



Key Aspects around Financial Technologies and Regulation Policy report

Fintech Regulatory Aspects
Working Group (REG WG)

May 2019

CEMLA FINTECH FORUM

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Executive Summary

The financial system is experiencing a deep transformation given the incorporation of new technologies that is taking place rapidly and on a global scale. The international financial community acknowledges that features of nowadays financial innovation -enabled by said technologies-, or “fintech”, might lead to new opportunities, including new financial inclusion opportunities, but it also has the potential to generate new risks or amplify existing ones. In this context, financial regulation is a key element to strike a right balance between increasing efficiency, fulfilling customers’ needs and a proper risk management approach.

As a consequence, financial authorities are being challenged to develop policy and regulatory responses to promote innovation while preserving sound and safe financial systems. Policymakers around the world are closely monitoring the fintech developments and its implications for markets and the overall financial system; furthermore, they are willing to learn from the experience in other jurisdictions and to acknowledge the impact of the actions undertaken by the competent authorities. To assist this process, CEMLA established the Fintech Forum made of 18 Latin American and Caribbean (LAC) Central Banks, and particularly launched a stream of work to take stock of the fintech regulatory aspects for the region by creating a task force, known as the REG WG. This Executive Summary recaps the results of the REG WG on current relevant efforts and issues in CEMLA member countries to embrace fintech within the existing regulatory framework.

One of the REG WG milestones was to have an accurate picture of the fintech phenomenon in the region, both present and in the foreseeable future. To accomplish this, two surveys were prepared. The first one, submitted to authorities in CEMLA countries, which aims to find key facts related to the current state of fintech from the authorities’ perspective and to identify current practices and efforts towards a fintech regulatory framework in the region. The second survey was submitted to industry players, both incumbent entities and new entrants. It aims to collect recent experiences, practices and developments about financial technologies in Latin America and the Caribbean (LAC). The full report produced by the REG WG and the detailed results from these surveys are available as annex of this Executive Summary.

As these surveys showed, the fintech environment in the LAC region reflects the circumstances of emerging economies with a very complex interaction of customer needs and preferences, important industry transformation, and public-private strategies towards a more inclusive financial system. Both authorities and market participants acknowledge that fintech is causing disruption and may have high impact in existing financial services and business models. In particular, payments is the area where -fintech- new entrants seem to be more active, and financing and trade finance are seen as sectors that could also be deeply affected by a larger presence of fintech players in the future.

From these findings, the REG WG highlights several potential positive implications for LAC countries arising from fintech innovation: new entrants may enforce competitive practices for incumbents; an increasing use of new technologies may result in efficiency gains and cost savings; financial technologies may potentially become an alternative solution for jurisdictions -businesses and

consumers- affected by the recent de-risking phenomenon; customized products may serve better customers' needs; and enhanced access to financial services for unbanked people may facilitate financial inclusion efforts. Indeed, low levels of financial inclusion are an important driver for innovation in the region. This can be confirmed by the wide range of products and services directed to unbanked or underbanked populations that have been developed in LAC countries in recent years.

Despite the potential opportunities, the majority of the regional authorities and industry participants believe that the adoption of technological innovations could exacerbate existing risks and even create new ones. Consumer protection, data privacy, anti-money laundering, counter-terrorist financing issues and cybersecurity issues rank at the top of the concerns. The fintech sector is currently too small to have any significant impact on systemic risk, but financial stability concerns could come rapidly to the front if innovation leads to disruptions in the financial system, for instance by leading to excessive concentration of critical functions or by introducing new cyber vulnerabilities. In this regard, the impact that Bigtech companies (e.g. Amazon, Apple and Google) are taking in some jurisdictions, as well as the recent concentration trend of new entrants in others, could rapidly emerge as a threat in the region. Contrarily, fintech could potentially strengthen the stability of the financial system if a greater diversity of the actors implies a weaker correlation between the risks the financial institutions are exposed to. Hence, the final outcome in terms of financial stability is still uncertain and should be a topic of continuous monitoring.

The emergence of fintech in the region, with its potential opportunities and risks, has prompted LAC Central Banks to reassess the adequacy of their legal frameworks to embrace these developments in the regulatory remit. In this process, authorities may wish to consider carefully the need for specific regulatory intervention, since the existing legal framework could already cover several innovations.

However, given the complexity, speed and dynamics of fintech, current legal frameworks may not be appropriate for the new landscape. On the one hand, traditional regulatory arrangements (known as sectorial, given the oversight focus on financial entities) could create an unlevelled playing field that, in turn, deters innovation or distorts competition. As a response, new regulations have been focusing on the activities rather than the providers (e.g. Mexico's Fintech Law). In this context, several regulatory elements could still act as barriers: a rigid legal framework that limits the adoption of new technologies and takes a long time to adapt, ambiguity, lack of clarity (or even nonexistence) of the regulatory framework for fintech activities, and inconsistencies among different regulations covering similar activities. On the other hand, certain innovations that cannot be framed within the existing regulatory scope may happen to arise (e.g. crypto-assets). In this case, financial authorities may wish to explicitly state the inherent risks of said new and unregulated activities.

All the above poses a clear challenge to which central banks have been reacting. An extra challenge that regulators are facing to introduce fintech regulations is the need to access to more information in a timely and standardized manner. The REG WG concludes that policymakers may find useful considering a number of general, basic principles when drafting or reviewing regulation to fit the new landscape. These principles can be summarized as follows:

- Functional approach: A functional (services-based) approach aimed at addressing similar risk with similar regulation could be an efficient way to balance opportunities and risks. A legal

framework focused on the function being carried out, rather than on the type of institution carrying out such activity, provides flexibility and direct oversight of the risk of such activity.

- Proportionality: While the regulatory framework applicable to financial institutions aims at strengthening their resilience, it may be too demanding for small and/or startup companies trying to enter the market focusing on a very specific product or service. In order to foster innovation, a functional approach could be proportional, and with that ease proper and suitable requirements for new entrants in exchange of granting limited or restricted licenses.
- Technological neutrality and flexibility: Given the dynamism of financial innovation, regulation could be formulated in a general and technologically neutral way in order to ensure that innovation is not unnecessarily being held back while it accommodates new developments in a timely manner.
- Level playing field and competition: Reaching a balanced and fair approach that ensures all types of entities are given equal opportunities is an issue to consider when reviewing the regulatory approach. It may help to achieve more efficient markets, better products and services and, in turn, higher welfare. Authorities may therefore want to stay alert to identify any barriers hampering competition.
- Cybersecurity and data protection: In the new landscape data and technology are critical. Since information security arrangements and infrastructure may be fragile, it would be imperative to consider measures and controls to identify, mitigate and overcome cyber-threats as well as to ensure personal data protection frameworks by means of the regulatory framework, even if they do not have formal attributions.
- Coordination among regulators: Cooperation across multiple regulatory authorities becomes more important since fintech innovations are relevant not only for financial regulators, but also for authorities in charge of consumer protection, AML-CFT, cybersecurity, data protection, taxation, or competition policy.
- International cooperation: Domestic financial authorities may face the need to harmonize their regulatory frameworks at the cross-border level. In order to do so, increased international coordination and cooperation between jurisdictions would be useful in order to share experiences and concerns and, ultimately, prevent regulatory arbitrage, standardize information reporting and agree in specific issues related to fintech.
- Enabling innovation mechanisms: According to their restrictions and priorities, authorities could consider establishing spaces for collaboration and research with the private sector, e.g. sandboxes, innovation hubs and accelerators, in order to explore the viability of fintech developments.

With all the above, the REG WG wishes to underline that in light of the significant transformation of the financial system given the fintech phenomenon, Latin American and Caribbean central banks and financial authorities must play an active role in attuning the regulatory framework to the extent in

which these developments can effectively bring opportunities with risks under control. In this context, a number of issues deserve further discussion, being most of them related to the implementation of basic principles, and conceptual and practical challenges of striking an optimal regulatory and policy response to promote sound and safe financial innovation.

1. Introduction

The financial system is experiencing a deep transformation, as incumbents and new entrants are making an intense use of technology to develop new financial services or alter the way in which the current ones are provided. This disruptive process, which is similar to other ongoing industrial changes (e.g. transportation, retail services, telecommunications, etc.), is referred to, and for the purposes of this report, as financial innovation based on technology or “fintech”.

The financial industry is in constant change, but the intensity of the current fintech transformation is arguably higher than in previous innovative periods. The use of technology to deliver financial services is not new and in fact, the financial industry has always been at the forefront of technological adoption. Examples of this include the development of innovations such as the use of telegraphic networks to perform transactions in the XIX century, the creation of credit cards in 1950 or the Automated Teller Machines in 1967. As financial institutions started to embrace digital computing, services such as online and mobile banking started to emerge during the 1980s and 1990s, facilitating remote access of services’ users and operators. But now, the international consensus¹ is that the current innovative period is different from previous episodes. This general perception can be explained by several factors.

- From the supply side: In previous episodes, financial innovation has been based on the application of a single new technology, whereas currently it seems to stem from the use of many different technologies (examples are big data techniques, machine learning, artificial intelligence, distributed ledger technologies (DLT) or biometric and cryptographic tools). Some of these technologies may not be new, but their application in innovative ways has been facilitated as computing power has increased and become cheaper. The availability of these technologies has lowered the barriers of entry to the financial market, which has resulted in the emergence of numerous new players offering innovative services. Moreover, the search for profits amid a difficult environment in the aftermath of the great global financial crisis has also created the right incentives for incumbents to incorporate new technologies.
- From the demand side: A new generation of customers, fully digitalized, is demanding financial services to be adapted to their patterns of services usage. For instance, ubiquity (availability of services anytime and everywhere, in other words be remotely accessible 24/7) is being increasingly demanded by customers. The provision of this type of services is favored by the fact that a high (and growing) percentage of the population has access to mobile telephony and internet connectivity.

The application of new technologies to financial activities is taking place rapidly and on a global scale, as the result of the combination of these supply and demand forces. These features imply

¹ Carney, 2017; FSB, 2017; Cœuré, 2019

opportunities and challenges to the development and the stability of the financial system, which explains the interest of central banks and financial authorities to monitor the fintech phenomenon.

- Fintech is an elusive concept. The term is commonly applied to a certain kind of institution, typically to startup companies focused on delivering software-based innovations in the field of financial services. However, that may give an incomplete picture, since banks and other incumbents are also frequently applying the same technologies to change and improve the services provided to their customers. Therefore, incumbents reasonably claim that they can also be “fintech firms”. The term has in some occasions been applied to the technologies underlying the innovations (fintech technologies), but these technologies can also be applied beyond financial services. Finally, it is becoming common to define ‘fintech’ as the change in financial services that financial innovation is making possible. Following this reasoning, the Financial Stability Board (FSB) has defined fintech as “a technologically enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services”. This last approach (i.e. understanding fintech as the application of technology to change financial services, irrespective of the provider) is the most widely accepted definition nowadays².

The fintech environment, understood as the universe of institutions (incumbents and new entrants), technologies and transformed services, is very complex. An approximation to this environment can be done from different angles:

- Focusing on institutions, the landscape is usually pictured in terms of the increasing competition between incumbents and new entrants. In practice, there is great heterogeneity in both groups. Incumbents include licensed financial institutions of varied size and others, some of which are pursuing a traditional approach, whereas others are actively involved in financial innovation. On the side of the new entrants, there are startups with a small (if any) customer base, together with big non-financial technological companies (e.g. Amazon, Apple, Facebook and Google, which are also known as bigtechs), specialized in software, internet and telecommunications services, social media or retail business and with large customer bases. There are also new banks (commonly referred to as neobanks or challenger banks) focusing on providing basic banking services through mobile and/or internet banking.
- Both incumbents and new entrants alike are modernizing many financial services and processes by incorporating various technologies. The most notable examples are big data, data mining and analysis, artificial intelligence, virtual, augmented and mixed reality, machine-learning algorithms, DLT, cloud computing, cryptography and biometrics-based security.
- In relation to services, fintech developments have spread in all segments of financial services, including payments, credit provision, investment, insurance (commonly referred as Insurtech) or financial advice. Financial innovation can be present in all parts of the value chain, from the

² FSB, 2017

customer interface to middle and back office processes that are not usually visible to the end user. Fintech can also be applied to areas that go beyond the pure provision of financial services; in this sense, the application of new technologies to improve regulatory reporting (i.e. Regtech) or supervisory procedures by the regulator (known as Suptech) are worth mentioning.

Fintech innovation provides opportunities to increase the range of population that has access to financial services and to make these more efficient and fit to the users' needs, but it also has the potential to create new risks or intensify existing ones. This leads to a challenge for financial services providers to innovate, but at the same time ensuring that proper risk management practices are in place. Central banks and financial authorities should define a consistent and coordinated regulatory response that promotes the opportunities that innovation and technological development bring to society while protecting the stability and reputation of the financial sector.

Financial regulation is a key element for the sound development of financial innovation that should not be overlooked. The adoption of technology to improve and possibly transform financial services requires several building blocks. The availability of new technology, as well as the supply and demand factors summarized above are necessary elements, but definitively it requires guidance to ensure that financial innovation develops in a way that increases efficiency while addressing risks. Regulation plays an important role in harnessing the potential benefits brought by technology while mitigating the risks properly.

This document intends to discuss the fintech environment and its interplay with the regulatory framework. The focus of the report is on the Latin American and Caribbean (LAC) context (described in section 2), and rather than providing guidelines or sound practices, it aims to highlight the main fintech opportunities and risks (section 3). It also presents some regulatory (section 4), and non-regulatory (section 5) practices that central banks and other financial authorities may want to consider when addressing the challenges of issuing or revising regulation regarding innovation based on financial technologies. The report benefits from the surveys (CEMLA surveys, from now on) that the Working Group on Fintech Regulatory Aspects of the CEMLA Fintech Forum carried out among authorities, incumbent providers of financial services and new entrants, and which main results are summarized in the annexes³.

2. Global and regional fintech developments

³ Two surveys were prepared. One of them was submitted to financial authorities (central banks) in CEMLA countries and it was aimed at finding key facts related to the current state of fintech from their point of view, taking also stock of current practices and efforts towards a fintech regulatory framework in the region. Responses were received from 17 countries (12 from Latin America, 4 from the Caribbean and Spain). The second survey was submitted to industry players, both incumbents and new entrants, and aimed to collect recent experiences, practices and developments about financial technologies in the CEMLA region. Responses were received from 15 countries (10 from Latin America, 3 from the Caribbean, Spain and the USA).

Fintech is a global phenomenon, and the LAC region, with its own peculiarities, is not an exception. Since 2010 and until 2017, the number of companies participating in the fintech sector globally has consistently grown, from around 3,000 to more than 8,800. This represents an average annual growth rate of 19.6%. The related funding reached 101 billion dollars from 15.3 billion dollars in the same period, with an average annual growth rate of 37%, resulting in an estimated market value of 870 billion dollars. These figures reflect that investors have found promising fintech developments⁴.

Furthermore, the dynamic in the world's leading fintech hubs closely mirrors that of the LAC region. Throughout 2017, the advisory firm Ernst and Young researched international fintech systems by analyzing key variables such as talent, funding availability, government policy and demand for fintech from consumers, businesses and financial institutions. The investigation determined that Australia, Germany, Hong Kong, Singapore, United Kingdom and the United States are the world's leading fintech hubs. With the exception of the US, these countries follow a competitive pattern similar to the prevailing in the financial industry: high sector concentration, dominated by a small number of large financial entities with a competitive fringe of smaller players⁵. This reflects the situation in the LAC countries, where concentration is also at high levels⁶.

Focusing on the LAC region, CEMLA surveys show that both, central banks, financial authorities and the industry, grant high importance to fintech.⁷ In the case of private providers, 50% of the interviewed incumbents and 77% of the new entrants consider that fintech developments are relevant in their jurisdiction. In the case of central banks, 59% of the respondents consider that the fintech agenda is important in their country, and 70% deem that fintech will possibly disrupt the current financial landscape. In fact, there is an expectation that the market share of fintech providers will shift from the current 0-25% to 26-50%, or even more in the case of payments, in the next five years (see graph 1).

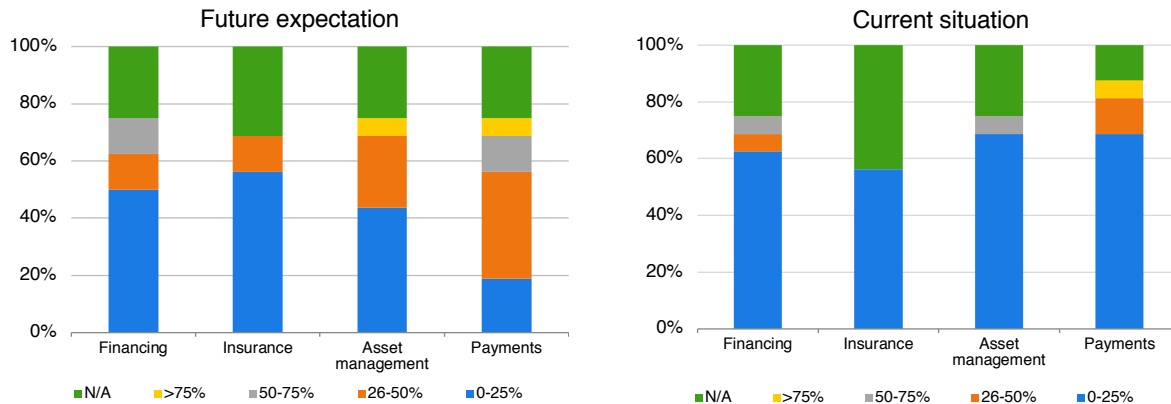
⁴ IOSCO, 2017.

⁵ Ernst & Young, 2016.

⁶ IMF, 2016.

⁷ See also IMF, 2019.

