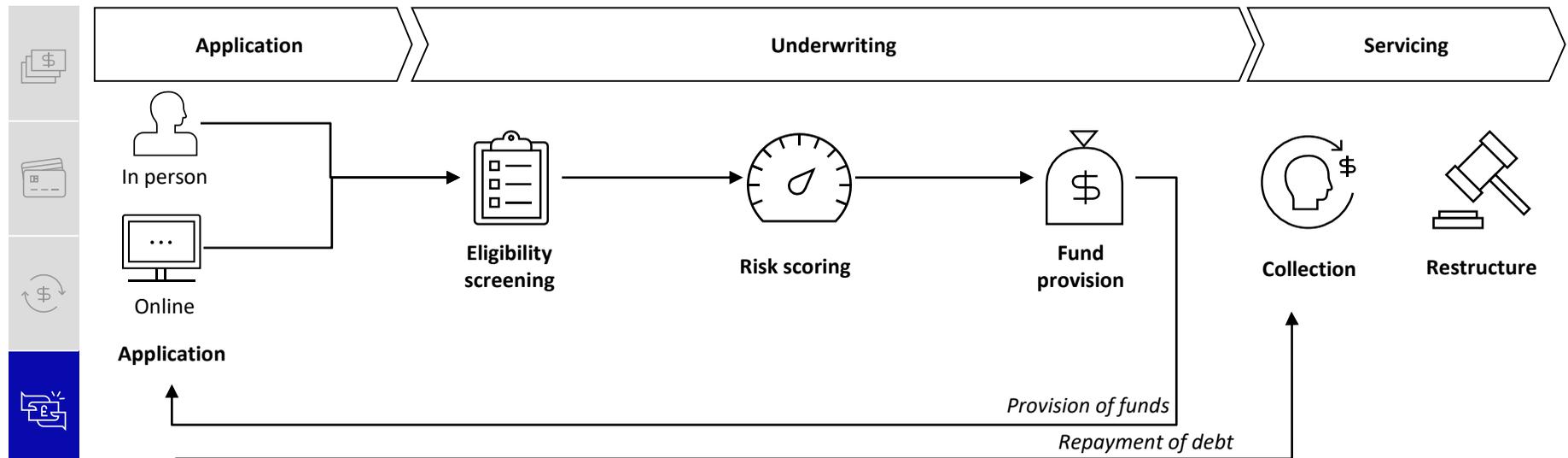


1. Financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment; 2. The category "North America" includes only Canada and the United States

SHORT-TERM BUSINESS LENDING (2/5) – PROVISION OF SERVICE

Provision of lending is determined by underwriting process, which can be manual and time consuming

Provision of service



DESCRIPTION:

- Corporates and SMEs can request a short term loan, an extension of credit line or a trade finance product
- Application can be either performed online or via bank branches depending on the degree of discussion required and availability of service
- Eligibility screening and risk scoring process depends on whether the client is **existing or new**, and the **size of ticket size**
 - For small ticket sizes process is automated and extension of credit lines should be seamless, for larger clients a bespoke approach is followed –
 - For new clients gathering of data is performed, requiring access to credit bureau
- Provision of **government support programs**:
 - Guarantees need to be included in bank's underwriting process
 - Loans supported by the government can have a more simplified underwriting process but are likely to require processing higher volumes
- Loan admin functions related to payment
- Early arrears management and recovery strategy for non-performing loans
- These activities can either be performed by financial institutions or specialized servicers

SHORT-TERM BUSINESS LENDING (3/5) – RECOMMENDATIONS

Objectives: Safeguard availability of short-term credit in the economy, support implementation of government support programs and proactively manage credit risk

Recommendations

Real economy-centric

Financial sector-centric

Infrastructure-centric

Measure	Actions required
 <p>01 Monitor financial situation of businesses and households to assess funding demands and risks</p>	<ul style="list-style-type: none"> • Monitor (near-time) key financial data on liquidity, solvency, revenue, etc. per sector to assess funding demand and risks • Use all available sources, such as govt statistics, tax authorities, banks, credit bureaus, etc.
 <p>02 Review credit underwriting policy between authorities and banks to avoid credit crunch</p>	<ul style="list-style-type: none"> • (Temporarily) adjust regulatory policy that would require early termination of credit lines for otherwise healthy borrowers • Agree on acceptable underwriting policies for crisis-related lending
 <p>03 Perform active credit risk management</p>	<ul style="list-style-type: none"> • Require banks to employ their early-warning system to proactively engage with stressed borrowers and implement short-term restructuring solutions (payment holidays, extensions, etc.) for otherwise healthy companies • Prevent forbearance on unhealthy exposures
 <p>04 Review capital requirements rules to account for temporary increase NPLs and to provide liquidity</p>	<ul style="list-style-type: none"> • Consider allowing banks to use buffers • Require banks to not pay out buffers but reserve them for the time being for lending and provisioning • Align regulatory framework (relaxed NPL recognition, use of capital buffers) to not penalize banks that follow a prudent approach in supporting the economy
 <p>05 Develop government support-schemes and guarantees to lessen the burden on financial entities</p>	<ul style="list-style-type: none"> • Ensure support schemes applicability criteria are well-defined to limit over or under application • Define in detail conditions for guarantees to apply to optimize application process and limit uncertainty • Provide operational means to allow for the processing of larger numbers of applications within limited time and while containing credit and operational risk

SHORT-TERM BUSINESS LENDING (4/5) – CONTEXTUALIZING RECOMMENDATIONS

Relevance of adequate design of government support programs and coordination with financial sector