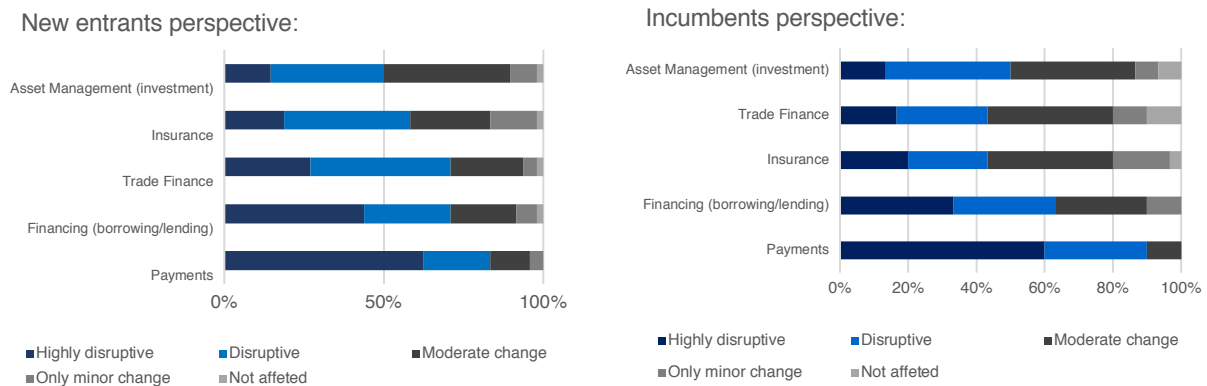
Graph 1: Fintech market share (financial authorities' perspective)



Source: own elaboration with CEMLA surveys.

The payments sector is not only the area where fintech providers seem to be more active, but also the one that could be the most impacted by fintech developments in general, stemming either from incumbent institutions or from new entrants. According to the surveys, 60% of new entrants and 90% of incumbents support this statement. New entrants consider that other financial services, especially financing and trade finance, will also be significantly impacted, while asset management seems to be the area where fintech will have the least impact in the region (see graph 2).

Graph 2: Fintech impact in financial activities



Source: own elaboration with CEMLA surveys.

3. Opportunities and risks: a LAC perspective

Fintech has many potential positive implications for LAC countries. According to the CEMLA surveys, the vast majority (88%) of central banks and/or supervisors agree that fintech will yield benefits and opportunities. The view of both, financial authorities and the industry, is that the most relevant opportunities that fintech may bring are efficiency gains (e.g. reduction of costs, enhanced customer experience) and enhanced competition in the financial sector, as well as an improvement in financial inclusion. Furthermore, fintech may offer possible solutions or, at least, alleviation to the de-risking problem.

The entrance of new players in the financial market has forced incumbents across markets to react in order to stay competitive. As a result, 71% of financial authorities consider that fintech can contribute to redefine the competitive framework in local and regional financial systems, and increasing the competitiveness of the industry as a whole. Furthermore, the entry of new players generates a more varied ecosystem, which widens the supply and, in the future, could contribute to a reduction of systemic risks (currently, however, the fintech sector is usually too small to have any significant impact in most jurisdictions). The main reason for this is the greater the diversity of the actors is, the weaker is the correlation among financial institutions and their risks exposures⁸. Therefore, fintech could potentially strengthen the stability of the financial system.

Furthermore, both financial authorities and the industry are of the opinion that the increasing use of technology in the financial services market also results in efficiency gains. Artificial intelligence and big data analytics allow financial institutions to process information in a much faster way than before. The use of DLT could diminish the number of intermediaries, which could potentially reduce costs. Running applications or storing data in the cloud instead of recurring to in-house servers could potentially lead to considerable cost savings in physical investment. Finally, fintech could allow i) regulated entities to make a more efficient use of their resources to comply with the regulatory requirements (e.g. through automation), and ii) authorities to reformulate the way they carry out their functions (e.g. thanks to increased analytical capabilities).

Fintech has also the potential to facilitate increased financial inclusion by broadening access to financial services for the unbanked, those individuals and businesses excluded from the traditional financial sector⁹. The High-Level Principles for Digital Financial Inclusion adopted by the G20 support this idea by placing great emphasis on the use of digital technology to enhance financial inclusion. The results of the CEMLA surveys go in the same line, and many respondents from the industry (in particular new entrants) and most financial authorities consider that fintech has the potential to democratize finance by meeting the needs of unbanked people and providing opportunities for underserved market niches. Since digital technologies have spread rapidly in many areas of the global economy, digital innovations across different areas of the financial sector could result in billions of

⁸ FSB, 2017.

⁹ GPFI, 2016.

people, especially individuals and small businesses, having greater access to the financial sector and to new investment products.

In fact, low levels of financial inclusion are an important driver for innovation in the CEMLA region. The 2017 Digital Findex Report highlighted that 46.6% of Latin Americans do not have access to traditional banking services, while for the other 54.4% the banking costs are high. This represents a market segment that could be of interest for fintech companies, taking into account that internet access in the region is on the rise and currently sits on 55%, roughly 15% more than the rest of the developing world¹⁰. Smartphone and mobile internet penetration in Latin America are also on the rise currently sitting at 67% and 50% of the population respectively¹¹.

Since 2010, fintech products and services directed to unbanked or underbanked populations have started to emerge in the region. Facing markets with different stages of maturity, fintech companies have pursued to serve a diversity of market segments with the aim of reaping the financial inclusion opportunities across the region. Roughly 46% of the 1,166 startups monitored by Finnovista through its fintech Radar Initiative in 2018, have declared financial inclusion as their first and foremost goal. In fact, 42.2% of startups have focused on digital payment solutions and alternative financing platforms while the other companies that make up the remaining 57.8% focus on other (nine) financial subsectors¹². This shows that other implications such as market efficiency and competition could have less weight in the regional approach for fintech.

Finally, financial technologies could potentially be an alternative or assist as a solution for the de-risking problem that certain economies of the region are facing. According to the Financial Action Task Force (FATF) definition, de-risking is “the phenomenon of financial institutions terminating or restricting business relationships with clients or categories of clients to avoid, rather than manage, risk in line with the FATF’s risk-based approach.” Losing a bank account relationship can be devastating for small and medium enterprises (SMEs), but the concerns about de-risking are not limited to its impact on SMEs; it has also affected small countries such as Belize. As a consequence, some authorities (e.g. the Eastern Caribbean Central Bank, ECCB) are analyzing how technology could help mitigate this problem. Moreover, the threat of de-risking has been a key factor for the openness of governments to digital currencies (e.g. Bahamas and the ECCB are considering issuing a digital version of their sovereign currency). Furthermore, banking sectors in countries that run the risk of being isolated from the global financial system due to perceived higher risks may use fintech solutions to reduce reliance on traditional correspondent banking relationships with foreign banks.

Despite the clear opportunities that fintech may bring to consumers, SMEs and the economy as a whole (i.e. increased efficiency, tailored products, wider accessibility), the majority of the surveyed authorities believe that the adoption of technological innovations could also enlarge existing risks or bring new ones. According to the results of the CEMLA surveys (see graph 3), consumer protection (e.g., data privacy, fraud), anti-money laundering and counter-terrorist financing (AML/CTF), as well

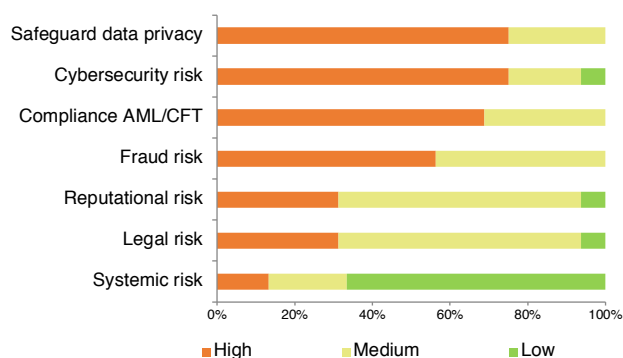
¹⁰ WBG, 2018.

¹¹ GSMA, 2018.

¹² IADB-Finnovista. 2018.

as cybersecurity, are the areas of main concern. In these areas, the risks stemming from fintech may be present with a greater or lesser intensity, depending on the country. Reputational, legal and systemic risks are considered to be of lower intensity at the moment. However, depending on how the financial industry evolves, fintech may also have a negative impact on market concentration and financial stability. Moreover, in certain cases, it could even contribute to increase the de-risking problem.

Graph 3: Risk exposure with fintech presence (financial authorities perspective)



Source: own elaboration with CEMLA surveys.

As regards consumer protection, there are several ways in which fintech may constitute a threat if proper measures are not taken. For instance, new technologies may not be sufficiently tested (e.g. wrong or unfair credit scorings, loss of funds due to errors), fraud may occur in certain novel activities that do not fall under any regulation (e.g. cryptoassets), and new non-regulated entities may not have the same solvency or risk management policies as incumbents. Regarding the latter, it should be noted that emerging fintech companies probably find it difficult to establish correspondent agreements due to the perception that they constitute a “high risk”; as a result, innovative solutions may, under certain circumstances, exacerbate the problem of de-risking instead of overcoming it.

Another significant risk stems from the potential use of fintech driven solutions made for illicit activities. This is indeed a source of concern for authorities, since some financial innovations have certain features that make them susceptible to be used for activities such as money laundering or terrorist financing. This is the case of cryptoassets, which offer a high degree of anonymity and global outreach.

Other relevant risks derived from an intensive use of technology are the increase of cyber-attacks and market concentration. Innovation implies that financial services are increasingly dependent on technology and, at the same time, entities are gradually relying on third parties to provide this technology and related services. This may result into more potential points of failure, hence increasing the probability of incidents. At the same time, the high dependence of entities on the technological services provided by a limited number of companies results in a significant concentration of

operational risk that could trigger a systemic crisis, should a serious incident occur in one of these providers.

Fintech developments could potentially become a source of systemic risks for the financial system. As mentioned above, this risk is considered low according to the CEMLA surveys, since the current share of fintech in the financial system is limited. However, although there does not seem to be a need for immediate action beyond monitoring the evolution of the market, some of the risks listed above (in particular, the combination of increased interdependencies and interconnectedness among financial institutions, market infrastructures together with the risk of cyberattacks and the high dependence on a limited number of technological service providers) could introduce new vulnerabilities in the financial system.

Finally, the impact of Bigtech companies, e.g. Amazon, Apple and Google, in financial markets could be a matter of concern in the nearby future. The results from the surveys indicate that Bigtech companies are currently not identified as a source of risk in the region. Nevertheless, Bigtech companies are showing high impact in both developed and emerging countries. Moreover, a recent concentration trend (via merges and acquisitions) of new entrants is being observed in some jurisdictions. Hence, Bigtech companies and concentration could rapidly emerge as a threat in the region.

Summing up:

- i. There is a clear consensus that fintech may bring opportunities for CEMLA countries, but an inadequate adoption of innovations could exacerbate or introduce new risks that should be properly managed.
- ii. Adequate regulation is a key element to balance opportunities and risks in order to foster sound financial development.

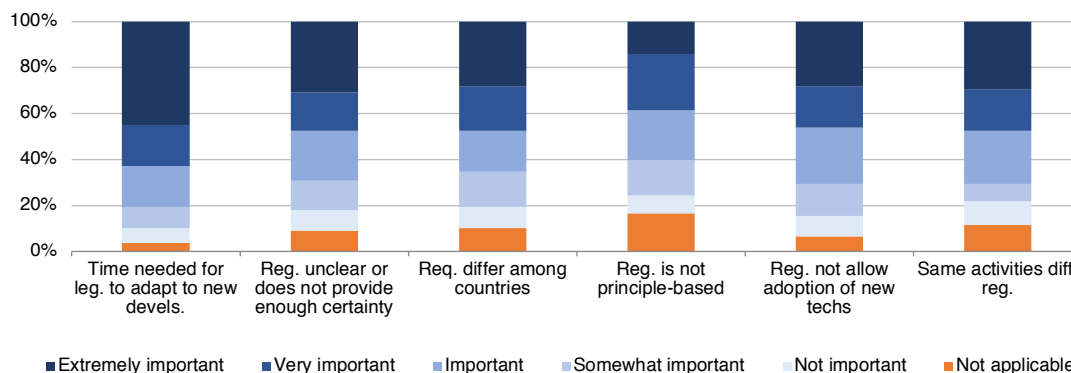
4. Regulatory approaches and issues to consider

The emergence of fintech in CEMLA countries has prompted financial authorities to reassess the adequacy of their legal framework, which may not be appropriate for the new landscape. In fact, financial regulation tends to be a complex patchwork of norms with different purposes that have developed over time. Initially, regulations were drafted bearing in mind the institutions that they were addressed to (e.g. banks, investment companies, insurance companies, et al.) rather than addressing services. In many cases, the development of banking regulations only considered deposit-taking institutions that provided other services (e.g. payments) as well. This may create an unlevelled playing field, as most new entrants carry out just a subset of those services (e.g. payments, but not deposit taking), and it would require them to comply with the full set of regulations applicable to banks or would leave them unregulated (as non-deposit-taking institutions) limiting their access to the market. With the rapid spread of fintech, new regulations have been developed focusing on the activities rather than the providers (e.g. crowdfunding, payments, lending), but others might still not be properly regulated. Furthermore, the existence of transversal regulation (such as customer protection, AML-CFT or data privacy rules, which are applicable to both financial and non-financial, activities), and the fact that the new entrants are in many cases entities operating from abroad, add additional layers of complexity.

Related to this, the CEMLA surveys revealed some elements of the current regulatory framework that could act as barriers to fintech development (see graph 4). Among the potential barriers identified are the following: a rigid legal framework that limits the adoption of new technologies and takes a long time to adapt, ambiguity, lack of clarity (or even absence) of the regulatory framework for fintech activities, or inconsistencies among different regulations covering similar activities.

When reassessing the legal framework, financial authorities face the challenging task of defining the regulatory perimeter, selecting the priority areas to be included in it, and determining the right time to regulate. In deciding which approach to follow there is not a one-size-fits-all solution, since authorities would take into account key aspects, such as their objectives, mandates and idiosyncratic circumstances, which vary from one case to another. Furthermore, they would consider the characteristics of the different innovations, and the types and magnitude of the risks they pose to the market. Depending on how any given fintech innovation affects the public policy objectives, the level of intrusiveness of financial regulation and supervision will vary. As a result, one can find a broad range of approaches (the example of the Caribbean countries is summarized in box 1).

Graph 4: Importance of regulatory barriers for financial innovation (private sector perspective)



Source: own elaboration with CEMLA surveys.

Box 1: The Caribbean regulatory experience as regards fintech

Given the pace of fintech developments, several countries across the Caribbean are revising their legislative frameworks and taking steps to facilitate innovations under a proper risk management framework.

Jamaica: The Guidelines for Electronic Retail Payment Services have recently been updated to enhance coverage of fintech related applications and other operational changes.

Trinidad and Tobago: The Central Bank of Trinidad and Tobago has developed the draft E-Money Policy and is also finalizing the Virtual Asset Policy, which is aimed at developing and establishing an environment to accommodate ongoing financial innovations while mitigating associated risks.

Bermuda: In July 2018, the ICO Legislation (ICO Amendment Act and ICO Regulations) entered into force requiring, among other things, the consent of the Minister of Finance to conduct ICOs in or from within Bermuda. Furthermore, the Digital Asset Business Act (DABA) became operative on 10 September 2018. According to this new regulation, entities carrying on digital asset business under the DABA will be regulated by the Bermuda Monetary Authority. The DABA outlines the various licenses that can be issued, the minimum criteria to receive said license, offences and corresponding penalties, litigations and compliance measures among others.

Bahamas: On 7 November 2018 the Central Bank issued a discussion paper on a proposed regulatory framework for crypto assets and related instruments.

Curacao en Sint Maarten: The Centrale Bank van Curacao en Sint Maarten (CBCS) has developed a new admission policy for non-banks to access the ACH/RTGS and is preparing guidelines to regulate fintech companies.

Additionally, Jamaica and Barbados are recurring to alternative tools, such as regulatory sandboxes (see section 5).

Finally, several advisory statements have been published by several authorities acknowledging the potential and risks associated to fintech and, in a few countries, entity specific warnings have also been issued, both by central banks and by other financial authorities, to highlight firms that were engaging in unregulated activities.

Source: own elaboration with information provided by central banks.

Authorities may want to carefully consider, for each situation, whether there is a need for specific regulatory intervention, since there may be several innovations that could be easily addressed by the existing legal framework. To illustrate this, it might be helpful to discern the provision of financial services in three areas: (i) activities that are provided directly to end-users; (ii) others that are internal processes within the financial services provider; and (iii) external activities not related with end-users (e.g. interbank processes, outsourcing of services to third parties, interfaces with payment systems and other financial market infrastructures, and also interactions with supervisory or regulatory authorities)¹³. Some specific examples of innovations affecting said areas could be the following:

- Interaction with the end-user. The use of new technologies could imply new services being offered (e.g. payment initiation services or crowdfunding) or new entities offering traditional services, but in an innovative way (e.g. cross-border payments). In the first scenario, financial authorities could consider modifying the existing legal framework in order to adjust it to the new situation (e.g. the revised Payment Services Directive in the European Union, known as the EU PSD2) or developing new specific regulation (e.g. crowdfunding legislation in Colombia and Spain). In the second scenario, jurisdictions with a function-based legal framework (rather than sector-based) would not need to make any adjustments, since the existing requirements would apply to both incumbents and new entrants. In other countries, however, amendments may be needed.
- Internal processes. In many cases, fintech activities do not result in new financial products or services, but rather on new technologies used by the entities in their internal processes. For instance, applying artificial intelligence for credit scoring does not represent changes in the underlying service, only in the technology applied, for instance with the purpose of enhancing services features. In these cases, existing regulation should generally apply and only small adjustments or clarifications on how these new approaches fit in the existing regulatory framework may be needed. In particular, adaptations related to data protection would be desirable.
- External activities. The use of new technologies may entail the development of new interdependencies (e.g. cloud computing) or a clear transformation in the way financial services are being provided (e.g. distributed ledger technology). In these situations, an analysis of the risks that innovations (or the involvement of third parties) entail could help determine whether the existing regulatory framework is fit for purpose. In case shortcomings are detected, financial authorities may want to issue clarifications, introduce modifications in the existing requirements or draft new regulation. Since developing new legal frameworks in most jurisdictions is a complex and sometimes lengthy process, consideration could also be given to self-regulation by the industry as a temporary second-best option.