Selected case studies

Takeaways

	Government support in Greece	Government supported moratoria in Malaysia
Relevance	<i>Illustrates a way of providing liquidity support without depending on banks in a fiscally constrained economy</i>	<i>Provides a example of a widely accessible initiative in an emerging economy</i>
Program design	<ul style="list-style-type: none"> Support of self-employed individuals¹ with a one-time payment of €800.- It is not allowed to fire any staff during the grant period 	<ul style="list-style-type: none"> Individuals/SMEs have to option to defer loan payments originated by licensed FIs for 6 months Interest will continue to accrue on these loans
Operational considerations	<ul style="list-style-type: none"> Aid is immediately distributed after an application on the online platform of the tax authorities Compliance ex-post, grant needs to be repaid if staff has been fired 	<ul style="list-style-type: none"> Extension is given on an opt-out basis, implying that action is needed if you wish to not use the facilities
Design considerations	<ul style="list-style-type: none"> Size of the sum aims to provide 70% of minimum national monthly wage 	<ul style="list-style-type: none"> It can only be used for loans originated in the local currency Loans in arrears > 90 days are excluded from this program
Impact	<ul style="list-style-type: none"> Small businesses have limited access to bank lending Banks incentivized to issue overly risky loans given guarantee 	<ul style="list-style-type: none"> Program assures liquidity access to individuals/SMEs Could significantly increase share of NPL on bank's balance sheets

BEST PRACTICES

- Ensure support can be disbursed quickly
- Ease automation of screening process

SHORTFALLS

- Wide eligibility can benefit unaffected firms
- Threat of moral hazard from banks

1. All self-employed individuals are eligible for the payment as long as they have a maximum of 20 employees

Sources: European Commission (2020): State aid: Commission approves €500 million Greek scheme to support the self-employed affected by coronavirus outbreak, European Commission (2020): "State Aid SA. SA.57165 (2020/N) – Greece Wage subsidies to self-employed under the Temporary Framework to support the economy in the current COVID-19 outbreak" Bank Negara Malaysia (2020): "Measures to Assist Individuals, SMEs and Corporates Affected by COVID-19", Bank Negara Malaysia (2020): "FAQs on Deferment Package and Conversion Package"

SHORT-TERM BUSINESS LENDING (5/5) – OPERATIONAL IMPLICATIONS

Coordination among supervisors and executive crucial to ensure coherence and manage credit risk

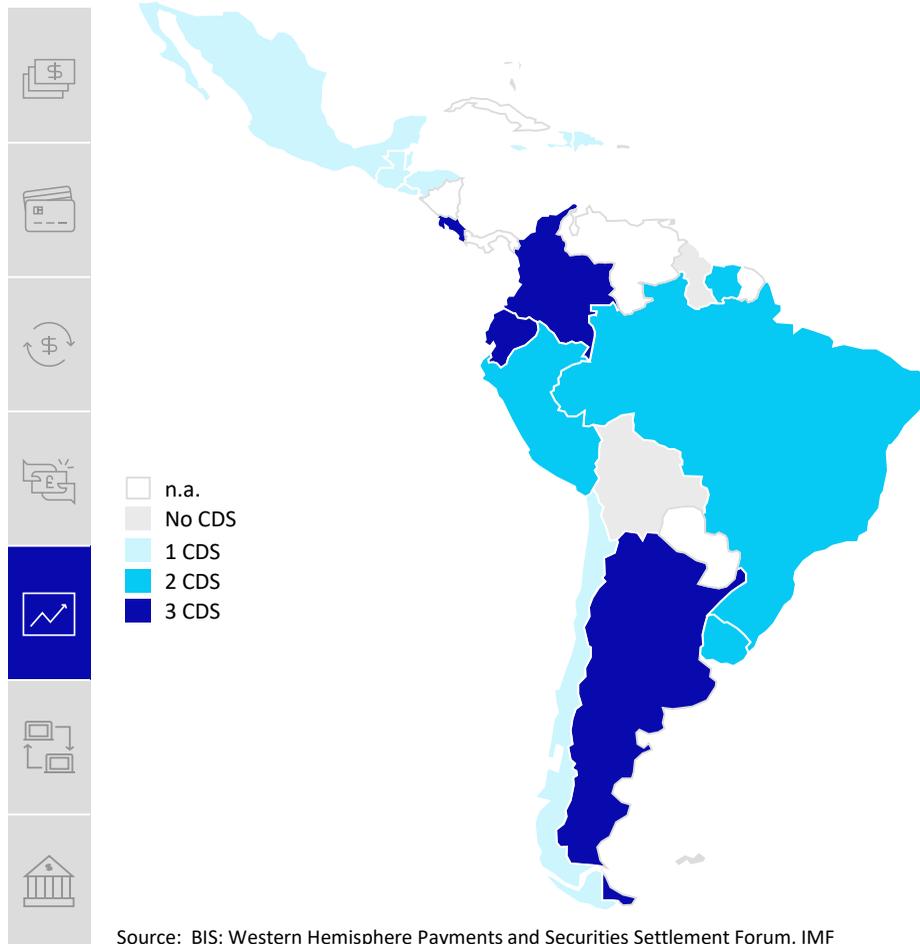
Operational Implications

	<i>Monitor financial situation of businesses and households to assess funding demands and risks</i>	<i>Review credit underwriting policy between authorities and banks to avoid credit crunch</i>	<i>Perform active credit risk management</i>	<i>Review capital requirements rules to account for temporary increase NPLs and to provide liquidity</i>	<i>Develop government support-schemes and guarantees to lessen the burden on financial entities</i>
 Possible owners	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Ministry of Finance / Central Bank / Supervisor
 Inter-dependencies	<ul style="list-style-type: none"> National bureau of statistics 		<ul style="list-style-type: none"> Competition authorities 	<ul style="list-style-type: none"> Ministry of finance 	<ul style="list-style-type: none"> Other relevant ministries, legislator
 Initial steps for action	<ul style="list-style-type: none"> Gather transaction data Develop behavioural scenarios and forecast models 	<ul style="list-style-type: none"> Determine if credit crunch due to early termination of credit lines is plausible Size impact and whether issue is addressed by govt. programs 	<ul style="list-style-type: none"> Draft guidelines for adequate management of defaulted loans Define reporting to monitor NPLs and collection efforts 	<ul style="list-style-type: none"> Assess impact on financial stability Measure if buffers are being used for lending Review reporting requirements to monitor credit risk 	<ul style="list-style-type: none"> Identify most vulnerable segments and quantity need Design program, considering ease of automation and potential fraud
 Constraints	<ul style="list-style-type: none"> Limited granularity/ quality of data Limited visibility of size informal economy 	<ul style="list-style-type: none"> Limited visibility of underwriting policy across banks Risk of debt overhang 	<ul style="list-style-type: none"> Limited visibility of size informal economy and take-up of non-cash alternatives 	<ul style="list-style-type: none"> Potential adjustments to government support not considered in models 	<ul style="list-style-type: none"> Misallocation of fund to less affected segments Limited visibility of size informal economy
 Tools	<ul style="list-style-type: none"> Scenario planning Social listening 	<ul style="list-style-type: none"> Scenario planning 	<ul style="list-style-type: none"> Top-down sector analysis 	<ul style="list-style-type: none"> Stress test 	<ul style="list-style-type: none"> Top-down sector analysis
 Minimum design time	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 3-4 weeks

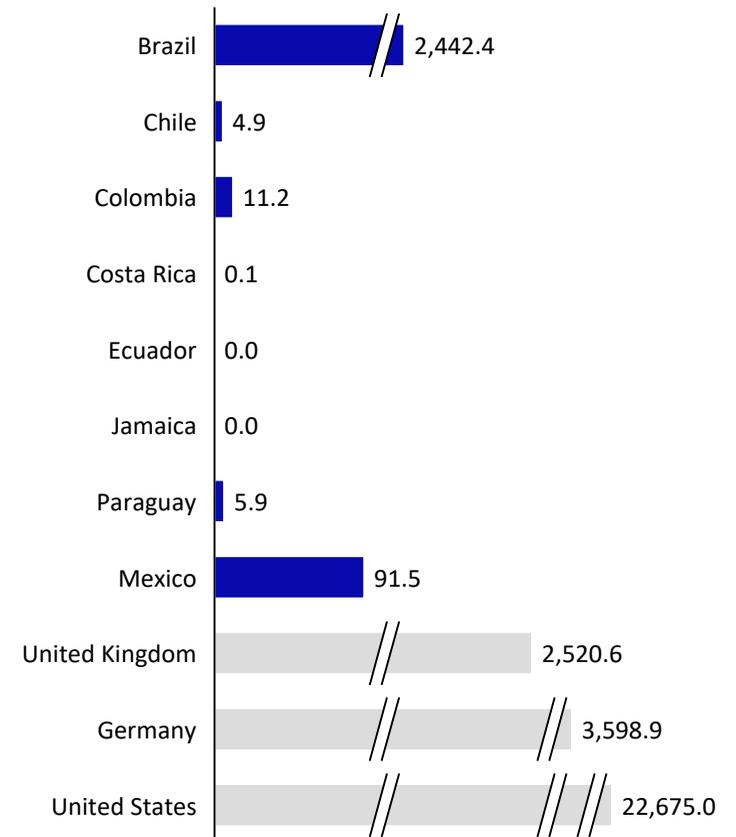
SECURITIES CLEARING & SETTLEMENT (1/5) – OVERVIEW

Organization of securities settlement varies across the region, with Brazil showing the highest number of transactions cleared in line with secondary financial centres, but being important also for collateral management in many countries.

Organization of central securities depositories (CDS)