¹³ A payment transaction, for example, would be initiated by a bank customer under specific terms and conditions, would be internally processed by the payment service provider (be it a bank or another institution) and would normally be sent to another bank through a payment system for further processing. While the interaction with the client will probably need to be subject to, at least, customer protection rules, the internal processes of the bank are likely to be beyond the scope of regulation by a great extent and the interaction with other parties will probably have to be subject to certain requirements.

Access to reliable and timely data about fintech in a standardized format is crucial for good regulation. Regulators face the challenge of disposing of very few data about the recent fintech developments and products. Individual efforts to fill that gap are being undertaken, but the atomistic nature of new entrants and the high speed dynamics of the industry make the collection of relevant data difficult. Moreover, sometimes these companies are not even licensed or supervised by the financial authorities. In some jurisdictions financial authorities have established close collaboration with fintech groups and associations to report information. Nevertheless, there is need for identifying and proposing good reporting standards for the fintech industry. In this regard, international collaboration is call to play a central role.

Box 2: Fintech Law of Mexico

The Mexican Fintech Law drafting process was an extensive, open and cooperative debate among members of the fintech industry and Mexican financial authorities. The outcome of this deliberative process was the enactment of the Law to Regulate Financial Technology Institutions in March 9, 2018.

The Law has common elements with prudential regulation, as it seeks to protect consumers, prevent potential financial stability risks and reduce existing barriers to innovation. The Law was drafted in principle-based terms taking into consideration the dynamic nature of the industry and leaving space for the development of secondary rules with specific details. The principles of the Mexican Fintech Law are the following: i) financial inclusion and financial innovation; ii) fostering of financial competition; iii) consumer protection; iv) financial stability; v) illegal activities prevention (AML/ CFT); and vi) technology neutrality. The Law regulates the organization, operation, functioning and authorization of institutions that offer financial services and products through alternative channels such as the Internet, computer applications, interfaces or any other electronic or digital communications and alternative business schemes. For legal purposes, such institutions are defined as Financial Technology Institutions (FTIs) and are classified according to their core business activities in: i) collective financing institutions¹⁴ and ii) electronic payment institutions¹⁵.

A key element of this legislation is the creation of the Mexican Regulatory Sandbox which main purpose is to test innovative models in a controlled scenario. Regulated financial institutions or companies with innovative models require a temporary authorization to engage in regulated activities under close surveillance and communication with authorities. Regulatory sandboxes have been successful in other jurisdictions, such as the United Kingdom and Singapore, and have positively contributed to the development of their respective fintech industries.

The Mexican Fintech Law also requires financial institutions (including FTIs) to develop Application Programming Interfaces (APIs)¹⁶ to share their financial, aggregate and transactional data (with the prior consent of users). As

¹⁴ Collective financing institutions are commonly known as crowdfunding companies. These institutions bring together investors with debtors and entrepreneurs that offer in exchange equity, co-ownership or royalties, through electronic or digital means, typically via internet platforms.

¹⁵ These are e-money companies that offer issuance, administration and redemption of electronic payments funds through applications or digital means.

¹⁶ In computer programming an API is a set of functions and procedures that allow some applications to access features or data of an operating system, other application or service. The purpose of requiring APIs in the financial system is to allow

for cryptoassets, the Law recognizes as such, those that are determined by Banco de México through secondary rules and entrusts to the central bank the authorization of the operations with these assets in terms and conditions, which it may determine in such rules. In addition, the Law contemplates the creation of a Financial Innovation Group (FIG), which is a consulting, advisory and coordination forum with members of the public and private sectors. The FIG aims to provide an instance through which its members can share knowledge about fintech innovations in order to plan its further development and regulation.

Finally, in the last quarter of 2018, a secondary regulation regarding FTIs was published which establishes provisions regarding information disclosure, capital requirements, accounting criteria and client profile risk methodologies, among others.

Source: own elaboration with information provided by Bank of Mexico.

It could also happen that certain innovations cannot be framed within the existing regulatory perimeter (e.g. cryptoassets). This poses a clear challenge for financial authorities, being the worst-case scenario the materialization of risks that financial authorities are legally unable to prevent. In cases where some innovative products and services beyond the scope and remit of financial authorities represent a risk for consumers and institutions, authorities may decide to issue warnings to raise awareness about the risks they are taking. A good example of this is financial authorities' statements on cryptoassets that have occurred recently across jurisdictions. When financial authorities have limited attributions to monitor and regulate the fintech sector, and self-regulation and warnings cannot address properly the risks posed by fintech innovations, developing a complete new legal framework may be a way forward. The Fintech Law of Mexico provides a good example of this (see box 2).

Regardless the approach chosen, financial authorities might wish to consider a number of general basic principles when drafting or reviewing regulations on this matter:

- Functional approach. For the sake of consistency, regulation should be aimed at addressing similar risks in a similar way. In order to do so, financial authorities could consider taking a functional (i.e. services driven) approach, instead of a sectorial one, developing the legal framework based on the activity being carried out, rather than on the type of entity carrying out such activity. The EU's licensing regime, for example, takes such an approach, with different requirements depending on the service being provided (i.e. deposit taking, payment services or e-money services).
- Proportionality. While the regulatory framework applicable to financial institutions aims at strengthening their resilience, it may be too demanding for small and/or startup companies trying to enter the market focusing on a very specific product or service. In order to foster innovation, a functional approach could be proportional, and with that ease proper and suitable requirements for new entrants in exchange of granting limited or restricted licenses. This approach, however, faces the challenge that consolidated supervision does not allow

access and connectivity within financial institutions to share users' aggregated and transactional data (with users' consent); and to offer better products and services by improving mobile apps and online sites.

incumbent financial institutions to profit from the benefits of innovating through related companies or subsidiaries.

- Technological neutrality and flexibility. Given the dynamism of fintech innovations, a very prescriptive regulation is likely to be rendered obsolete soon. Thus, authorities may consider formulating it in a general and neutral way to ensure that innovation is not unnecessarily being held back. In order to do so, it is advisable to tend to a principle-based legislation and draft requirements not having any specific technology in mind. Moreover, a flexible regulatory framework would increase the possibility that future developments can be accommodated in a timely manner.
- Level playing field. The coexistence of different types of entities in the financial market is bound to raise level-playing field issues. Some of these may come from the side of the new entrants, generally small or startup companies that may feel to be in an unfavorable position if they are not provided with the same opportunities as traditional financial institutions. It could also happen that incumbents consider that small or startup companies are being favored by the authorities if they benefit from lighter requirements. Reaching a balanced and fair approach that ensures all types of entities are given equal opportunities would be advisable. This is indeed a very challenging process, as some incumbents may follow a universal bank approach (taking deposits and providing other services), whereas new entrants may focus on niche segments; in such a situation, incumbents may perceive they suffer competitive disadvantages from the fact that they are accepting deposits or offering other core banking activities.

Finally, in line with the recommendations that several international organizations have been issuing over the past two years on how to regulate new technologies¹⁷, there are also a number of issues that financial authorities could like to bear in mind when trying to develop a regulatory framework that is fit for the new financial landscape:

- Cybersecurity. The CEMLA surveys revealed that, for new entrants, cybersecurity is one of the most important barriers (67%) from a technological perspective. They consider that security is fragile all over the system, and it is imperative implementing measures and controls to contain cyber-attacks. For incumbents, the surveys show cybersecurity is even more important (77%), since they consider that new entrants lack the resources needed to implement and maintain the highest level of security and protection. From a regulatory standpoint, a way to address cybersecurity issues could be for financial authorities to define standard-abiding cybersecurity requirements applicable to all sectors.
- Data protection. Both traditional financial institutions and new entrants collect large data records from their clients, containing personal information and financial records. Although the

¹⁷ For instance, in June 2017 the FSB published a report highlighting several supervisory and regulatory issues for sound and prudential regulation of financial technologies; in August 2017 the Basel Committee on Banking Supervision (BCBS) provided 10 recommendations on regulatory issues to be considered; and in October 2018 the World Bank Group and the IMF adopted the Bali Agenda on Fintech, which will serve as a blueprint for policymakers and the international community.

use of these data can result in positive outcomes, it could also give way to privacy issues, especially as the access of third parties to customer data increases thanks to open banking initiatives. Hence, financial authorities may need to consider the interaction of personal data protection frameworks with existing regulations, even if they do not have formal attributions in these matters. For example, authorities may like to explore localization directives for payments data such as the recently implemented by the Reserve Bank of India.

- **Competition.** Both financial institutions and consumers benefit from competition, since it fosters innovation and results in a more efficient market and better products and services. Although, in principle, regulation should not interfere with market forces, the creation of an environment in which competition can thrive sometimes requires the involvement of financial authorities. For instance, according to the CEMLA surveys, the majority of new entrants agree that issues related to competition, such as lack of access to traditional financial infrastructure (54%) and marked anticompetitive practices (50%), are the most relevant barriers limiting their entrance to the market. Financial authorities (not necessarily central banks) may therefore want to stay alert to identify any barriers to effective competition. Harmonized fees regulations such as those implemented by the EU Single Euro Payments Area (SEPA) may help to reduce anticompetitive practices. Sometimes, however, regulation is not enough to overcome the existence of opposing interests in the market, as the experience of the PSD2 in the EU shows (see box 3). In some jurisdictions, authorities are considering promoting mechanisms among innovative firms to guarantee interoperability, avoid anticompetitive practices and contribute to effective payment system oversight, such as the recently created China Nets Union clearing and processing platform.
- **Coordination among financial authorities.** Fintech innovations are relevant not only for financial authorities, but also for other authorities in charge of consumer protection, AML-CFT, cybersecurity, data protection, tax revenue or competition. In this context, cooperation across multiple authorities may be useful in order to have a more comprehensive approach to fintech and, therefore, achieve a more balanced and consistent regulatory outcome.
- **International coordination.** Fintech systems are typically constructed on regulations mostly tailored to a specific jurisdiction. However, innovations are usually not restricted to a single country and fintech companies tend to provide services beyond their domestic market. Therefore, financial authorities across the world may face the need to harmonize their regulatory frameworks as far as possible. In order to do so, increased international coordination and cooperation between jurisdictions would be useful in order to share experiences and concerns and, ultimately, prevent regulatory arbitrage. International coordination may take different forms ranging from discussion and sharing of information forums among authorities, to memorandum of understanding and regional agreements. Other aspects complementary to the regulatory framework, for instance sandboxing and resolution policies, may be more prone to formal agreements among authorities from different

jurisdictions.¹⁸ This is consistent with the proposed functional approach to regulate fintechs, since it focuses on coordinating the regulation of certain activities rather than of entities that have been deemed fintech. Finally, international organizations may play a relevant role in providing guides of best practices and general principles to regulate fintech activities.

Box 3: Data-sharing in the financial sector - the example of the PSD2

Both financial authorities and the financial industry worldwide are looking into the potential benefits and challenges of allowing bank customers to share their transaction and non-personal data with external third parties in a more flexible way. Competition, security, privacy and standardization are some of the key issues informing these discussions, giving rise to manifold initiatives at different stages of development. Alongside the case of the UK (labelled as Open Banking), the revised Payment Services Directive in the EU (PSD2) stands out as a prominent example of the many complexities faced when trying to design an enabling legal framework.

Unlike other broader propositions, the PSD2 mandates open access only to a limited set of payment-related data (namely, information on the so-called payment accounts) provided these are accessible online and an explicit consent from the client exists beforehand. It further requires recipients of this information (typically, non-banks) to be duly licensed, to identify themselves towards the banks, to use the data exclusively for the agreed purposes and to employ safe and efficient transmission channels. In turn, banks must refrain from discriminating these providers or their underlying transactions, and they cannot demand the establishment of a contractual relationship or apply specific fees on these operations.

Although the PSD2 provides a set of practical terms of reference for facilitating the information flow between interested parties, it has created heterogeneous perceptions among market players. In the spirit of ensuring technical neutrality, the PSD2 and its accompanying secondary legislation do not prescribe the use of Application Programming Interfaces (APIs). Moreover, they do not establish a global standard and model for API development. Without a voluntary coordination among banks, such a scenario is likely to see a proliferation of individual technical solutions, each of them with different characteristics. This represents major overheads and longer lead-in times for emerging players, to the detriment of effective interoperability. Furthermore, the abstract nature of certain provisions on key performance and service level targets may raise interpretation questions that could cause potential conflicts.

As an additional issue, the absence of an overarching data sharing initiative covering all sectors, has led banks, as account providers, to perceive a weakness as regards non-financial companies, which will be able to access their data without having to reciprocate.

Source: own elaboration with information provided by Bank of Spain.

¹⁸ Two relevant examples of such international collaboration and coordination are: the Global Financial Innovation Network (GFIN) and the European Forum for Innovation Facilitators (EFIF).

5. Other tools to enable innovation

Several jurisdictions are increasingly establishing spaces for collaboration and research between the private sector and financial authorities. These initiatives go beyond traditional regulation and are aimed to help authorities promote innovation while ensuring that the risks are properly managed. Furthermore, they might help financial authorities to deepen their understanding of the different business models, markets and technologies, which should result in better policymaking. In general, the majority of countries following this approach use of one or a combination of the following initiatives: regulatory sandboxes, innovation hubs, and public accelerators.

5.1 Regulatory sandboxes

A regulatory sandbox can be understood as a live, yet controlled, environment in which financial services providers can test new products, services or business models that do not necessarily fit into the existing legal framework, with a high degree of involvement by the authorities and without necessarily incurring in all the normal regulatory consequences of engaging in such activity. The UK and Singapore are the first and, so far, most relevant examples of countries with a regulatory sandbox. According to the October 2017 assessment of the Financial Conduct Authority in the UK¹⁹, its regulatory sandbox has been rather successful in fulfilling its objectives, and is having a positive impact on the price and quality of financial services in the UK.

In light of the UK experience, an initial conclusion could be that sandboxes might have some potential as a useful tool to promote innovation, and there may be merit in assessing whether CEMLA countries should consider actively working in the development of their own sandboxes, either with their own resources or by using CEMLA as a vehicle of collaboration. For instance, in Barbados, the Central Bank and the Financial Services Commission established in October 2018 a framework for a regulatory sandbox that aims at providing clarity for businesses offering viable and new fintech products, services and solutions. Furthermore, similar initiatives are about to be launched in other countries, such as Mexico, Colombia, Jamaica or Spain.

Nevertheless, it is worth noting that a regulatory sandbox may not be a viable option for all countries. Firstly, not all financial authorities may have in their legal mandates the competences needed to develop such an initiative. In addition, several CEMLA countries have a civil law-based legislation, which tends to be overly prescriptive and, hence, makes the implementation of a regulatory sandbox rather difficult. Assuming the previous barriers are overcome, another issue to consider would be the potential cost for the authorities of setting up a regulatory sandbox. This includes the actual financial costs as well as the human resources dedicated to having a close interaction with the companies participating in the sandbox²⁰. Furthermore, authorities would have to face the reputational risk of

¹⁹ FCA, 2017.

²⁰ For instance, the FCA states that “the sandbox provides access to regulatory expertise and a set of regulatory tools to facilitate testing. Sandbox firms are assigned a dedicated case officer who supports the design and implementation of the

things going wrong. That is, companies participating in the sandbox may be seen as “endorsed” by the authorities, regardless any disclaimer previously issued. Consequently, any problems encountered by users with those companies will impact the authority’s reputation. Despite the above, inaction and lack of understanding by financial authorities of the changes that are taking place in the financial sector could also come at a cost. Therefore, CEMLA countries may wish to consider carefully weighing all the pros and cons, as well as alternative options. Should a CEMLA country decide to set up a regulatory sandbox, certain considerations should be borne by financial authorities to properly design such a tool.²¹

Box 4: IADB recommendations on regulatory sandboxes ²²

Legal requirements. The legal framework should include provisions for establishing a sandbox and empowering the regulator to oversee it and to exercise discretion regarding waivers or temporary exemptions to companies in the sandbox.

Entry requirements and exit procedures. There should be eligibility criteria for accessing the sandbox that require the products/solutions being tested to be novel and provide great benefits to the customers, and the firm to have developed its business model and have a finished product for testing. The firm should also set out in advance remedies for possible damage/loss to customers during the testing period. A timeline for testing is recommended, which could be about six months, and it should be set beforehand.

Institutional capacity. The oversight and supervision of a sandbox requires specific organizational, technical and human resources, which should be determined in advance. It is important to ensure that the regulator/supervisor has adequate staff and financing to operate the sandbox in a way that does not interfere with its other responsibilities.

Inter-agency coordination. The fintech sector encompasses many different entities (e.g. banks, technology providers and telecommunications operators) and a single activity may fall within the purview of several laws or regulations. Where no comprehensive or mega regulator covering all types of entities and regulations exists, proper coordination procedures should be established among the different authorities.

Source: IADB, 2018.

5.2 Innovation hubs

Some countries, such as Uruguay, UK, Ireland or the Netherlands, have followed a different (or additional) approach to regulatory sandboxes and have set up an innovation hub. Through these

test”. Therefore, assuming that the capacity exists within the monetary authority, the cost in terms of human resources is not negligible.