Number of contracts and transactions cleared
2017, millions

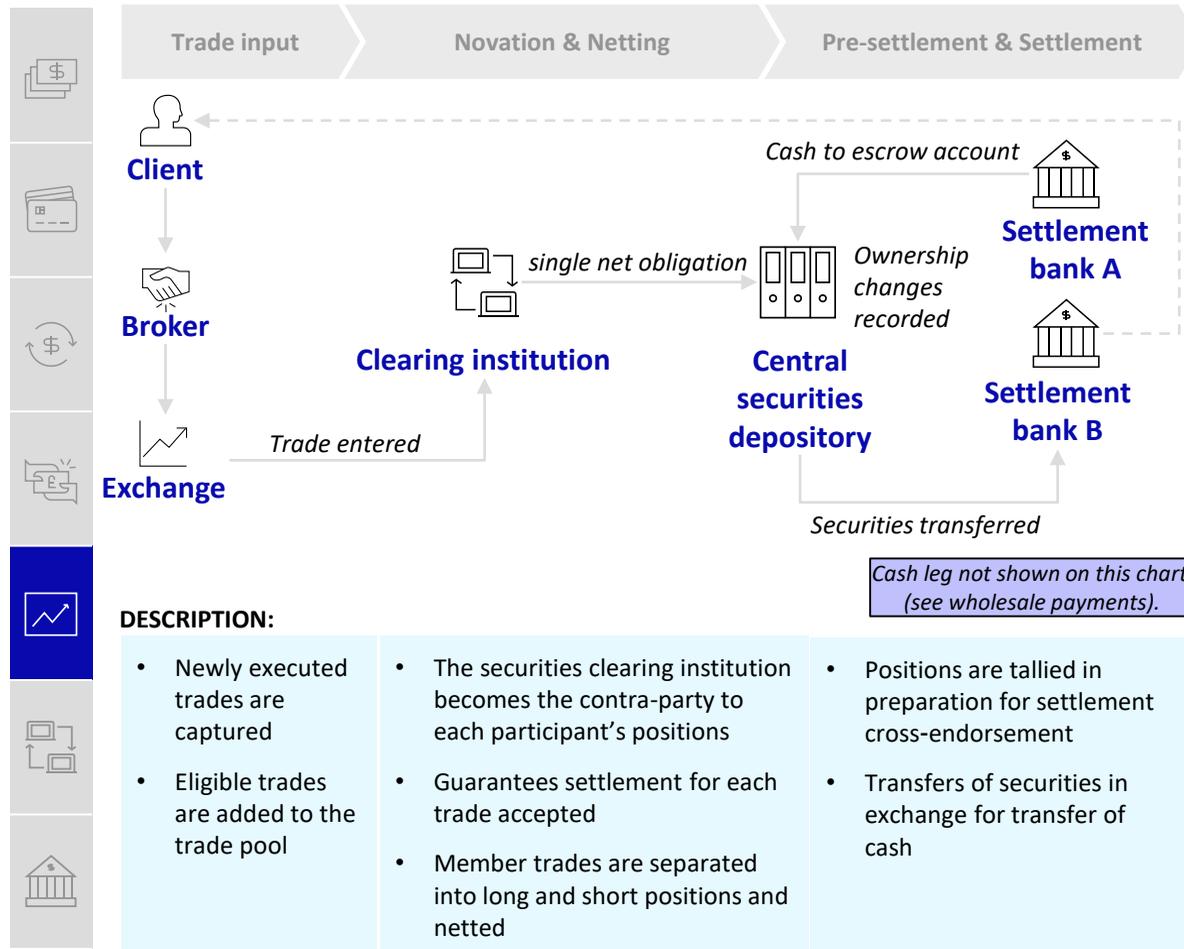


Source: BIS; Western Hemisphere Payments and Securities Settlement Forum, IMF

SECURITIES CLEARING & SETTLEMENT (2/5) – SERVICE PROVISION

Settlement involves the transfer of ownership of securities in exchange for cash

Securities clearing & settlement simplified process



Ecosystem

Participant	Role
Exchange	<ul style="list-style-type: none"> Facilitation of securities trading matching buyers and sellers
Clearing institution	<ul style="list-style-type: none"> Central counterparty novation of trades Continuous netting of trades at a security and firm level simplifying obligations
Central securities depository	<ul style="list-style-type: none"> Settlement of securities trades exchanging securities for cash Recording of ownership in securities centrally
Transfer agents	<ul style="list-style-type: none"> Shareholder record maintenance reflect changes in ownership
Trade allocation	<ul style="list-style-type: none"> Facilitates the allocation of trades across underlying investor entities and communication
Custody	<ul style="list-style-type: none"> Safekeeping Asset servicing

SECURITIES CLEARING & SETTLEMENT (3/5) – RECOMMENDATIONS

Objectives: Ensure adequacy of contingency plans and sufficient liquidity in the system

Recommendations

Real economy-centric

Financial sector-centric

Infrastructure-centric

Measure	Actions required
       01 Ensure contingency plans are tailored to COVID-19 circumstances	<ul style="list-style-type: none"> Contingency plan should put forward a team structure that allows to separate group of individuals to limit cross contagion and ensure continuity Ensure that emergency premises are sufficiently far away from main premises in case there is a hot spot of cases in the area Review contingency plans considering the interaction of various providers of the securities value chain (including the cash leg) rather than taking an siloed view Run a fire drill exercise to test contingency plan
02 Forecast liquidity needs and ensure sufficiency of buffer	<ul style="list-style-type: none"> Quantify the liquidity needs and operational capacity required to meet all settlement obligations Additional intraday liquidity “buffer” is likely to be required to minimize the risk of an intraday “blockage” or service disruption
03 Adjust pre-funding and exposure limits	<ul style="list-style-type: none"> Implement processes to require clients to pre-fund trades / to reduce client credit lines for less liquid asset classes, limiting procyclicality effect Assess whether FMUs and Agent Banks may need to reduce exposure to vulnerable institutions
04 Raise additional liquidity if required	<ul style="list-style-type: none"> Assess potential to resort to less disruptive measures to raise liquidity, such obtaining liquidity only from those participants who are owed funds, to the extent of those obligations Enforce prompt collection of cash call obligations resorting to participant’s proprietary assets held at the FMI (e.g. margin, securities holdings or cash deposits) as collateral for such obligation
05 Enhance cyber resilience	<ul style="list-style-type: none"> Ensure strong ICT control environment is maintained even when working in emergency premises, assessing cyber risk contingency plans Monitor exposure to cyber risk of whole ecosystem

SECURITIES CLEARING & SETTLEMENT + WHOLESALE PAYMENTS (4/5) – CONTEXTUALIZING RECOMMENDATIONS

Relevance of assessing the adequacy of contingency plans for systemic providers

Selected case studies

Tailoring contingency plans to COVID-19 in Japan

	Relevance	<i>Provides an example of the relevance of adjusting contingency plans to COVID-19 specific considerations</i>
	Program design	<ul style="list-style-type: none"> Implementation of a detailed COVID-19 contingency plan by the Japan Securities Depository Center (JASDEC) which includes policies on: <ul style="list-style-type: none"> – Basic policy responses to system failure – Information security – Preventive hygienic measures, staggered working hours and remote working – Outside visitors and non-essential business trips
	Operational considerations	<ul style="list-style-type: none"> Need to build enough redundancy in the system to ensure existence of ample back-up capacity Fire-drills and emergency scenarios need to consider specific issues of the pandemic such as: <ul style="list-style-type: none"> – Contamination risk – Cyber security risk
	Design considerations	<ul style="list-style-type: none"> Take the special considerations of the pandemic situation into account (e.g. contamination risks for key staff) JASDEC runs annual fire drills for general contingency scenarios
	Impact	<ul style="list-style-type: none"> This policy ensures that JASDEC is prepared to operate successfully and ensure business continuity if a crisis situation would occur during the pandemic

Takeaways

BEST PRACTICES

- Clear planning to assure business continuity tailored to COVID-19 specific circumstances



SHORTFALLS

- Fire-drills or stress test not conducted considering COVID-19-specific circumstances

SECURITIES CLEARING & SETTLEMENT (5/5) – OPERATIONAL IMPLICATIONS

Close communication with systemic providers is cornerstone to safeguard measures

Operational Implications

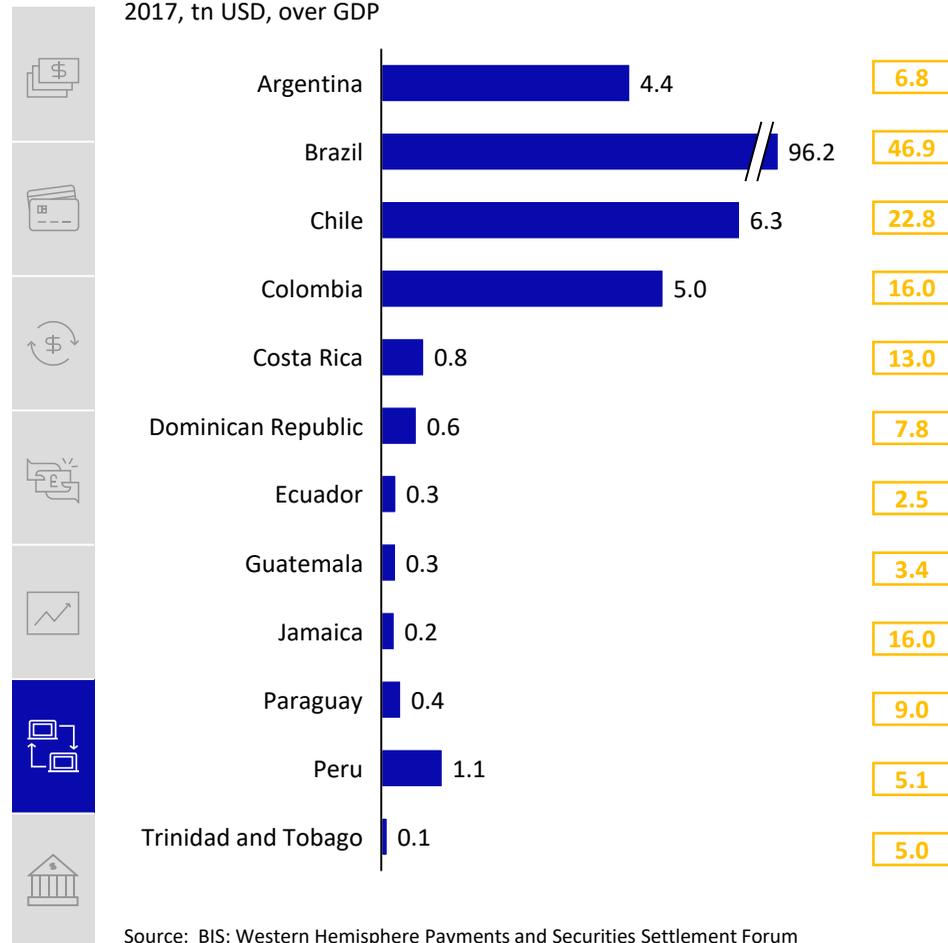
	<i>Ensure contingency plans are tailored to COVID-19 circumstances</i>	<i>Forecast liquidity needs and ensure sufficiency of buffer</i>	<i>Adjust pre-funding and exposure limits</i>	<i>Raise additional liquidity if required</i>	<i>Enhance cyber resilience</i>
 Possible owners	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor
 Inter-dependencies	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a.
 Initial steps for action	<ul style="list-style-type: none"> Request systemic providers to prepare contingency plan tailored to COVID-19 Define evaluation criteria considering different scenarios 	<ul style="list-style-type: none"> Request systemic provider to quantify liquidity needs Perform quality assurance on methodology Recommend on need of additional liquidity buffers 	<ul style="list-style-type: none"> Assess need to require pre-funding or exposure limits Perform stress test or equivalent, assessing countercyclical impact Define policies across asset classes 	<ul style="list-style-type: none"> Assess liquidity needs Assess countercyclical impact Prompt systemic provider to raise liquidity 	<ul style="list-style-type: none"> Request systemic providers to provide cyber risk assessment Design program Define evaluation criteria
 Constraints	<ul style="list-style-type: none"> Limited capacity of Management team 	<ul style="list-style-type: none"> Limited capacity of Management team Complexity of defining COVID-19 based scenarios 	<ul style="list-style-type: none"> Limited capacity of Management team Complexity of defining COVID-19 based scenarios Potential countercyclical impact 	<ul style="list-style-type: none"> Potential countercyclical impact 	<ul style="list-style-type: none"> Limited capacity of Management team
 Tools	<ul style="list-style-type: none"> Regulatory fillings Scenario planning 	<ul style="list-style-type: none"> Scenario planning Stress test 	<ul style="list-style-type: none"> Scenario planning Stress test 	<ul style="list-style-type: none"> Scenario planning 	<ul style="list-style-type: none"> Regulatory fillings
 Minimum design time	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 1-2 weeks 	<ul style="list-style-type: none"> 2-3 weeks

WHOLESALE PAYMENTS (1/4) – OVERVIEW

Wholesale payments are an enabler of economic activity, with volume of transactions being indicative of maturity of financial sector

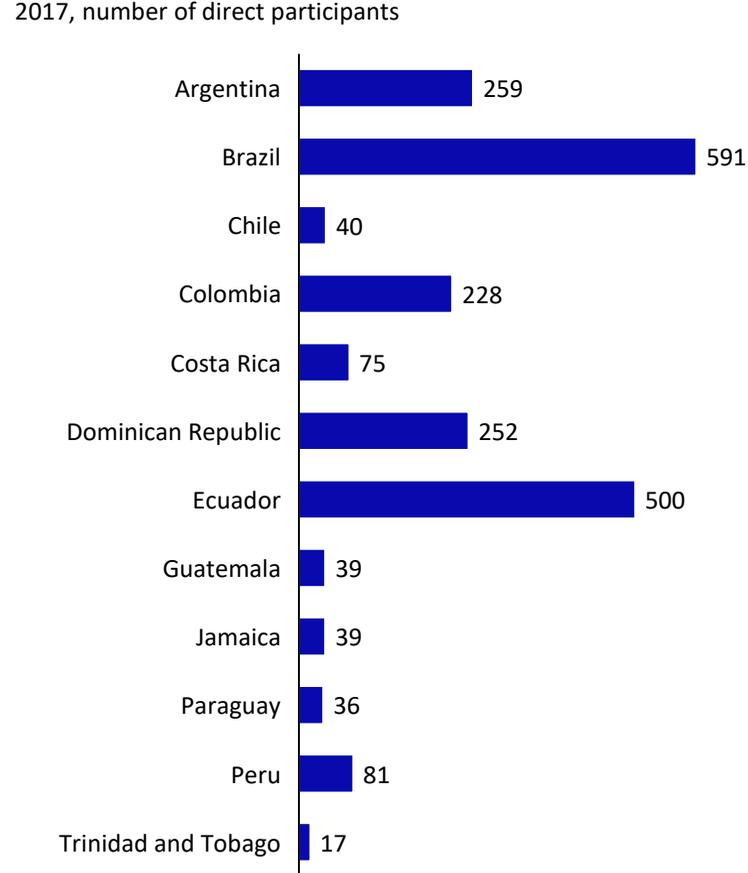
Payments processed by interbank funds transfer systems