²¹ The Inter-American Development Bank (IADB) recently published a set of recommendations as regards regulatory sandboxes (see box 4).

²² IADB, 2018.

hubs, authorities seek to promote the dialogue and exchange of information among different parties in the financial sector. The aim is to help fintech companies reducing the time and cost of navigating the legal framework, by providing regulatory guidance through a dedicated and dynamic communication channel.

Innovation hubs constitute an avenue that may be worth exploring in CEMLA countries. According to the CEMLA survey, only 25% of the respondents have considered following this approach. However, given that in principle they are much less resource intensive than regulatory sandboxes, they could be a good tool to promote innovation when there are limitations in this regard. In fact, experience in certain countries shows that innovation hubs help companies reduce the time-to-market of their projects and, at the same time, allow financial authorities to have a better understanding of financial innovations.

5.3 Accelerators

A few authorities (mostly central banks or supervisory agencies) are also setting up their own accelerators as part of their digital transformation strategies. These public accelerators are partnership arrangements between the authorities and fintech providers and/or universities, with the purpose of developing use cases and experimenting with new technologies or solutions that could be applied to central banking or supervisory activities. By incorporating new technologies in their daily operations, authorities may also facilitate financial institutions compliance with regulatory requirements. These partnerships, which have been set up in countries such as UK or France, allow central banks to improve their knowledge of the different innovations and, ultimately, harness fintech solutions to improve the way they carry out their tasks. At the same time, fintech firms get some insight into the needs and concerns that central banks may have as regards the different innovations.

CEMLA countries may probably only consider this option if the digital transformation of financial authorities is one of their priorities. In fact, while this approach provides a useful testing environment for small companies and academics and, as such, helps promote an innovative economy, it encompasses a very narrow scope (i.e. central bank operations) and, hence, the resulting benefits for the financial system at large may be limited. Moreover, although the resources needed to carry it out (both financial and staff) may not be as high as those required by a sandbox, they should not be underestimated.

6. Conclusions

The proliferation of innovations, in other words fintech developments, in the financial sector is a global phenomenon that also affects CEMLA countries. Fintech may bring opportunities for the region, particularly in the fields of financial inclusion, de-risking, efficiency and competition. Nevertheless, it also comes with a number of risks, e.g. cybersecurity and data protection, that need to be addressed, and financial authorities have a role to play.

Financial regulation has the potential to either foster or hinder innovation. A very rigid legal framework will impede innovations to be implemented, while a very relaxed regulatory environment will not provide an adequate level of protection to the financial system. Therefore, it is advisable, that in light of institutional and market conditions, to strike the right balance between ensuring that risks are properly managed and allowing the benefits stemming from innovations to be reaped.

Authorities may carefully assess each innovation in order to determine the need to regulate. The recommendations stemming from international organizations, as well as a number of basic principles, could be borne in mind in this process. In this sense, there may be a need for international coordination, worldwide and, especially, at the level of the CEMLA countries, in order to ensure the flow of all relevant information and the prevention of regulatory arbitrage.

Authorities may also want to consider the use of other non-regulatory tools (i.e. sandboxes, hubs or accelerators) that could also enable innovation. Such tools, which have already been implemented in several jurisdictions, could help authorities improving their knowledge of the different innovations while offering traditional and new players the possibility of testing new services, products or business models, and/or reducing the time and cost they would invest in navigating the regulatory framework. Given the opportunities, on the one hand, and the costs, on the other, that these initiatives entail, CEMLA countries may wish to carefully assess whether and how they fit into their overall strategy.

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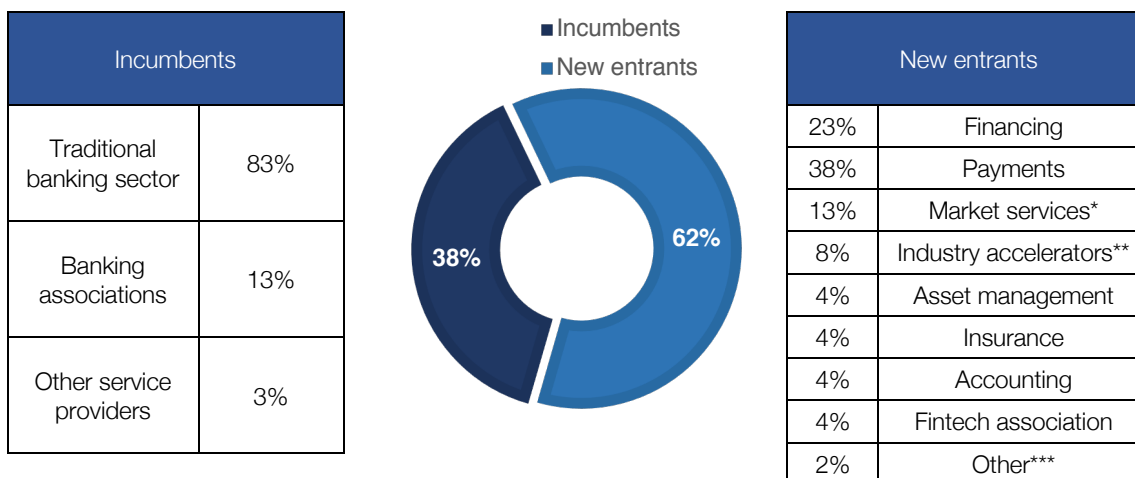
Annex 1. Private Sector Survey

This annex summarizes the results of a survey designed and conducted by the REG WG across the region. The survey, named “Fintech Questionnaire for Private Sector in LAC”, was aimed to collect recent experiences, practices and developments about financial technologies in Latin America and the Caribbean, from the perspective of industry players, new entrants and incumbents.

The survey²³ was sent to 176 institutions from 17 countries and was completed by 78 entities of 15 countries²⁴. After being sent on July 25, 2018, the institutions had around two months to answer the survey. The survey was divided in 3 sections: a) General overview, b) Regulatory aspects, c) Risk and challenges. This report follows the same structure of the survey, and in some cases the findings are presented with a breakdown per type of industry player.

The list of respondents is divided in two groups, 48 respondents representing the fintech related players (new entrants, hereinafter) and 30 associated with the traditional financial institutions (incumbents, for the purpose of this report).

Composition of the respondents:



* Fintech Platform, Technology solutions, Open Banking, Cybersecurity.

**Accelerators, Entrepreneurship, development and promotion hubs, Innovation and technology institutes and international organizations

***Pricing and procurement management companies.

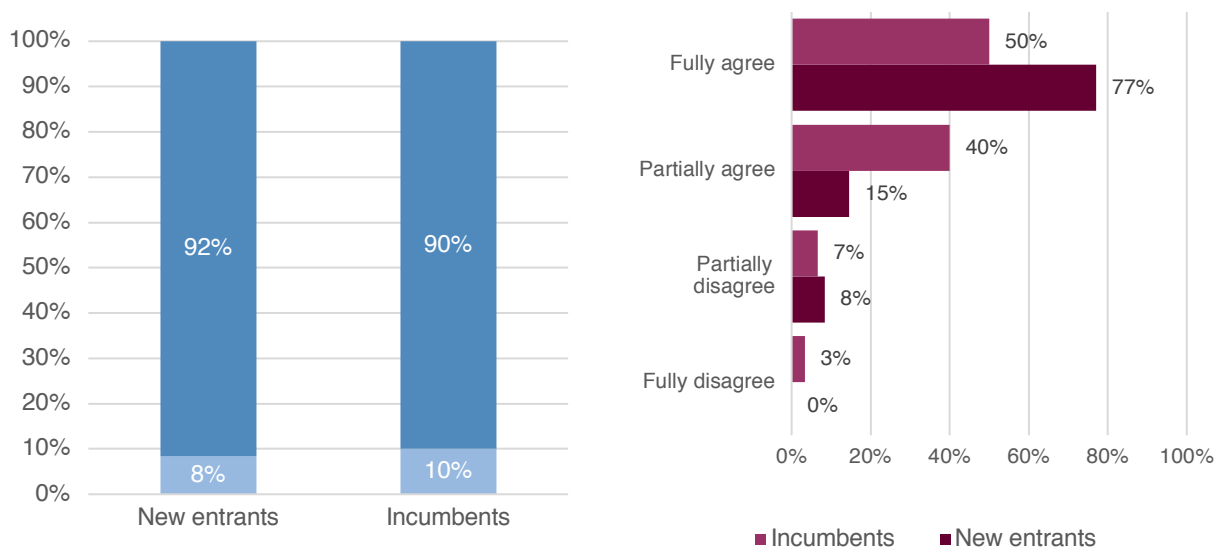
²³ A template of the survey can be found at the end of this annex.

²⁴ Entities from private sector that participated in the survey, comprise the following countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Curaçao and Saint Marteen, Ecuador, Guatemala, Honduras, Jamaica, Peru, Dominican Republic, Spain, United States, Uruguay.

Section A. General overview

This section relates to the perception on how important are fintech developments for the industry, which are the main actors driving innovation and market changes, and what is the perspective in the short- and mid-term for this transformation in the region.

Are fintech developments important, nowadays:



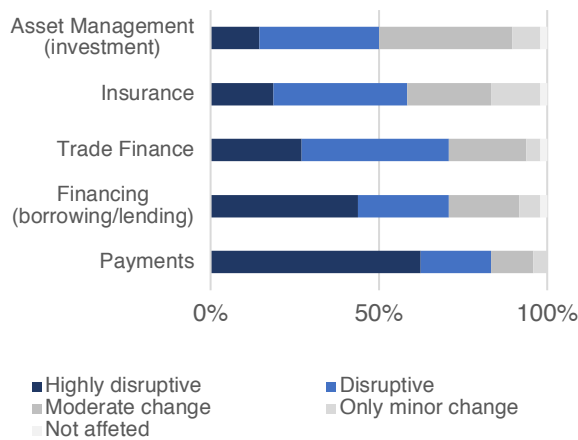
- Most of the respondents are totally or partially agree (92% of new entrants and 90% of incumbents) that fintech developments are relevant in their jurisdictions (left graph). However, it can be noted certain opinion gap between incumbents and new entrants, 77% of the latter are in full agreement, while only half of incumbents agrees (right chart). The following table orders the most relevant reasons why fintech is deemed important and explain these differences, according with the frequency of each comment.

| Fintech developments are important due to: | |
|---|--|
| New entrants | Incumbents |
| <p>FINANCIAL INCLUSION AND COMPETITION: Both aspects are equally important for new entrants, while for incumbents financial inclusion ranks at the bottom.</p> | <p>EFFICIENCY: Incumbents consider this the most relevant aspect why fintech is important, by stating that "there will be efficiency gains by using fintech to solve traditional processes implemented with existing technology."</p> |
| <p>EFFICIENCY: New technologies brings efficiency to traditional processes or products. A general comment is that "implementing more efficient solutions increases quality".</p> | <p>COMPETITION: Fostering market competition thru fintech is also relevant for incumbents. A general comment is that "fintech is important for the development and improvement of banking services."</p> |

| | |
|---|--|
| <p>UNFULFILLED NEEDS: It is mentioned that fintech can meet unbanked people needs and also may provide opportunities for underserved market niches.</p> | <p>FINANCIAL SECTOR TRANSFORMATION: Incumbents ranks this aspect higher compared to new entrants; the former deems fintech brings agility to products and processes, forcing incumbent companies to adapt and compete.</p> |
| <p>FINANCIAL SECTOR TRANSFORMATION: With the lowest relevance, it was found that new entrants deem fintech can renew and democratize finance.</p> | <p>FINANCIAL INCLUSION: With the lowest importance, this aspect is higher ranked by new entrants.</p> |

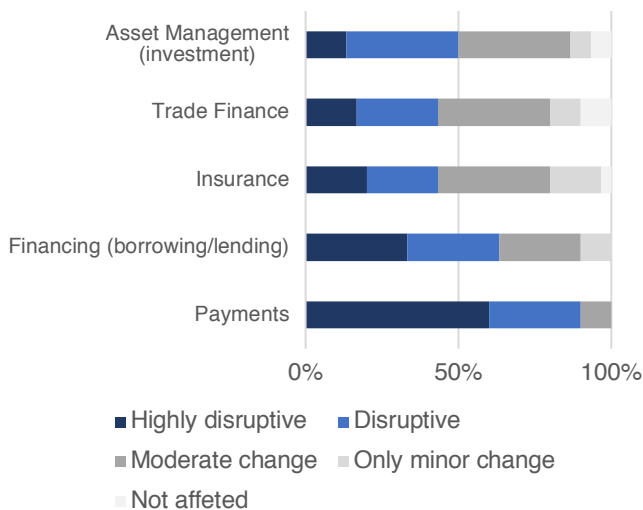
Fintech impact in financial activities

New entrants perspective



- New entrants found that fintech will considerably impact all financial services, especially payments, followed by financing and trade finance.
- Above 60% of respondents consider that payments will be the sector with the greatest impact.
- Less than 20% believe that asset management will be highly disrupted by fintech.

Incumbents perspective

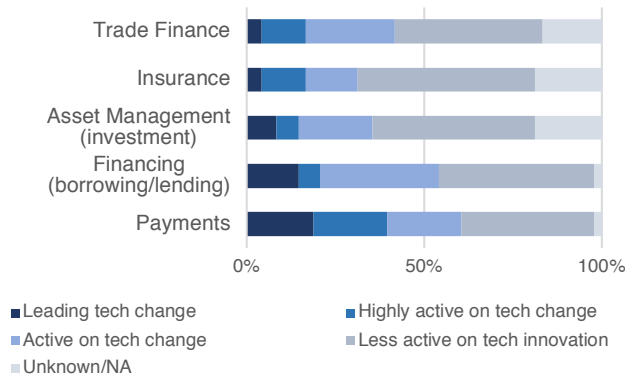


- For Incumbents, only payments will be highly impacted, 90% of respondents indicating a disruption of considerable influence.
- Financing could also be disrupted, but with less impact, while almost 40% of respondents consider minor or moderate changes.
- Compared to new entrants, incumbents do not see a high degree of disruption for trade finance and insurance.

- Other segments mentioned by new entrants to be highly disrupted are: cryptocurrencies, microfinance (SMEs financing and cooperatives), remittances and savings. According to incumbents, the segments that will face a highly disruptive change are: cryptocurrencies, remittances and peer-to-peer transfers.

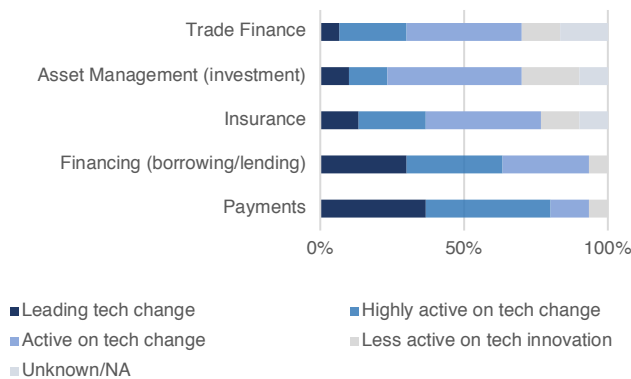
Entities leading technological innovation

Incumbents, in the view of new entrants



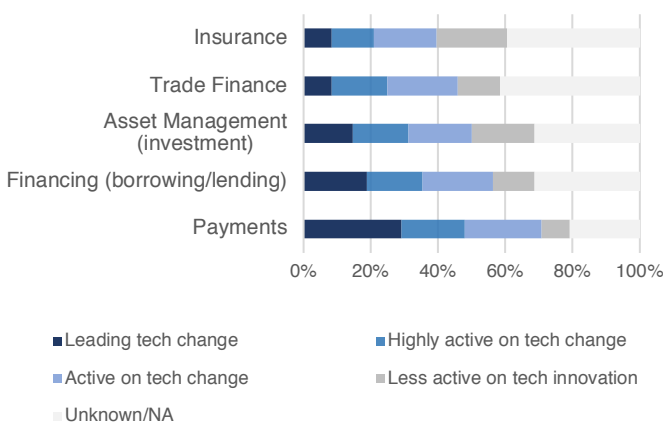
- On average, 44% of respondents indicated that incumbents are less active in technological innovation.
- Payments and financing are considered the segments where incumbents are more tech active.

Incumbents, in their own view:



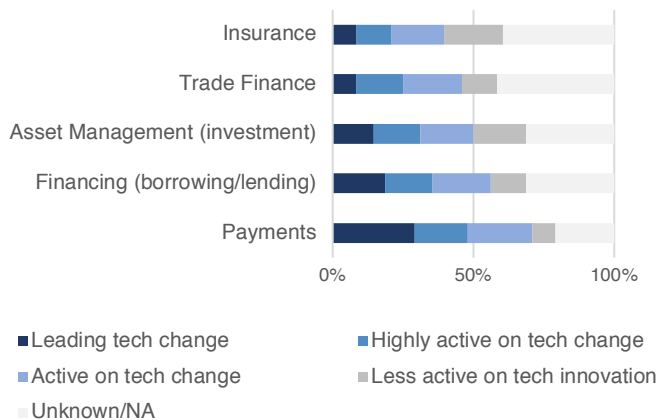
- In all financial sectors, almost 75% of incumbents deem they have an active role in technological change.
- Above 90% of the incumbents consider that they lead or have a highly active role for technological change in payments and financing.