2017, tn USD, over GDP



Participation in selected interbank funds transfer systems

2017, number of direct participants

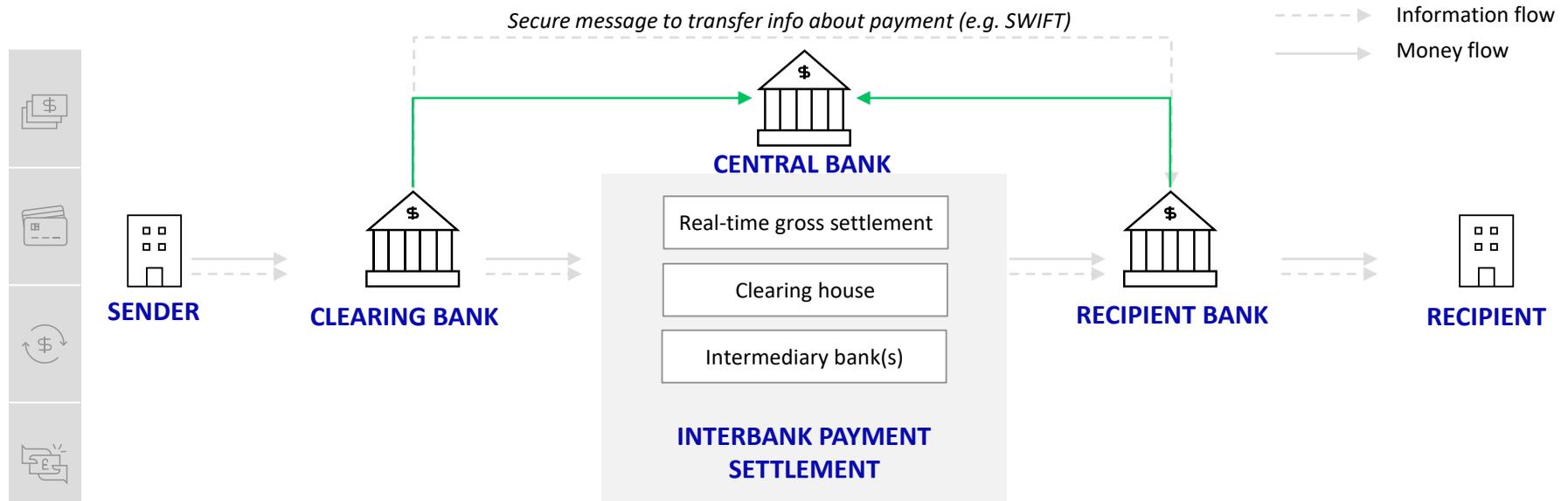


Source: BIS; Western Hemisphere Payments and Securities Settlement Forum

WHOLESALE PAYMENTS (2/4) – SERVICE PROVISION

Deals with inter-bank, inter-country large value, large volume real-time payments

Wholesale payments simplified process



DESCRIPTION:

- Payment order is transferred electronically to clearing bank
- Clearing house nets obligations between participants - funds are transferred to settle obligations at the end of the settlement period
- Real-time gross settlement systems allow for almost immediate transfer of funds (usually through accounts of a country's central bank, also acting as funding provider if needed)
- Recipient bank receives notification that payment order has been accepted
- Funds are received once payment obligation is settled within the ecosystem

WHOLESALE PAYMENTS (3/4) – RECOMMENDATIONS

Objectives: Ensure adequacy of contingency plans and fulfilment of critical operations

Recommendations

Real economy-centric

Financial sector-centric

Infrastructure-centric

Measure

Actions required

01

Ensure **contingency plans** are tailored to COVID-19 circumstances

- Contingency plan should put forward a team structure that allows to separate group of individuals to limit cross contagion and ensure continuity
- Ensure that emergency premises are sufficiently far away from main premises in case there is a hot spot of cases in the area
- Run a fire drill exercise to test contingency plan

02

Safeguard **systemic providers** and **critical operations**

- Ensure critical providers, such as correspondent and clearing banks, are either safeguarded or can be substituted for on short notice
- Identify important financial and settlement operations, including technology and information providers, devise workable contingency plans in case basic infrastructure fails
- Allow for controlled degradation (e.g. moving from RTGS to a end of day netting scheme) if needed

03

Ensure **adequate funding** in the system

- Ensure adequate liquidity is available to operate the system in case of issues at one or several participants, in case of settlement delays or an unusual volume or unusual transaction sizes
- Consider implementing liquidity backstops by central banks to prevent gridlocks



WHOLESALE PAYMENTS (4/4) – OPERATIONAL IMPLICATIONS

Close communication with systemic providers is cornerstone to safeguard measures

Operational Implications

	<i>Ensure contingency plans are tailored to COVID-19 circumstances</i>	<i>Safeguard systemic providers and critical operations</i>	<i>Ensure adequate funding in the system</i>
 Possible owners	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor
 Inter-dependencies	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a.
 Initial steps for action	<ul style="list-style-type: none"> Request systemic providers to prepare contingency plan tailored to COVID-19 Define evaluation criteria considering different scenarios 	<ul style="list-style-type: none"> Identify critical operations and providers Define, jointly with systemic players, plans to ensure continuity of service 	<ul style="list-style-type: none"> Request systemic provider to quantify funding needs Perform quality assurance on methodology Assess the need of implementing liquidity backstops
 Constraints	<ul style="list-style-type: none"> Limited capacity of Management team 	<ul style="list-style-type: none"> Limited capacity of Management team 	<ul style="list-style-type: none"> Limited capacity of Management team Complexity of defining COVID-19 based scenarios
 Tools	<ul style="list-style-type: none"> Regulatory fillings Scenario planning 	<ul style="list-style-type: none"> Scenario planning Stress test 	<ul style="list-style-type: none"> Scenario planning Stress test
 Minimum design time	<ul style="list-style-type: none"> 2-3 weeks 	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 3-4 weeks
			