New entrants, in the view of incumbents:



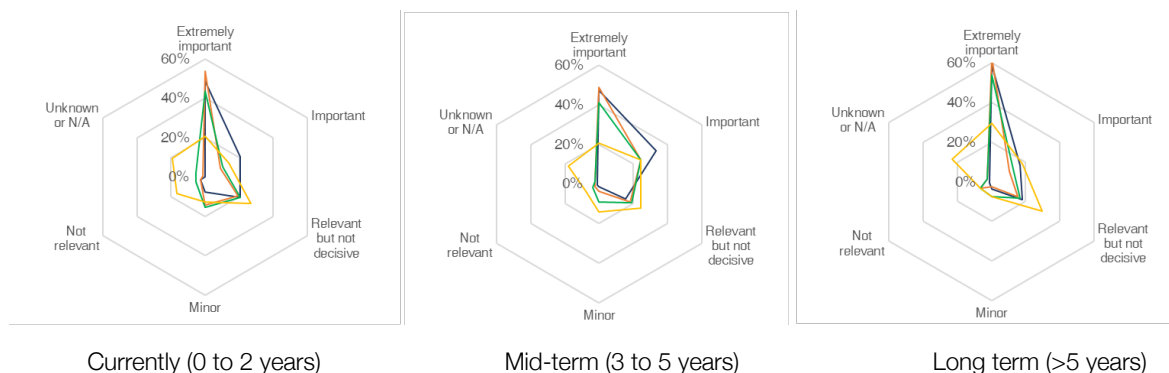
- Although incumbents consider they lead innovation in payments, they also agree that new entrants are leading or highly active (46%) in this financial sector.
- A high degree of incumbents reported an unknown role of new entrants in leading innovation.

New entrants, in their own view:



- New entrants consider themselves having a very active or leading role (above 50% of respondents) in technological changes in payments, financing and asset management.
- New entrants reported to have limited activity or knowledge in innovating in insurance and trade finance.

Importance of fintech-related aspects in the coming years.



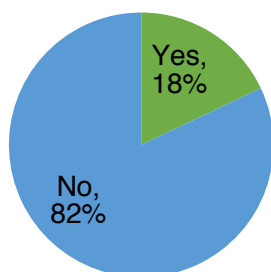
—Tech improvements —Cybersecurity resilience —Regulatory attunement —Cross-border cooperation

- Cybersecurity is considered by 54% of respondents the most important aspect to deal with in the coming years, followed by other technological improvements and regulatory changes.
- Over time, all the identified fintech aspects remain with the same priority.
- In general, international cooperation is seen as relevant but not decisive by 27% of respondents.
- From the perspective of incumbents, cyber-resilience is the most relevant aspect across the time.
- From the perspective of new entrants, technological improvements is consider the most relevant aspect.
- In terms of regulatory changes, incumbents grant greater importance over time, while new entrants deem this aspect less relevant across time.

Section B. Regulation for fintech

This section addresses specific aspects of the current legal and regulatory framework in the region regarding financial technologies.

Existing Fintech legal framework (all respondents):



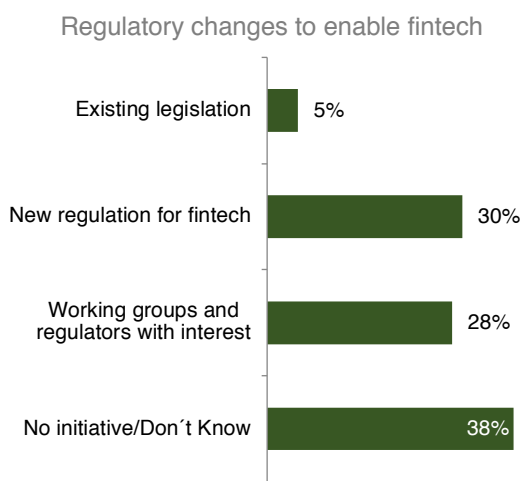
Legal framework total (%)

- Over 80% of respondents indicated there is no fintech regulation in place.
- Note, however, that almost all positive answers correspond to countries where competitors in the same segment have no recollection of the corresponding regulation, so there might be a miscommunication problem (i.e. entities could be subject to regulation they do not know about).

Jurisdictions with existing fintech legal framework:

- Respondents indicating the existence of a specific or enabling regulatory framework pointed out that:
 - Payment law enables fintech activity in payments services and systems. Including functions such as aggregation, cards issuing; e-wallet; payment processing, and others.
 - Existing legal framework for non-banks states that entities providing support services may fulfill operational requirements, including technology related aspects, AML/CFT, accounting standards, etc.
 - Domestic fintech association works with authorities to introduce a legal framework.

Jurisdictions with initiatives to regulate fintech (all respondents):

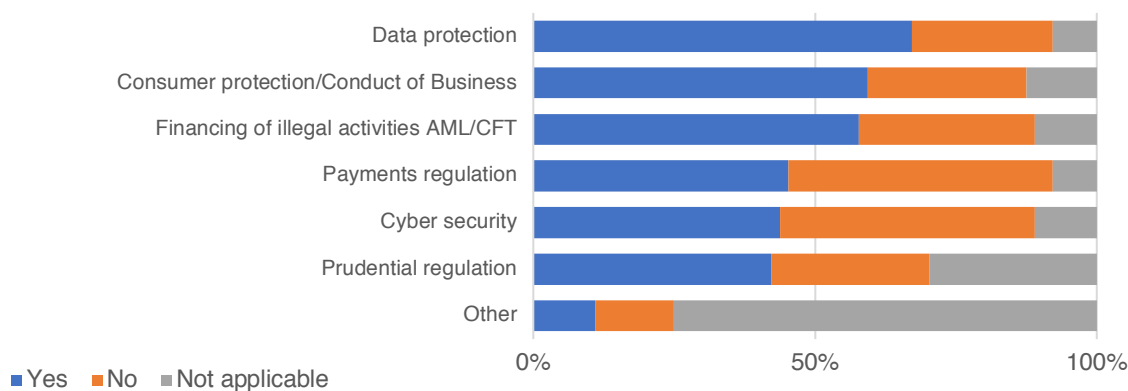


- Respondents, in general, acknowledged there is interest, and in some cases, initiatives, from authorities regarding fintech regulation.
- Respondents provided additional comments related to initiatives to regulate fintech in their respective jurisdictions:
 - 30% indicated that new regulation for fintech is under review or analysis.
 - Only 5% mentioned that from the existing regulation, they are considering to develop fintech aspects.
 - Another group mentioned the existence of working groups, and authorities showing interest in developing this.
 - A significant share indicated no knowledge or no known initiatives.

Jurisdictions with no specific fintech legal framework:

- The group of respondents indicating there is no specific fintech legal framework were asked if the existing regulations could meet the needs related to new entrants (and fintech, in general).

Aspects for fintech that could be covered with existing legal framework



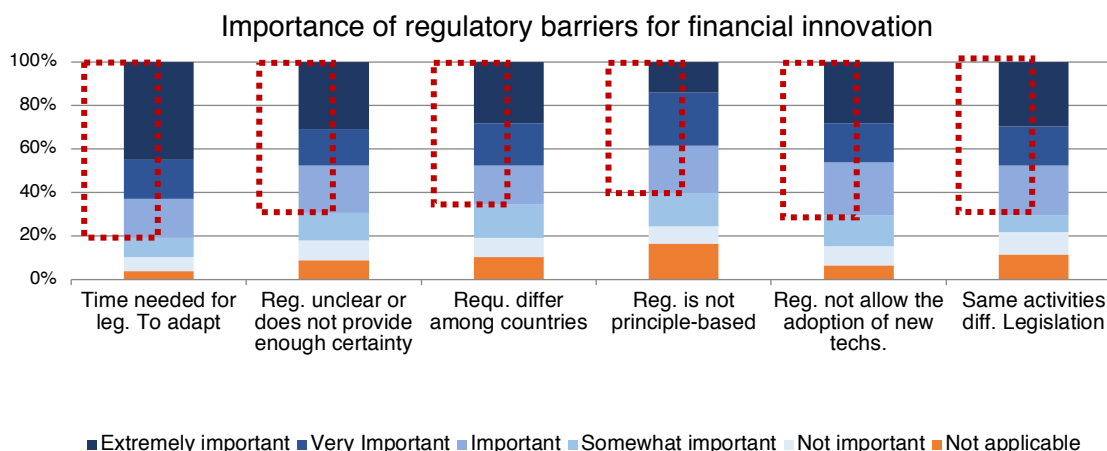
- From the above chart, it can be summarized that:
 - Data protection, followed by consumer protection and AML/CFT, are the regulatory fintech aspects that over 50% respondents deem could be addressed.
 - Cybersecurity and payments regulation are two important regulatory aspects that only 1 of 4 respondents deemed could be addressed currently as regards fintech.
 - Prudential regulation is an aspect that respondents found not applicable to fintech.
 - New entrants consider that all fintech regulatory aspects could be covered with the current legal framework. Incumbents see the highest regulatory gap in payments and AML/CFT.
- Regarding other possible areas of regulation that could be addressed with existing legal framework, it was found that:
 - 37% of respondents deem regulation could be a barrier -or is not designed- to promote innovation.
 - There is further need for specific regulation on data and consumer protection (22%) as well as cybersecurity (15%).
- It is important to note that respondents were given the opportunity to provide an open answer, resulting in heterogeneous and imprecise results. From these answers, it could be concluded that communication channels between new entrants and authorities should be promoted.
- For those who answered positively to the current legal framework being able to address fintech aspects, the main reasons given were that prudential and payment regulation is able to adapt,

and consumer and data protection as well as AML/CFT are precisely defined and not representing an issue for new entrants.

- For those who answered negatively to the current legal framework being able to address fintech aspects, the main reasons given were that only AML/CFT regulation could meet the fintech needs to a certain extent, but that other regulatory aspects could “not at all” be adapted. The latter were mainly answered by incumbents. This could be also interpreted as a degree of discontent of respondents that are already regulated; which is confirmed by the high share of new entrants considering that the existing legal framework could meet fintech needs with few exceptions.

Regulatory barriers for financial technologies

- The group of respondents ranked the importance of related-regulatory issues that could be a barrier for financial innovation, resulting in the following:
 - All aspects are considered important for over 50% of respondents, but time needed to adapt regulation or that regulation does not allow changes are seen as the most important barriers.
 - The reasons given to explain the importance of these potential barriers were the need for regulatory initiatives to promote fintech, excess of bureaucracy, the need for interinstitutional coordination for functional (instead of sectorial) regulation, lack of level playing field considerations, the need of clear legal frameworks, lag of legal reforms, and the rapid change of technology.

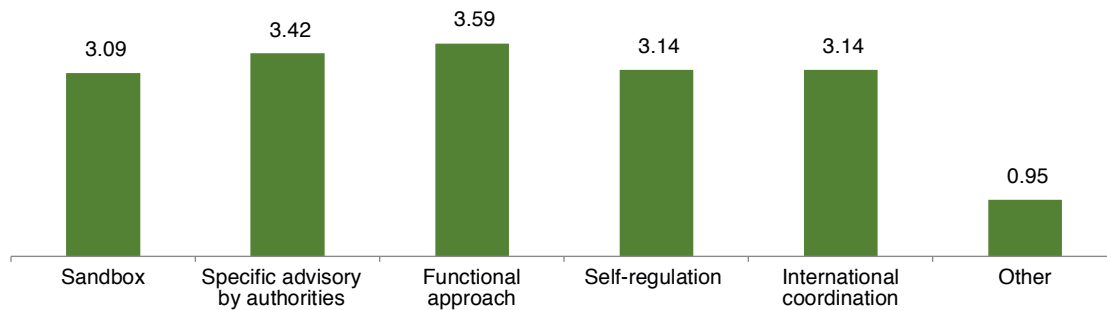


Best regulatory approach to enable financial technologies

- The group of respondents ranked the usefulness of different regulatory approaches to enable fintech and innovations. It was found that:
 - Establishing a functional approach followed by specific guidance by authorities will be the most useful approaches.

- Sandboxes ranked low due to various respondents considering this an unknown. Yet, the respondents with a positive ranking, valued this approach much.
- “Other” suggested approaches included better inter-institutional coordination and the use of best international practices.

Level of usefulness of regulatory approach to enable fintech and innovation (max. 5.0)

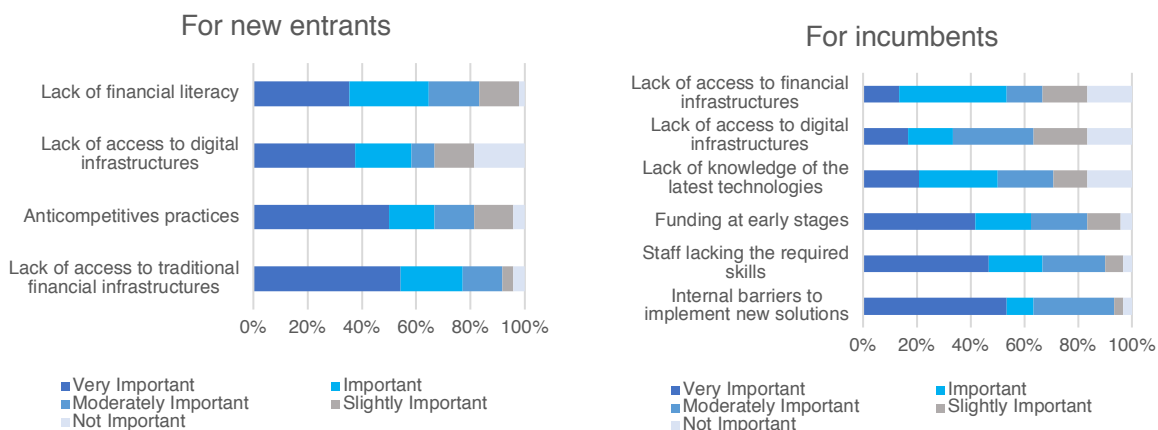


- Besides the level of usefulness that respondents see in the various approaches, further comments were provided in the following terms:
 - Existing regulation in general could be a barrier for fintech and innovation, it is especially important that regulation be proportional and able to adapt to new technologies and services-based (functional).
 - Self-regulation is perceived as a hazard and as a source for unlevelled playing field.
 - New entrants referred to the (positive) international experience related to regulatory sandboxes as a temporary approach, but this deserves further study regarding its scope and implementation.
 - The need for better communication of rules and requirements, as well as the international coordination were also mentioned.

Section C. Risk and challenges

This section relates to main risks related to financial technologies development, as well as related non-regulatory barriers and actions taken to overcome existing challenges.

Non-regulatory barriers for financial technologies



- Respondents identified the relative importance of various non-regulatory issues that could act as a barrier for financial technologies.
- In the point of view of new entrants, it can be said that:
 - All identified barriers are deemed important -or very important- for over 60% of respondents.
 - 54% of the respondents agreed that the lack of access to traditional financial infrastructure is the most important barrier due to its relevance for the provision of most financial services, followed by 50% that marked anticompetitive practices as the second most relevant barrier. It is stated that unfair pricing to access financial infrastructure and lack of cooperation from incumbents may largely explain this. It is also mentioned that conflict of interests by infrastructures’ operators and the slow reaction by regulators could also be a key factor.
- For incumbents:
 - It was found that the most important barriers are internal. The inability to implement new solutions (53%) and the lack of staff and/or required skills (47%) were the most relevant issues given, mainly, organization’s cultural issues, opportunities for training in new technologies and outdated technological infrastructure and internal processes.

Suggested measures to overcome barriers related to financial technologies

- The following table orders the different solutions and measures that the respondents agreed to be taken to overcome barriers affecting financial technologies development.

| New entrants | Incumbents |
|--|---|
| <p>REGULATORY FRAMEWORK: This is the most significant type of measure for new entrants. From the various comments, it is suggested to develop/strengthen a fintech legal framework that reduces asymmetries between players, incentivize innovations, being proportional and predictable according to a new ecosystem and enforced by a single regulator.</p> | <p>REGULATORY FRAMEWORK: Like the new entrants, incumbents found regulatory measures as the most relevant to carry on. It is suggested to have a clear and uniform regulation for all players, able to reduce asymmetries (e.g. payments systems), to set a level playing field and to improve risk management. Incumbents deem that regulators should also be more proactive.</p> |
| <p>SANDBOXES AND/OR ACELLERATORS: This is another measure frequently mentioned. And, it is mentioned that such measure should help to test new technologies and innovations at a lower risk.</p> | <p>INVESTMENT IN INNOVATION: This is the second most mentioned measure by incumbents, suggesting that further investment in innovation related to financial services as a business strategy should be promoted, either by incentivizing investing in venture capital (limiting capital burdens) or by promoting research and development programs.</p> |
| <p>FINANCIAL LITERACY: Respondents suggested to educate regulators and the general public as regards new technologies and its implications.</p> | <p>COOPERATION: Incumbents prioritize collaborative measures more than new entrants. It is suggested to establish multidisciplinary groups across market sectors, and explore partnership between banks and start-ups.</p> |

| | |
|--------------|------------|
| New entrants | Incumbents |
|--------------|------------|

INTEROPERABILITY: This is a kind of measure that new entrants grant less importance, but it is suggested to promote interoperability between digital and banking accounts and to facilitate the use of financial infrastructure for all parties.

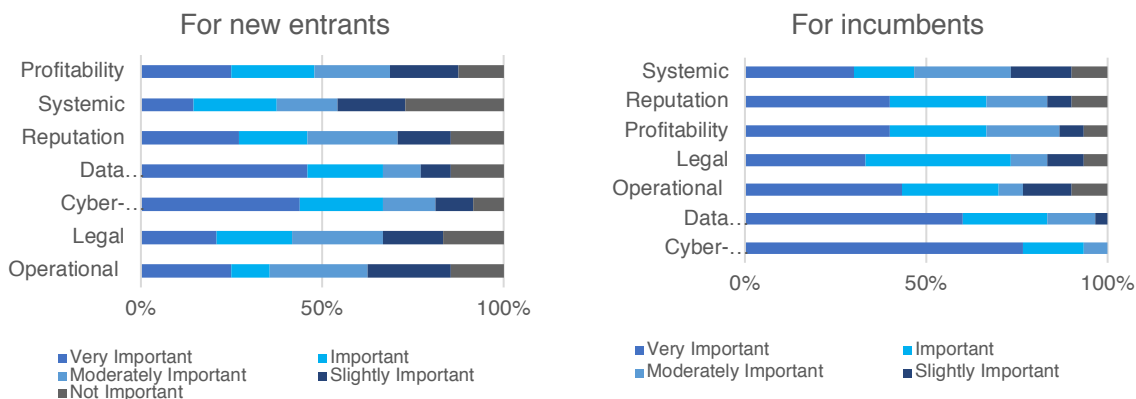
DIALOGUE BETWEEN THE PARTIES: This is the type of measure that respondents granted the least relevance.