			

SUPERVISORY CRISIS MGMT. CAPABILITIES (1/3) – RECOMMENDATIONS

Objective is ensuring regulator is ready to safeguard critical functions without compromising stability

Short term recommendations

 Real economy-centric

 Financial sector-centric

 Infrastructure-centric

Measure	Actions required
       01 Set-up a coordinated emergency response	<ul style="list-style-type: none"> • Gear internal governance and staff to “crisis mode”, instating business continuity plans where existing (e.g. establish “control room”, suspend on-site activity, and reallocate capacity) • Issue internal guidance on remote work, reallocation of capacity/tasks • Ensure cyber security • Evaluate critical services disruption for quick fixes (e.g. reserves mgmt.) • Clarify operational relief (e.g. dead-lines, remediation scrutiny) and behavioral issues (e.g. ban on dividends, share repurchases) • Convene international coordination groups for best practice sharing (e.g. ASBA WGs)
02 Crisis management to prioritise supervisory attention	<ul style="list-style-type: none"> • Conduct top-down scenario analysis / stress-testing to identify areas of vulnerability • Perform vulnerability and/or resolvability assessment for critical institutions as required • Assess broad systemic and financial risks (e.g. assess possible crisis transmission mechanisms from non-bank sector, FMIs, debt overhang and NPLs build-up) • Where sensical, run “fire-drill” or simulation exercises for high-risk areas) • Define practical rules to manage impact (e.g. prudential treatment, conduct, NFR) • Set-up "crisis reporting" to monitor implementation and evolution of crisis including systematically documenting “lessons learned”
03 Post-crisis stabilizing and reshaping the sector	<ul style="list-style-type: none"> • Refine top-down planning scenarios and assess unintended consequences of policy action (e.g. distributional income across sectors, over indebtedness, NPL build-up, “zombie” companies) • Enhance AQR / ST toolkits to plan for full scale recovery (e.g. adjusting macro scenario & methodology) • Support implementation of government measures as required (e.g. credit risk criteria for SME lending schemes, aggregate information on measures’ implementation across banks)

SUPERVISORY CRISIS MGMT. CAPABILITIES (2/3) – CONTEXTUALIZING RECOMMENDATIONS

Relevance of incorporating flexibility to supervisory requirements and allocation of resources

Selected case studies

Takeaways

	Relaxing solvency conditions in Italy	Relaxing liquidity conditions in Hong Kong
Relevance	<i>Example of regulatory flexibility in a highly-leveraged economy</i>	<i>Action of a supervisor that is responding to a consecutive shock</i>
Program design	<ul style="list-style-type: none"> Allowing significant, non-significant banks and financial intermediaries to temporarily operate below (even without) Pillar 2 Guidance (P2G), in line with ECB/EBA guidelines <ul style="list-style-type: none"> – On average EU banks hold 0.9% of their risk-weighted assets as P2G buffers, this could free up to €79 Bn across the whole EU Extension of reporting obligations by ~ 60 – 150 days (e.g. for internal capital assessment) 	<ul style="list-style-type: none"> Allowing institutions to utilize their liquidity buffers through accepting lower liquidity ratio levels to support the real economy Postponement of the Supervisor Driven Stress Test to 2021
Operational considerations	<ul style="list-style-type: none"> Operating pandemic scenarios and emergency plans to ensure that the work as a supervisor can continue while rescheduling on-site visits 	<ul style="list-style-type: none"> Assessing the internal policies on liquidity buffer usages of each individual institution
Design considerations	<ul style="list-style-type: none"> Direct engagement with institutions if buffers happen to fall below required levels 	<ul style="list-style-type: none"> Pro-active attitude in an attempt to prevent matters from escalating
Impact	<ul style="list-style-type: none"> Gave financial institutions more breathing room in the short term 	<ul style="list-style-type: none"> Loans and advances to SMEs have continue to grow slightly in HK

BEST PRACTICES

- Incorporating flexibility in regulatory agenda to ensure optimal resource allocation
- Continuous assessment of solvency and liquidity risk

SHORTFALLS

- Delaying reporting obligations makes it harder to have a near-time view of the crisis development

SUPERVISORY CRISIS MGMT. CAPABILITIES (3/3) – OPERATIONAL IMPLICATIONS

Focus on swift crisis management set-up and conducting analysis to prioritize supervisory attention

Operational Implications

	Set-up a coordinated emergency response	Crisis management to prioritise supervisory attention	Post-crisis stabilizing and reshaping the sector
 Possible owners	<ul style="list-style-type: none"> Central bank / Supervisor/ MoF 	<ul style="list-style-type: none"> Central bank / Supervisor 	<ul style="list-style-type: none"> Central bank / Supervisor/ MoF
 Inter-dependencies	<ul style="list-style-type: none"> Public health experts / ministry 	<ul style="list-style-type: none"> n.a. 	<ul style="list-style-type: none"> n.a.
 Initial steps for action	<ul style="list-style-type: none"> Define “crisis set-up” Identify operational relief areas Convene coordination groups 	<ul style="list-style-type: none"> Define areas of analysis Leverage stress test models and methodology Engage in discussion with critical providers 	<ul style="list-style-type: none"> Define and prepare support to government measures Identify most vulnerable segments and quantity need Assess consequences of policy action
 Constraints	<ul style="list-style-type: none"> Limited time to respond Multiple stakeholders and sources of data to consider 	<ul style="list-style-type: none"> Limited data availability Complexity of defining COVID-19 based scenarios 	<ul style="list-style-type: none"> Limited data availability, particularly post-COVID-19
 Tools	<ul style="list-style-type: none"> Internal contingency plans 	<ul style="list-style-type: none"> Scenario planning Industry fora/dialogue 	<ul style="list-style-type: none"> Scenario planning Stress test
 Minimum design time	<ul style="list-style-type: none"> 1-2 weeks 	<ul style="list-style-type: none"> 3-4 weeks 	<ul style="list-style-type: none"> 6-8 weeks