TRAINING:

- programs to provide employees with specialized knowledge in new technologies.

Risks introduced by fintech developments

- Respondents were given the opportunity to identify potential risks stemming from fintech developments. In general, over 50% of them agreed that cybersecurity and data protection are the most important risk introduced by fintech developments, followed by reputational and operational risks (32%). This, however, changes when looking at the perspective of new entrants and incumbents.



- For new entrants, it can be seen that:
 - Cybersecurity and data protection are ranked (67%) as the most important (very important or important). They consider that safety is fragile all over the ecosystem, and it is imperative implementing measures and controls to contain cyber-attacks.
- For incumbents, it is concluded that:
 - Cybersecurity is even more important (77%) due to the fact that fintech lack resources to implement and maintain the highest level of safety and protection.
 - Data protection deserves special attention. In particular, the lack of controls causes vulnerabilities (e.g. protection of private information in new platforms may be compromised).

Ongoing response to mitigate/prevent risks related to fintech development

- The following table summarizes (by order of mentions) actions that have been undertaken by incumbents and new entrants in light of potential risks related to the development of financial technologies.

| New entrants | Incumbents |
|---|--|
| <p>RISK MANAGEMENT AND COMPLIANCE: The group of new entrants mentioned more frequently the implementation of sound and up-to-date risk management policies and best practices to deal with financial and operational risks. They also argue the adoption of appropriate technologies and solutions to ensure operational continuity. Some specific measures mentioned by new entrants range from external audit, database encryption, open API protection, deployment of ethical hacking programs and neural networks, appropriate reporting lines, cybersecurity prevention, among others.</p> <p>Another measure less frequently mentioned by new entrants is the development of internal capacity, and the establishment of a compliance and product development areas with emphasis in risk prevention and mitigation.</p> | <p>PARTNERSHIP: Incumbents most frequently mentioned to deal with risk related to fintech, and the effort to partner with new entrants displaying more potential to benefit the industry as a whole.</p> |
| <p>PARTNERSHIP: New entrants also mentioned they are active in fostering new partnerships to scale up their business capacity and expand product design and knowledge, as well as to continue creating synergies.</p> | <p>RISK MANAGEMENT: The list of respondents mentioned to have a clear definition of responsibilities and roles fostering appropriate risk management arrangements. Also, it was mentioned that throughout multidisciplinary groups to study the fintech developments and the exchange of experiences they are able to monitor potential risks related to said technologies.</p> |
| <p>DIALOGUE AND COLLABORATION: As the least mentioned measure to prevent risks related to fintech development, new entrants mentioned the impulse of cooperation with other industry participants to pinpoint hurdles in their regulations or licensing criteria. Some respondents mentioned the dialogue with regulators to submit suggestions of new and existing regulations</p> | <p>INVESTMENT: In contrast with new entrants, incumbents stated to be active in increasing resources devoted to research and development of new technologies. As part of this, it was highlighted that said investment allows to analyze potential risks and related measures which could result in new products or internal policies, and more importantly balancing risks and innovation.</p> |

Fintech Questionnaire for Private Sector in LAC template

You are requested to answer the following questions. We do not expect a precise or exhaustive evaluation, but rather want to obtain an idea of the phenomenon in your country.

Make sure you answer all the questions in the spaces provided following the instructions of each section.

Answers provided should be relevant for your jurisdiction/country

| |
|---|
| Contact info |
| Name |
| Position |
| Organization |
| Segment |
| Country |
| Contact e-mail |
| Contact number |
| Section A: General overview |
| How important are FinTech developments in your jurisdiction? a) Are FinTech developments important in your jurisdiction? b) The financial ecosystem is beginning to change (and most of the changes will be observed on the next years) c) We are already observing an important change on the ecosystem d) Competition by newcomers is the main driver of the process e) Developments by incumbent institutions is the main driver of the process |
| If you partially or fully agree with a), please explain to what extent and why FinTech developments are important: |
| Which segments of the financial sector do you think will be the most impacted by Fintech developments? a) Financing (borrowing/lending) b) Insurance c) Asset Management (investment) d) Payments e) Trade Finance f) Other |
| In case you answered "other", in the previous question, please specify the sector you referred. |
| Which type of entities are leading technological innovation in your financial market? Traditional (incumbent) financial institutions in: a) Financing b) Insurance c) Asset Management d) Payments e) Trade Finance New regulated players in: |

| |
|---|
| <ul style="list-style-type: none"> a) Financing b) Insurance c) Asset Management d) Payments e) Trade Finance <p>Non-regulated players in:</p> <ul style="list-style-type: none"> a) Financing b) Insurance c) Asset Management d) Payments e) Trade Finance <p>Non-resident entities in:</p> <ul style="list-style-type: none"> a) Financing b) Insurance c) Asset Management d) Payments e) Trade Finance |
| <p>In case you answered "other", in the previous question, please specify the type of entity you referred.</p> |
| <p>Please indicate the importance/impact of each of the following aspects on financial innovation in the coming years.</p> <p>0 to 2 years</p> <ul style="list-style-type: none"> a) Technological improvements b) Cybersecurity resilience c) Regulatory attunement d) International cooperation as a cross border solution e) Other <p>3 to 5 years</p> <ul style="list-style-type: none"> a) Technological improvements b) Cybersecurity resilience c) Regulatory attunement d) International cooperation as a cross border solution e) Other <p>>5 years</p> <ul style="list-style-type: none"> a) Technological improvements b) Cybersecurity resilience c) Regulatory attunement d) International cooperation as a cross border solution e) Other |
| <p>In case you answered "other", in the previous question, please specify the topic/issue you referred.</p> |
| <p>Is there any specific FinTech legal framework in the jurisdiction you operate?</p> |
| <p>If there is a FinTech legal framework, please describe its main features.</p> |
| <p>In case there is no specific FinTech legal framework, does the existing regulatory framework (in each of the areas mentioned below) meet the needs of the financial sector to address FinTech-related activity.</p> |

| |
|---|
| <ul style="list-style-type: none"> a) Prudential regulation b) Payments regulation c) Consumer protection/Conduct of Business d) Financing of illegal activities AML/CFT e) Data protection f) Cyber-security g) Other |
| <p>In case you answered "other", in the previous question, please specify the area you referred.</p> |
| <p>Please, explain briefly.</p> |
| <p>Regarding those areas where you answered Yes, what would be the main reason that this framework addresses these needs?</p> <ul style="list-style-type: none"> a) Prudential regulation b) Payments regulation c) Consumer protection/Conduct of Business d) Financing of illegal activities AML/CFT e) Data protection f) Cyber-security g) Other |
| <p>Regarding those areas where you answered No, what extent does the legislation fail to meet your requirements?</p> <ul style="list-style-type: none"> a) Prudential regulation b) Payments regulation c) Consumer protection/Conduct of Business d) Financing of illegal activities AML/CFT e) Data protection f) Cyber-security g) Other |
| <p>To what extent are the following factors an impediment to financial innovation</p> <ul style="list-style-type: none"> a) Time needed for legislation to adapt to new developments b) Regulation is not clear or does not provide enough certainty c) Requirements differ among countries d) Regulation is not principle-based e) Regulation does not allow the adoption of new technologies f) Participants carrying out the same activities are not subject to the same regulation g) Others |
| <p>In case you answered "other", in the previous question, please specify the factor you referred.</p> |
| <p>Please provide arguments for your answer:</p> |
| <p>Which regulatory approach do you consider best in order to enable FinTech innovation?</p> <ul style="list-style-type: none"> a) (Temporary) Sandbox b) Specific advisory channel provided by the authorities to inform about relevant regulatory requirements c) Functional instead of sectorial approach (services-based regulation and supervision) d) Self-regulation / Best practices defined by industry participants e) International coordination f) Other |

| |
|--|
| In case you answered "other", in the previous question, please specify the approach you referred. |
| Comments on these approaches |
| Besides regulation, which other barriers may be affecting financial technologies to take place? Note: If possible, provide specific examples in each barrier. (for new entrants) a) Anticompetitive practices b) Lack of access to traditional financial infrastructures c) Lack of access to digital infrastructures d) Lack of financial literacy e) Other (specify) |
| In your opinion, what measures do you think should be taken in order to reduce or eliminate those barriers? |
| In your opinion, what risks do you think FinTech developments are introducing in the financial system? (Indicate the importance of each). Please, provide some example of each risk. a) Operational b) Legal c) Cyber-security d) Data protection e) Reputational f) Systemic g) Profitability h) Other |
| What actions have your entity undertaken to reduce or eliminate those risks? If possible, please elaborate: |

Annex 2. Authorities Survey

This annex summarizes the results of a survey designed and conducted by the REG WG across the region. The survey, named “Fintech Questionnaire for Financial Authorities in LAC”, was aimed at finding key facts related to the current state of fintech from the perspective of central banks and to also taking stock of current practices and efforts towards a regulatory fintech enabler framework in Latin America and the Caribbean.

The survey was sent to 22 central banks and answered by 17 of them²⁵. After being sent on July 19, 2018, central banks were given with one month to answer the survey. The survey was divided in 5 sections: a) Importance of fintech, b) Impact of fintech, c) Providers, d) Barriers, and e) Possible solutions. This report follows the same structure of the survey and displays aggregated results.

Section A. Importance of fintech

This section relates to the perception on how relevant is and will be the fintech agenda for each country in the region.

Current status:

- 59% of the respondents agrees that currently the fintech agenda is important in their country.
- 88% (fully or partially) agrees that fintech will yield benefits and opportunities.
- Likewise, it is recognized that the existence and development of fintech pose new risks to the financial system, more than half of the respondents fully agrees with this statement, while 6% are partially in disagreement.

The reasons why fintech is perceived as an important issue are mainly the following:

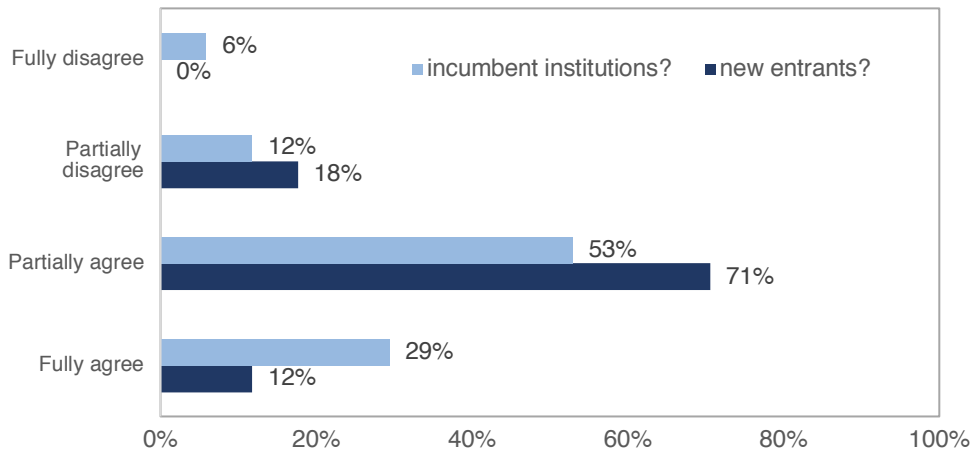
- Fintech presence may promotes financial inclusion.
- Fintech players have the potential to foster competition by means of disrupting innovations in products and business models.
- Fintech presence can reduce costs in the value chain and potentially make banking services more affordable.
- Fintech may foster a major use of electronic payments.
- Fintech can improve efficiency by means of the innovative products and business models, providing an opportunity to enhance customers’ experience.

²⁵ Banco Central de Bolivia; Banco Central de Chile; Banco Central de Costa Rica; Banco Central de Honduras; Banco Central de la República Dominicana; Banco Central de Nicaragua; Banco Central de República Argentina; Banco Central de Reserva de El Salvador; Banco Central de Reserva del Perú; Banco Central del Ecuador; Banco Central del Uruguay; Banco de España; Banco de Guatemala; Banco de la República (Colombia); Central Bank of Brazil; Central Bank of Trinidad and Tobago; Centrale Bank van Curaçao en Sint Maarten.

Forward looking:

- 94% of the respondents totally agrees that fintech and innovations will continue to be deployed in the future.
- Regarding a possible disruption in the current ecosystem due to fintech, 70% of respondents deem this will happen in their jurisdictions.
- Finally, 88% fully or partially agrees that the fintech development will have an impact on traditional banking and markets (products and business models).

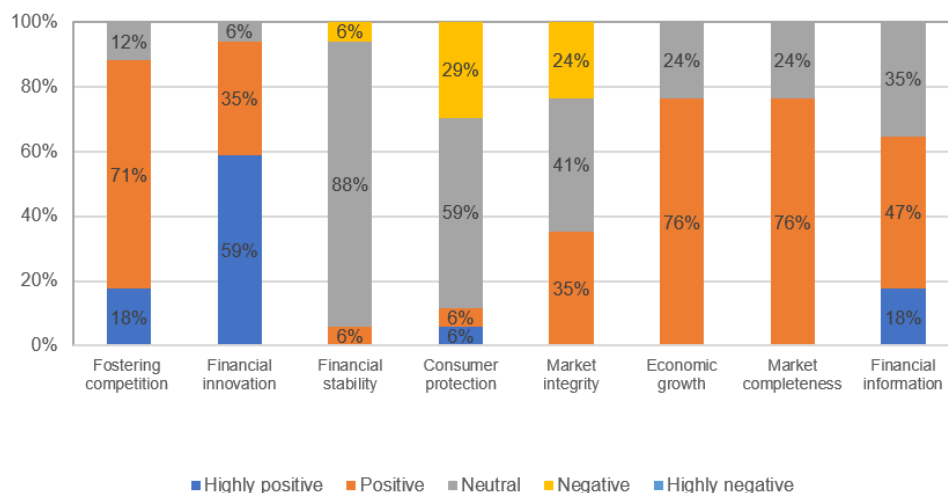
Are financial innovation led by...



Section B. Impact of fintech

This section addresses the impact of fintech in various policy and regulatory aspects that are relevant for financial authorities, including central banks' responsibilities.

Fintech impact in..



The following table summarizes the motivation and expectations on the potential impact could bring to various policy and regulatory aspects, such as competition, financial stability, among others.

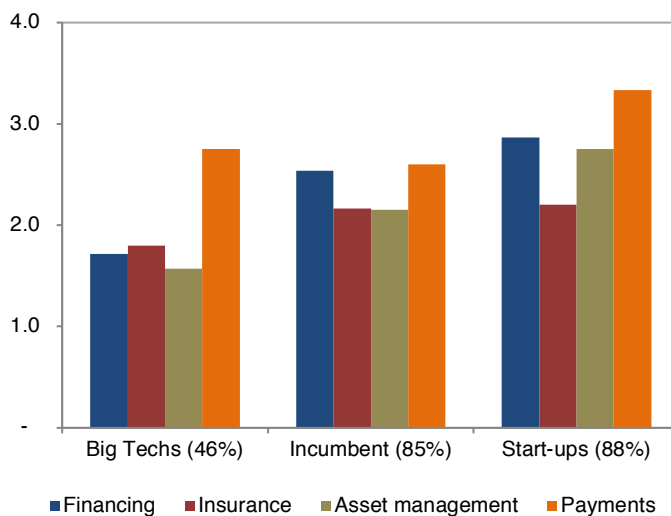
| Will fintech impact | Motivation |
|---|---|
| Fostering competition (71% positive) | <ul style="list-style-type: none"> New competitors, new services and higher specialization may serve as incentives to enhance quality and efficiency. Fintech will stimulate incumbent financial institutions to innovate and reduce costs |
| Financial innovation (59% highly positive) | <ul style="list-style-type: none"> New technologies shifting traditional products and business models may ultimately benefit the customers. New solutions will make cheaper, faster and more convenient available products and business models. New technologies may help tackling physical geographical and time barriers, affecting positively unbanked and under-banked |
| Financial stability (88% neutral) | <ul style="list-style-type: none"> An appropriate risk management framework and assessment could help to reduce any potential negative impact in the short-run, while in the long-run, if well regulated, fintech could be highly positive. A balanced approach between regulation and innovation is required. |
| Consumer protection (59% neutral) | <ul style="list-style-type: none"> Appropriate regulation framework may be important to avoid/address abuse practices. Fraud and similar crime activities may be more prevalent due to the technological nature of new products. New and more transparent ways of providing financial services can foster consumer protection. But, also the risk for customers given misunderstood or opaque terms on liabilities and risks. |
| Market integrity (41% neutral) | <ul style="list-style-type: none"> New business models are arising and bringing more transparency to the market, improving overall market practices. New entrants are associating and imposing kind of self-regulation and peer-monitoring, which could benefit sound practices. In case of insufficient regulation and related policy, where no transparency and good governance are in place, negative effects should be expected. |

| Will fintech impact | Motivation |
|--|--|
| Economic growth (76% positive) | <ul style="list-style-type: none"> To the extent that fintech can be regulated and that their potential to contribute to efficiency gains by a better resources' allocation, its contribution to economic growth is feasible in the long-run. In the short and mid-run there may be significant costs (in particular, for traditional financial institutions). There could be new opportunities for SME and market competition. In this sense, fintech can be considered a driver of economic growth. |
| Market completeness (76% positive) | <ul style="list-style-type: none"> Greater availability of services, lower costs, lower information asymmetries, and more information and transparency to the market New features of products, allowing to meet and better address customers' needs. |
| Financial information (47% Highly positive) | <ul style="list-style-type: none"> Digitalization and new technologies may facilitate access and use of financial information. New concepts and business models are being developed with strong incentives to increase the flow of financial information and customers data. Greater traceability of the agents' economic activity. Risks associated with the loss of confidential information and data protection. |

Section C. Providers

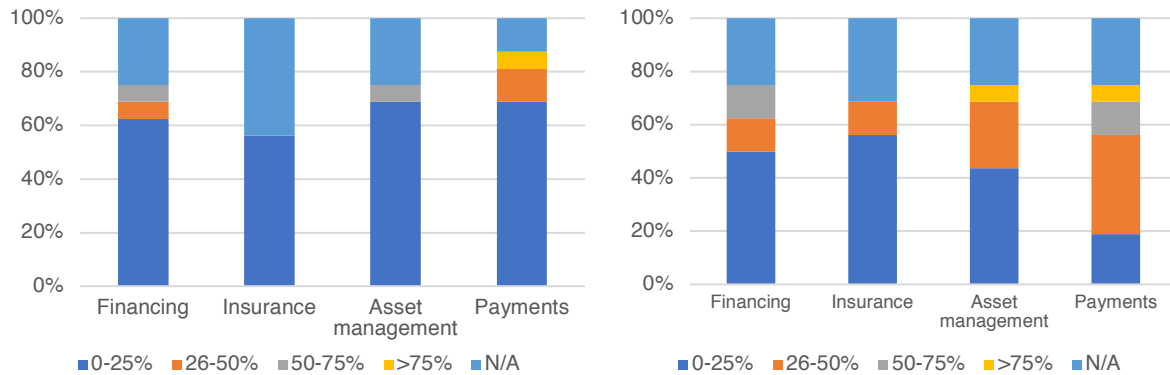
This section addresses the role played by the various actors in the financial ecosystem and sectors.

Fintech impact on industry sectors (breakdown by provider type)



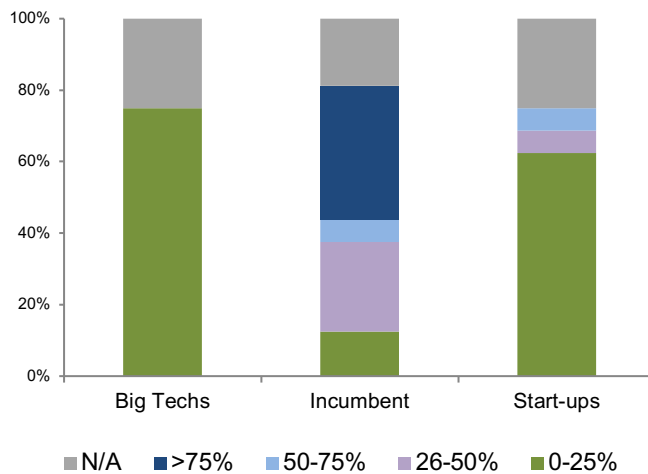
- Startups are seen as the most relevant provider in terms of impact.
- Big techs are found as the least significant in general.
- There seem to be less knowledge or awareness on the role of big techs
- Big techs are seen as more relevant in payments activities relative to other sectors.
- Payments is relatively the most impacted financial sector, seconded by financing, asset management and insurance

Current (LHS) and potential (RHS) fintech market share (breakdown by sector)



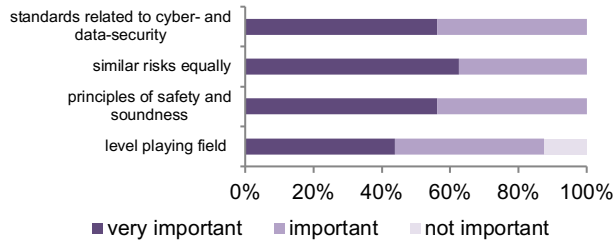
- Fintech market share (against traditional players) will most likely shift from 0-25% to 26-50% in all sectors. In payments, there seem to be shift of market share from 30% to 85%.
- Financing and payments are the sectors to be most affected by fintech in the future, meaning above 50% of the market share to be covered by new players.
- Insurance seems to be the less explored sector, while payments the most affected.

Current overall market share (breakdown by provider type)



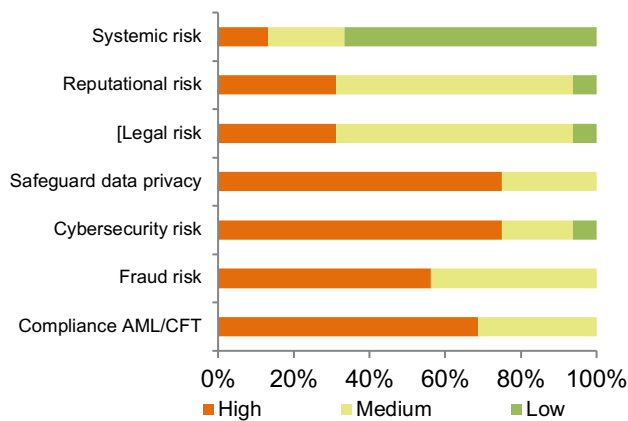
- Incumbents still dominate market share, almost half of respondents attribute over 75% market share to incumbents
- A nice paradox: there is a consensus that fintech impact is mostly attributed to start-ups, however, it does not translate into market share, half of the respondents assign only 0-25% of market share.
- Worth to note (see also previous chart) that payments is the sector with largest expected impact by big techs and start-ups, therefore it may be expected a similar shift on market share.

Importance of policy aspects relating fintech



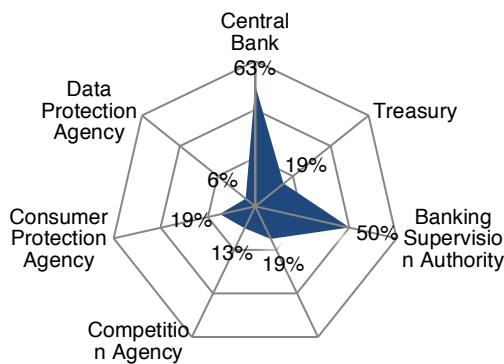
- All fintech related aspects are generally perceived as important by the central banks.
- The functional approach arises again, through the “Similar risks equally” aspects, getting the highest share of “very important”

Risk exposure with fintech presence



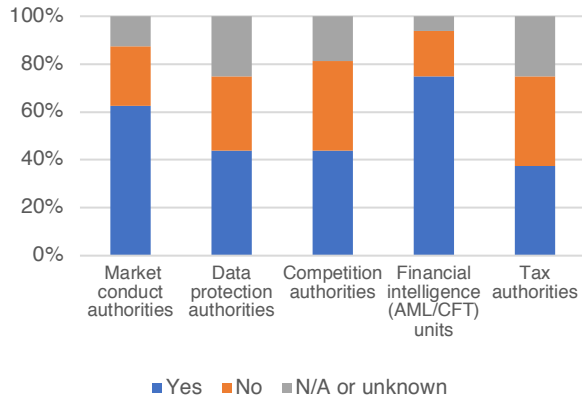
- Data privacy, AML/CFT and cybersecurity are perceived as the areas with the highest risk, followed by fraud.
- Reputational, legal and systemic risks are perceived as the least important.
- Systemic risk is classified like low due to the current fintech size (in line with the answers on issues and barriers).

Relevant authorities in the fintech agenda



- Respondents indicate that there is a need of further involvement from all the relevant authorities.
- Central banks and banking supervision authority are perceived as the most relevant authorities to deal with fintech.
- The role of authorities in charge of issues on data and consumer protection are perceived as more relevant than those about competition.
- In some jurisdictions, the banking supervision authority and the central bank are not involved in the fintech industry (this can be due to current fintech industry size).

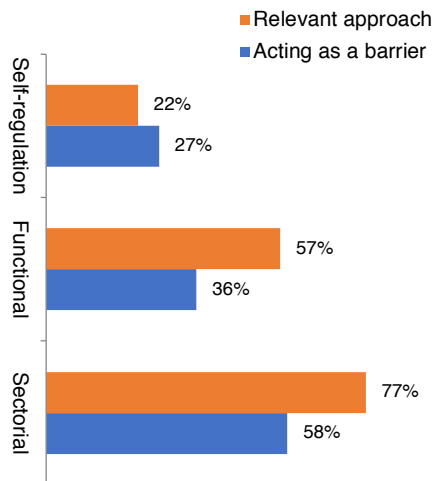
Cooperation agreements with authorities



- Respondents indicate that there is a need of further involvement from all the relevant authorities.

Section D. Barriers

This section outlines the barriers that are currently perceived by regional authorities to enable the regulatory framework to properly deal with fintech issues.

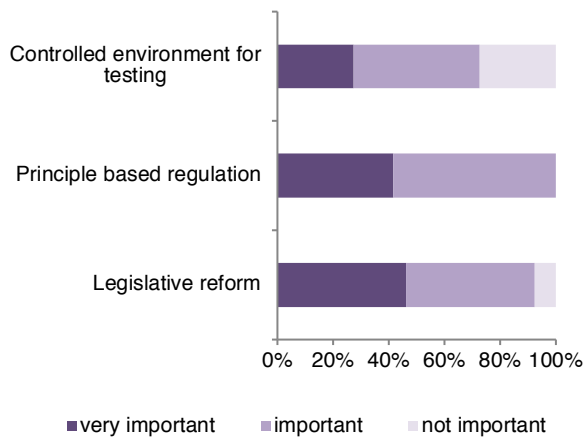


- Self-regulation is the less preferred regulatory approach in jurisdictions. Sectorial remains as the most relevant approach for authorities to address fintech challenges.
- Concerning the approach of the regulatory framework central banks deem that innovations are faster than regulation changes, that rigidity could act as a barrier, independently the approach taken by authorities.
- Self-regulation is seen as the less relevant barrier (22%). For sectorial regulatory approach, the majority of respondents (77%) consider this approach as a barrier. Despite the fact that respondents find sectorial regulation as the most relevant barrier, it is as well the most relevant approach in their jurisdiction.
- Functional approach was stated as the best approach to combine risks management and tackling regulatory barriers.

| Regulatory approach | Representing a barrier | Potential benefits |
|---------------------|--|---|
| Sectorial | <ul style="list-style-type: none"> • This approach may be too expensive for small (fintech) companies that are focused in limited services. | <ul style="list-style-type: none"> • If prudential and proportionated, this approach could boost innovation by increasing trust and acceptance. • Other non-regulatory barriers may be more significant (market structure, size and costs) in the region. |

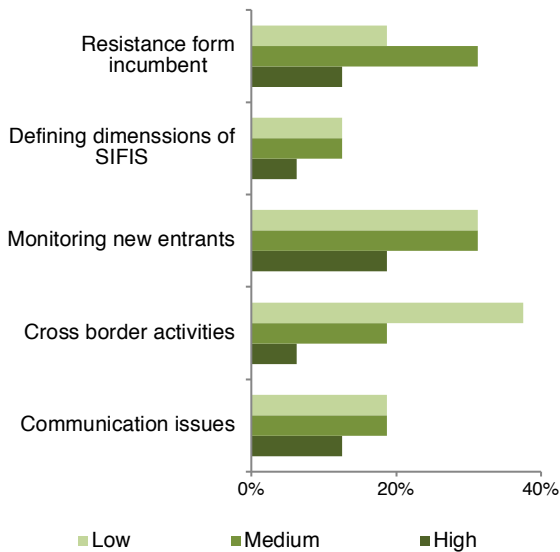
| Regulatory approach | Representing a barrier | Potential benefits |
|---------------------|--|--|
| Functional | <ul style="list-style-type: none"> This approach focuses on consumer protection & risk management which may create barriers for continuous innovation. This approach may have flaws, in particular as regards proportionality. | <ul style="list-style-type: none"> This approach may promote innovation since it is based on functions and risks equalizing conditions, with compliance of minimum requirements It may promote financial innovation & competition, particularly for new entrants. This approach may be more frequently updated to remain current. |
| Self-regulation | <ul style="list-style-type: none"> This approach may create a misperception on the lack of general rules. It can raise potential conflict of interest where incumbents try to prevent new firms to operate. | <ul style="list-style-type: none"> This approach may reduce access barriers but may not guarantee legal soundness, therefore resulting in fragmented markets. This should be considered as a complementary approach to enable financial innovation and promoting a culture of risks management. If well supervised, this approach may create certainty and reliability at the industry level. |

Priority efforts to adapt regulation



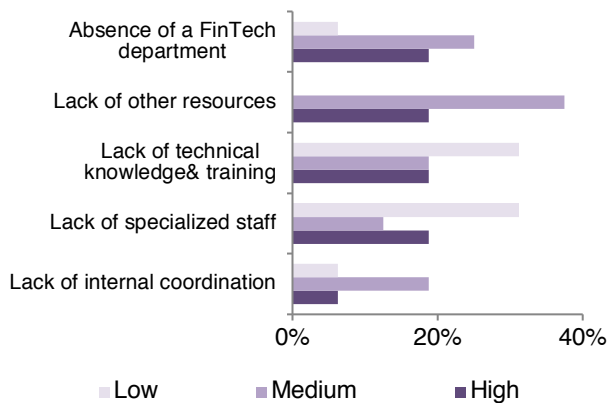
- Central banks deem that principles-based regulation and legal reform are both very relevant, the latter being more important although harder to implement.
- For sandboxes there are no single viewpoint, and in some cases not relevant due to size of jurisdiction (e.g. small countries find this not suitable).
- Legislative reforms are very slow, so other efforts may be more relevant
- Sandboxes particularly relevant to strike a balance between innovation and risks. Yet, no clear evidence of their benefits
- Principles-based regulation is seen as the first preferred approach but requires adaptation.
- Principles-based regulation may be necessary due to high speed of innovation and regulatory arbitrage.

Impact of industry issues related to fintech



- Monitoring new entrants and data availability arise as the main issues related to fintech.
- Coordination issues are frequently referred, in special the lack of clarity and attribution of responsibilities. This is being addressed by creating -financial innovation- committees and MOUs.
- Resistance from incumbents -by blocking niches- also referred in comments with special emphasis on the need to address interoperability and competition aspects.
- Cross border activities may pose pressure on current arrangements and platforms, then seen as a potential issue but with low impact.
- Since the fintech industry is still incipient there aren't significant self-regulation issues.

Issues that represent additional barriers for the central banks



- Central banks do not see relevant issues within their organization to deal with fintech, this is explained by the perception of the size of fintech industry.
- Specialized staff on innovation and technology is seen as a barrier to properly monitoring fintech. This is relevant given central banks also attach significant importance to the lack of data to monitor fintech developments

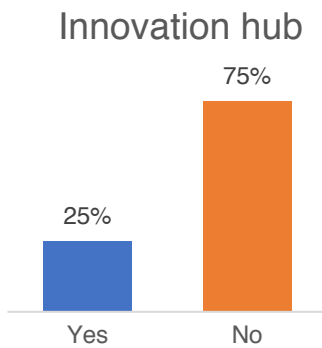
Section E. Possible solutions

This section outlines those possible solutions that central may be (or are already) considering to address fintech regulatory challenges.

| International coordination for | Yes | No |
|------------------------------------|--|--|
| Regulatory framework (Yes: 75%) | <ul style="list-style-type: none"> • In the majority of countries, this is an important policy aspect that require international coordination • In fact, there is ample coordination and adoption of standards due to participation and or membership in | <ul style="list-style-type: none"> • In countries where this is not a relevant are, the motivations are based on the current status and penetration of fintech in the market. |

| International coordination for | Yes | No |
|--|--|---|
| | <p>several international forum, and organizations like CEMLA, Alianza del Pacífico, BIS, World Bank, CARICOM and BCBS.</p> | |
| <p>Cybersecurity (Yes: 69%)</p> | <ul style="list-style-type: none"> • For this aspect, international coordination is considered fundamental to mitigate cyber-risks. • Issues that may deserve special attention is an exclusive dialogue between central banks to discuss cyber security and gain knowledge and awareness of developments around fintech. • At European level, there is a regional regulatory alignment. • At Latin American level through Forum organized by CEMLA issues are discussed. • Some countries reported that recently approved regulation on cybersecurity, and the establishing of a cybersecurity office are already taken place. | <ul style="list-style-type: none"> • In countries where this is not a relevant are, the motivations are based on the current status and penetration of fintech in the market. |
| <p>Supervision (Yes: 56%)</p> | <ul style="list-style-type: none"> • This is an aspect in which there is ample participation in international supervisors' groups. • It was reported that ongoing deliberations between central banks and international organizations to define policies and controls based on the experience of other countries (BCBS?). • Some countries reported using existing tools to allow Fintech to operate without additional controls, which has stimulated their development. | <ul style="list-style-type: none"> • In countries where this is not a relevant are, the motivations are based on the current status and penetration of fintech in the market. • Supervision entrusted to a different authoritative entity. |
| <p>Cross border activities (Yes/No: 50%)</p> | <ul style="list-style-type: none"> • The importance of international coordination acknowledged due to the borderless nature of transactions. Up to now, no concrete policies implemented. • In some cases, through specialized working groups the latest regional developments on cross border activities are followed, for instance at the Caribbean level. | <ul style="list-style-type: none"> • In countries where this is not a relevant are, the motivations is based on the current status and penetration of fintech in the market, but also because policies were implemented through compensation regional trade credit systems or through international organizations. |
| <p>Other (Yes: 88%)</p> | <ul style="list-style-type: none"> • Agreements signed with companies to explore the technical applications and functioning of distributed databases. | <ul style="list-style-type: none"> • Fintech penetration is only starting. • There is no statistical study. |

Available tools to stimulate financial innovation:

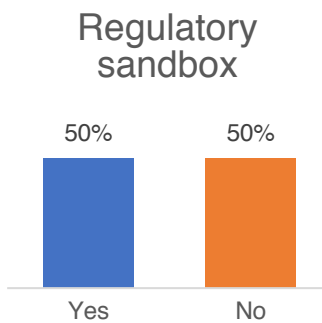


YES:

- Respondents mentioned there are specific programs from agencies for the development of new fintech developments. Some of them are private incubators created by banking associations to promote fintech developments.
- One central bank established an internal working group to discuss financial innovation. The group lasted a year and was successful in achieving its goals.