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APPENDIX

GLOSSARY

Abbreviation	Definition
ASBA	Association of Supervisors of Banks of the Americas
BAU	Business as Usual
CF	Critical Function
FSB	Financial Stability Board
IMF	International Monetary Fund
MFI	Monetary Financial Institutions
SRB	Single Resolution Board

DEFINED LONG-LIST OF CRITICAL FUNCTIONS & CUSTOMER SEGMENTS FOR THE ANALYSIS (1/2)

Short-list of critical functions for the analysis

Based on SRB & FSB guidance, adjusted to geographical context and scope of project

Critical function	Description
Deposit taking	<ul style="list-style-type: none"> • Acceptance of deposits from non-financial institutions, including households, businesses and public institutions • Current accounts / overnight deposits, deposits with agreed maturity and deposits redeemable at notice
Cash services	<ul style="list-style-type: none"> • Withdrawals at ATMs and at branch counters and other cash services (like cash-in-transit services for mass retailers)
Retail Payments	Cash Vouchers <ul style="list-style-type: none"> • Payments made using cash vouchers, which allow deferring payment and centralizing it in network of cash voucher distributors
	Credit/ debit card <ul style="list-style-type: none"> • Payment cards that allow to deduct money directly from current accounts and/or to borrow funds to pay for a purchase
	E-payments <ul style="list-style-type: none"> • Payments performed using electronic devices, such as computers, smartphones or tablets
	Remittances <ul style="list-style-type: none"> • Primarily refer to methods for sending money to a migrant's home country
Lending	Mortgage loans <ul style="list-style-type: none"> • Lending to households for the purpose of investing in houses for own use and rental, including building and refurbishments, as well as lending for small businesses (business mortgages)
	Credit card lending & Consumer finance <ul style="list-style-type: none"> • Lending to households or business owners for the purpose of purchases of products and services, including credit card lending, consumer finance at point of sale and consumer loans
	Short-term business debt & Trade finance <ul style="list-style-type: none"> • Lending to businesses as a short-term solutions for cash management and funding of operations. Includes working capital, lines of credit, factoring and other short-term loans
	Long-term business debt <ul style="list-style-type: none"> • Lending to businesses as medium- and long term solutions for investment and funding of operations
	Project finance & Infrastructure finance <ul style="list-style-type: none"> • Financing long-term infrastructure, industrial projects, and public services, whereby the debt and equity used to finance the projects are paid back from the cash flows generated by the projects
Capital markets	<ul style="list-style-type: none"> • Issuance and trading of securities, related services such as prime brokerage and market making and related advisory services
Clearing and settlement	<ul style="list-style-type: none"> • Services offered to clients for confirmation, clearing and settlement of securities transactions • Safekeeping and administration of financial instruments for clients and services related to custodianship
Wholesale Funding	<ul style="list-style-type: none"> • Operations between financial counterparties on lending and borrowing, taking place in interbank markets
Wholesale Payments	<ul style="list-style-type: none"> • Payment services offered to Monetary Financial Institutions, includes payments related to correspondent banking services

Financial sector specific functions excluded from demand and supply assessment – prioritization based on expert judgment

Source: Financial Stability Board (FSB), Single Resolution Board (SRB), Oliver Wyman Analysis

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DEFINED LONG-LIST OF CRITICAL FUNCTIONS & CUSTOMER SEGMENTS FOR THE ANALYSIS (2/2)

Customer segments for the analysis – applied in both scenarios

Based on OW's COVID-19 sector vulnerability model and expert judgement, adjusted geographical context and scope of project

Segment/ Sector	Definition
1. Businesses	 Agriculture <ul style="list-style-type: none"> • Activities related to growing crops, raising animals, and harvesting fish and other animals either on forests/farms/ their natural habitats
	 Construction & Infrastructure <ul style="list-style-type: none"> • Activities related to construction and infrastructure businesses such as commercial building construction companies, wireless telecommunication carriers, and information & communication technology companies
	 Food Retail <ul style="list-style-type: none"> • Comprises grocery businesses (all other retail activities are part of retail sector)
	 Healthcare & Pharma <ul style="list-style-type: none"> • Comprises human health & social work activities as well as supply of medical equipment
	 Manufacturing <ul style="list-style-type: none"> • Includes the manufacturing of apparel, electric appliances, automotive manufacturing etc.
	 Retail <ul style="list-style-type: none"> • All wholesale & retail trade activities for the general public e.g. clothing, automotive, home appliances, etc.
	 Transportation & Logistics <ul style="list-style-type: none"> • Comprises bus & tramway operations as well as air transport • Also incorporates cargo operations including road, rail, and air freight
	 Tourism & Leisure <ul style="list-style-type: none"> • Includes arts & entertainment, sports facilities, hotel services as well as companies providing leisure activities, incl. television programming, gambling etc.
	 Energy <ul style="list-style-type: none"> • Electricity and gas supply, water supply, crude petroleum, as well as waste and wastewater management etc.
 Other Services <ul style="list-style-type: none"> • Includes other sectors not provided for above, e.g., education, technical consultancy, other service-led businesses. 	
 2. Households <ul style="list-style-type: none"> • Refers to entire consuming population, hence, individual consumption 	
 3. Government <ul style="list-style-type: none"> • Includes all public authorities on national, state, and local level 	
 4. Financial sector <ul style="list-style-type: none"> • Comprises banks, regulated entities, and institutions that provide financial services to corporate and retail customers, including financial market infrastructures 	

Financial sector excluded from demand analysis

READ OUR LATEST INSIGHTS ABOUT COVID-19 AND ITS GLOBAL IMPACT ONLINE

Oliver Wyman and our parent company Marsh & McLennan (MMC) have been monitoring the latest events and are putting forth our perspectives to support you clients and the industries you serve around the world. The Coronavirus Hub will be updated daily as the situation evolves.



[Visit our dedicated COVID-19 website](#)



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