NO:

- Respondents indicated that the private sector is very active in this area, making this not relevant for central authorities. Some others considered this not a task for authorities.
- Some respondents mentioned that this measure has not been considered.
- In some cases, the central bank has not yet reached the phase to decide which tool will be used.

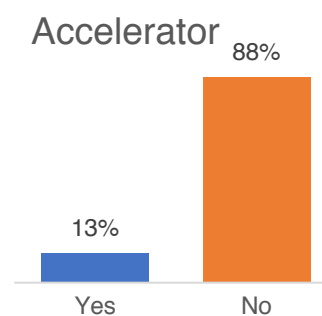


YES:

- There is a variety of stages in the region. Given this, some countries are:
 - Evaluating the possibility, with ongoing discussions, but with the need to clarify some issues, mainly legal aspects.
 - At the initial stage, studying its legal feasibility.
 - In the middle of the process, working on the creation of a sandbox.

NO:

- For countries not considering this tool, it was outlined that:
 - It is being analyzed, its pros and cons.
 - Not yet considered to be included this tool in the regulations.



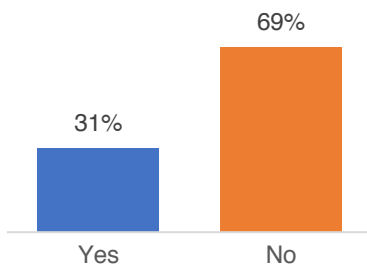
YES:

- Respondents mentioned that the private sector has an active role in developing accelerators and incubators. In fact, it was mentioned that national and International entities are jump-starting new businesses by providing technical and financial support
- Few respondents mentioned to have programs to promote new business.

NO:

- Respondents indicated that the private sector is very active in this area, making this not relevant for central authorities. Some others considered this not a task for authorities.
- From a regulatory perspective, it is required for any initiative to have a strategic alliance with a CB regulated entity.
- In some cases, not yet considered to be included this tool in the regulations

Other forms of interactions



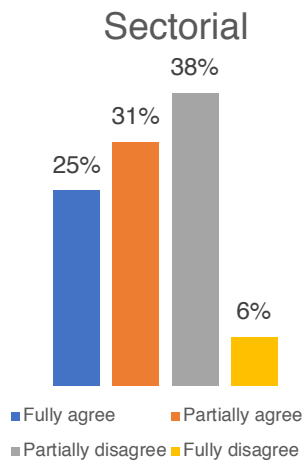
YES:

- Respondents indicated that agreements are being signed with entities to explore technical applications and functioning of distributed databases as efforts to promote innovations

NO:

- Respondents stressed out that fintech penetration is only starting and no specific actions have been considered to stimulate innovation.

Role of regulatory approaches enabling financial innovation



Fully agree:

- It was mentioned that this approach could serve as unique umbrella for the same players in the financial system.
- Prudential supervision is based on a sectorial regulation.

Partially agree

- It was mentioned that this approach could allow specialization at the regulatory agency-level.
- Useful to pick-out within the sector and to use specific rules within the sector, and to analyze different business model aspects.
- This approach is very time-consuming because there must be a specific regulation for each sector.

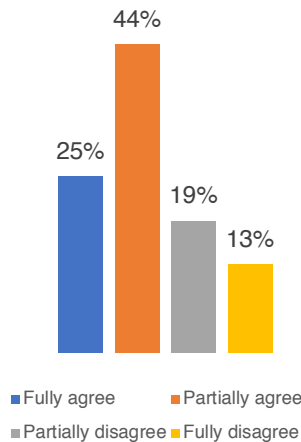
Partially disagree:

- It was mentioned that this approach is the most concrete regarding legal certainty making entities easily categorized, but most rigid and slow to adapt.
- This approach depends on the general structure of each country.
- On the other hand, it may not be sufficient if every activity needs to be included within existing legal parameters.
- For this approach, the challenge comes with fintech partaking activities or functions from different sectors by providing a single service (cross-sectoral).

Fully disagree:

- Those respondents indicating a sectorial regulatory approach will not favor innovation, stated that it limits the possibility to create multiproduct businesses.

Functional



Fully agree:

- It was mentioned that this approach could be more consistent with current financial regulation need and the most suitable to regulate fintech.
- It was also mentioned that it may foster more transparent and flexible regulation, especially if different legal interpretations are addressed.
- Currently, authorities regulate activities so this approach is useful, yet different size of providers may be an issue for requirements compliance.

Partially agree:

- It was mentioned that this approach could be flexible and to adjust readily to the ongoing rapid pace of financial innovation.
- It was mentioned that it may allow supervisory aspects to be allocated under the same supervisory authority. But there would be challenges given existing communication gaps between different regulatory agencies.
- Important to review the internal monitoring and control aspects to mitigate risks improve processes and stabilize the financial market.

Partially disagree:

- No comments.

Fully disagree:

- No comments.

Fully agree:

- No comments.

Partially agree

- No comments.

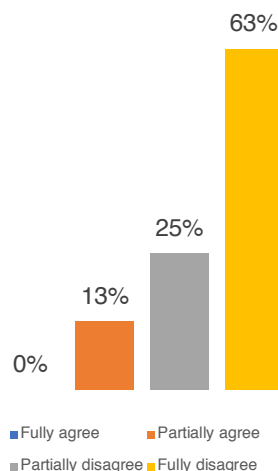
Partially disagree

- It was mentioned that this approach could be easily implemented and being more flexible for innovations in initial state, but new entrants may not see the right incentives.
- It also may provide limited capacity for regulators for effective arrangements.
- If not well designed, it could create gaps in the established legal framework.

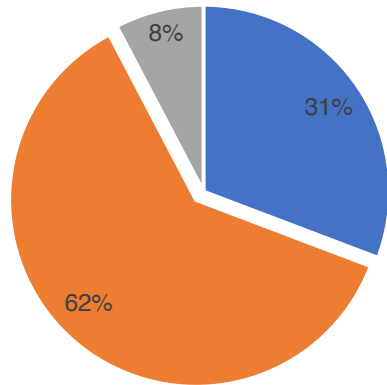
Fully disagree:

- It was mentioned that this approach could not be binding by nature leading to regulatory unsteadiness between various providers.
- It may be useful in early stages but it does not generate legal certainty, especially when the relevance of the sector increases.
- It may create distortions in the fintech ecosystem at an early phase, which would potentially affect its evolution.
- It has been observed that self-regulation does not work efficiently, but establishing regulations that contemplate minimum requirements, as well as procedures for efficient and safe functioning.

Self-regulation



Addressing internal coordination aspects to better deal with fintech issues



- No additional action required
- Cross-departmental effort
- Special unit

Cross-departmental

- 62% of respondents indicated that bottlenecks related to internal coordination are being solved by creating internal teams including fintech key areas to monitor and address economic, technological, legal and risk issues about fintech
- Other related-activities include organizing regular meetings with the relevant departments impacted by fintech issues.
- Some respondents mentioned the need to amend internal governance and existing coordination mechanism but no concrete proposal yet.
- Some others mentioned the establishment of internal rules and roles for each key area.

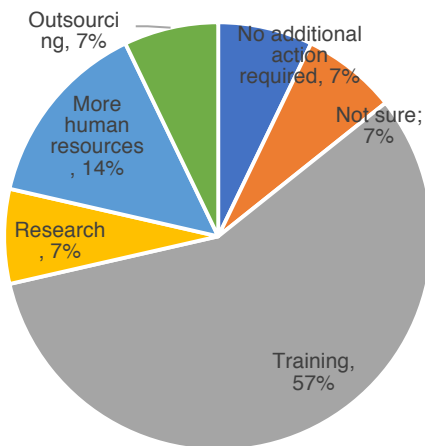
Special unit:

- Only 8% of the respondents mentioned that a division has been created to collaborate/coordinate with the different areas of the institution, and to report to senior management on important developments.

No additional action required:

- Almost one third of the respondents indicated that this is the case in their jurisdictions.

Addressing technical knowledge and training aspects to better deal with fintech issues



Internal-external training:

- It was mentioned by above half of respondents the need for staff in charge of fintech issues to be constantly trained.
- Besides training courses, conferences and seminars (public authorities and industry), regional forums (with countries that have more experience in the problem at regional and international level), it was also mentioned to foster internal knowledge sharing.

Additional human resources and outsourcing:

- A fifth of the respondents deemed that it may be necessary either to hire human capital or outsourcing to properly develop responsibilities related to understand and address fintech developments
- It was underlined that for outsourcing, hiring external consultants, rather than incorporating new people into the institution could be an option at early stages.

Addressing other aspects to better deal with fintech issues

- Concerning other internal aspects at central banks and relevant authorities, respondents outlined a series of issues that may be necessary to addressed in order to better deal with fintech issues. The following table summarizes those aspects.

| Lack of other resources | Absence of a FinTech department | Lack of specific mandate |
|---|---|---|
| <p>Material:</p> <ul style="list-style-type: none"> No access and/or availability of quality training in new knowledge areas (e.g. latest technologies). | <p>Governance:</p> <ul style="list-style-type: none"> Need to revisit the organizational chart, and assess the convenience of the current structure. Fintech aspects are currently managed by different areas. Need to establish an internal workgroup and hiring specialized staff. | <p>Legal reform/amendment:</p> <ul style="list-style-type: none"> Currently some central banks are: <ul style="list-style-type: none"> Reviewing legislations around fintech. Evaluating a regulatory framework amendment. Searching legal empowerment to address fintech issues. Launching new (payments) regulations embracing fintech. For others, it is not clear yet if a specific mandate should be conferred to the Central Bank or another regulator(s). |
| <p>IT-resources:</p> <ul style="list-style-type: none"> Need to develop and/or adapt IT resources according to financial innovations. | | |
| <p>Financial:</p> <ul style="list-style-type: none"> Budgetary constraints need to be addressed too in order to address fintech new aspects. | | |
| <p>Technical assistance:</p> <ul style="list-style-type: none"> Need for technical assistance at the international level may be also required | | |

Fintech Questionnaire for Financial Authorities in LAC” template

You are requested to answer the following questions. We do not expect a precise or exhaustive evaluation, but rather want to obtain an idea of the phenomenon in your country.

Make sure you answer all the questions in the spaces provided following the instructions of each section.

Answers provided should be relevant for your jurisdiction/country

| |
|---|
| Contact info |
| Name |
| Position |
| Country |
| Contact e-mail |
| Contact number |
| Section A: Importance of FinTech |
| 1. Are FinTech developments important in your jurisdiction? |
| 2. Please explain to what extent and why are FinTech developments are important: |
| 3. Are new entrants leading financial innovation? |
| 4. Are incumbent institutions leading financial innovation? |
| 5. Are benefits and opportunities expected from FinTech? |
| 6. Are new risks expected from FinTech? |
| 7. Do you expect FinTech innovation to continue in the future? |
| 8. Do you expect that FinTech will cause a financial disruption? |
| 9. Do you expect Fintech to impact traditional financing in your country? |
| 10. From your perspective, indicate the impact of FinTech with respect to: <ul style="list-style-type: none"> a) Fostering competition b) Financial innovation c) Financial stability d) Consumer protection e) Market integrity f) Economic growth g) Market completeness h) Financial information |
| 11. Please indicate which of the following segments are mostly impacted by FinTech and by what type of providers (BigTechs like Amazon, Facebook and Google, incumbent institutions like banks, and start-ups): <ul style="list-style-type: none"> a) Financing (borrowing/lending) b) Insurance c) Asset Management (investment) d) Payments (digital/clearing/settlement) e) Other (specify) |
| 11.1 In case you answered "other", in the previous question, please specify the type of segment you referred. |

| |
|--|
| <p>12. Please indicate the current market share of FinTech providers in the following financial sector areas:</p> <ul style="list-style-type: none"> a) Financing (borrowing/lending) b) Insurance c) Asset Management (investment) d) Payments (digital/clearing/settlement) e) Other (specify) |
| <p>12.1 In case you answered "other", in the previous question, please specify the area you referred.</p> |
| <p>13. Please indicate the prospective (1-5 years) market share of FinTech providers in the following financial sector areas:</p> <ul style="list-style-type: none"> a) Financing (borrowing/lending) b) Insurance c) Asset Management (investment) d) Payments (digital/clearing/settlement) e) Other (specify) |
| <p>13.1 In case you answered "other", in the previous question, please specify the area you referred.</p> |
| <p>14. Please indicate the market share of the following providers of FinTech services in your country:</p> <ul style="list-style-type: none"> a) BigTechs (e.g. Amazon, Facebook and Google) b) Incumbent institutions (e.g. banks) c) Start-ups d) Other |
| <p>14.1 In case you answered "other", in the previous question, please specify the provider you referred.</p> |
| <p>15. How important are the following FinTech related aspects for your Institution?</p> <ul style="list-style-type: none"> a) Achieve a level playing field for enabling FinTech development b) Promote innovation under the principles of safety and soundness c) Address similar risks equally regardless of the sector d) Ensure minimum standards related to cyber- and data-security for Fintech e) Compliance AML/CFT f) Fraud risk g) Cybersecurity risk h) Safeguard data privacy i) Legal risk j) Reputational risk k) Systemic risk l) Other. |
| <p>16.1 In case you answered "other", in the previous question, please specify the type of risk you referred.</p> |
| <p>17. Please select the authorities that are involved in the oversight of FinTech in your jurisdiction:</p> <ul style="list-style-type: none"> a) Central Bank b) Treasury c) Banking Supervision Authority d) Competition Agency e) Consumer Protection Agency f) Ministry of Telecommunications g) Data Protection Agency h) Other. |

| |
|---|
| 17.1 Describe the main (FinTech related) responsibilities of each authority. Note: If more than one division is involved within a specific authority, please specify as follow: e.g. Central Bank “XYZ” supervision and payments division. |
| 18. Please indicate the relevance of the following types of regulation and surveillance in the financial sector, in your jurisdiction. Select the answer that reflects best the situation in your country. a) Sectorial b) Functional c) Self-regulation d) d) Other |
| 18.1 In case you answered "other", in the previous question, please specify the type of regulation and/or surveillance you referred. |
| 19. Please indicate if the regulatory and supervisory approach may act as a barrier for sound financial innovation in your jurisdiction and why. A) Sectorial b) Functional c) Self-regulation d) Other |
| 20. Please indicate the priority levels of the following efforts to adapt your domestic regulation to address FinTech issues: Select the level of importance that fits best with each regulatory action and provide an explanation that supports your answer. a) Legislative reform b) Principle based regulation c) Controlled environment for testing |
| 20.1 Please, explain: |
| 21. Please indicate if your Central Bank have experienced problems with the following aspects and also indicate the impact of the problem: Select the level of impact that fits best with each aspect and provide an explanation that supports your answer. a) Communication issues across relevant authorities b) Challenges with cross border activities c) Monitoring the activities of new entrants d) Defining dimensions for systemically important FinTech’s e) Resistance from incumbent institutions f) Other issues |
| 21.1 Please, explain: |
| 22. Please indicate if your Central Bank has experienced the following issues as internal barriers and also assess the associated inherit risk. Select the level of impact that fits best with each aspect and provide an explanation that supports your answer. a) Lack of internal coordination b) Lack of specialized staff c) Lack of technical knowledge& training d) Lack of other resources e) Absence of a FinTech department f) Other issues |
| 22.1 Please, explain: |
| 23. Have you considered international coordination policies with respect to: a) Regulation framework b) Cybersecurity c) Supervision d) Cross border activities e) e) Other (specify) |
| 24. Provide additional information about the efforts for the action(s) implemented (or to be implemented): |

| |
|---|
| <p>25. Have you considered implementing one of the following approaches/tools to stimulate financial innovation. If not, explain why?</p> <ul style="list-style-type: none"> a) Innovation hub b) Regulatory sandbox c) Accelerator d) Other forms of interactions (specify) |
| <p>26. Provide additional information about the requirements and scope of the tool(s) implemented (or to be implemented):</p> |
| <p>27. Indicate, in your opinion, what would be a more balanced approach to regulate FinTech and why? Please identify pros and cons of each approach. Fill in a number (between 1 and 4), indicating 4=most balanced, 1=less balanced</p> <ul style="list-style-type: none"> a) Sectorial b) Functional c) Self-regulation |
| <p>28. Provide additional information about the efforts for the action(s) implemented (or to be implemented):</p> |
| <p>29. Please indicate how your organization will address the following bottlenecks.</p> <ul style="list-style-type: none"> a) Lack of internal coordination b) Lack of specialized staff c) Lack of technical knowledge & training d) Lack of other resources e) Absence of a FinTech department f) Lack of specific mandate g) Other issues |
| <p>30. Cooperation with local authorities: Have you considered establishment of inter-agency committees to coordinate regulatory/supervisory issues? Or has cooperation/agreements with:</p> <ul style="list-style-type: none"> a) market conduct authorities b) data protection authorities c) Competition authorities d) Financial intelligence (AML/CFT) units e) Tax authorities |
| <p>30.1 Please, explain:</p> |
| <p>31. Other solutions: Has your organization considered other possible solutions? Please motivate.</p> |

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