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Opening Remarks for the Second Meeting of the Fintech Forum
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Ladies and Gentlemen. Good morning. It is a pleasure to welcome all of you to the II Meeting of the Fintech Forum. I want to thank all the attendees, speakers and Forum members for your participation, especially those that have travelled from overseas, for sharing your experiences and expertise in this meeting. I am sure that the discussions will be enriching and motivating for all of us.

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The current breakneck speed of the development and adoption of technological innovation is driving the economy to a digital age, in many cases, in a disruptive way. **Machine learning** and **artificial intelligence** techniques, like **neural networks**, are cutting-edge technologies that are catalyzing the shift to a digital age. As part of these innovations, we are faced with new processes, products, services and business models which have been transformed, and have had a direct effect on markets, institutions, and even in the innovation process itself. Under this new setup, several changes can be seen in the 1) customer-provider relationship, in 2) markets' competition and in 3) industries' structure and functioning.

Nowadays, as policymakers, we need to strike -as always- a balance between the opportunities of such technological innovations with the risks they pose, taking into account fundamental economic premises. In that sense, I consider that, as central bankers and financial regulators, before analyzing the current changes in the financial system, it is necessary for us to take a few of steps back and reflect upon the broader picture.

The impact of general-purpose technologies on the economy has been analyzed and discussed both in the academia and in the industry on a regular basis. However, this time around the speed of the technological progress is making it hard to keep up the pace in understanding its, both, intended and unintended, consequences on the economy and, more generally, on society itself. This is particularly true in finance, with regulation design -typically- lagging behind the technological and innovation progress in markets. This is why collective efforts like the Fintech Forum are so important.

But before addressing the fintech implications from this perspective, let me bring some examples of how the recent technological progress is affecting economics as we know it, more particularly, the labor market, productivity and market competition.

Labor Market

Historically, technological innovations have led to a displacement effect on employment. The current wave is not an exception. From the public policy perspective, it is important to estimate the real impact of this transformation. For example, the McKinsey Global Institute, in their 2017 report on workforce transitions, recreates a scenario suggesting that by 2030, 75 million to 375 million workers will need to switch occupational categories.¹ On the other hand, Brynjolfsson *et. al.*² analyzing the effects of automation that the above-mentioned technologies are creating in the labor market, concluded that the expected impact will be more significant on the reorganization of specific tasks and on reengineering processes, and to a less extent on the complete automation of jobs. Given the complex effects of automation, Furman and Seamans (2018) expose the need to propose policy solutions that complement adequately technological innovations: indeed, a regulatory and policy toolkit that not only covers the labor market, but competition and potential risks in different economic sectors.³

Market Competition and Productivity

Changes and rearrangements of technological innovation have led to the study of the effects on market concentration, as it has been the case in peer-to-peer economic activities. More often than not, new technologies are developed as two- or multi-sided markets, meaning that competition in these markets can result on entry barriers and asymmetric information, for example, Airbnb.⁴ *Sharing economy platforms* use information technology to allow users sharing and using underutilized goods and services. Airbnb, displaying these features, has remained profitable by creating a critical mass on both sides of the platform, but also resulting in negative effects both to the hotel and to the housing sectors. This exemplifies how necessary it is for policymakers to rethink policy and regulatory solutions (e. g. antitrust practices) that protect consumers, while properly aligning incentives to innovate in the respective industries.^{5, 6} In effect, we are facing a profound policy, regulatory and institutional design challenge.

¹ McKinsey Global Institute. “Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation”. McKinsey & Company, 2017.

² Brynjolfsson, Mitchell and Rock. “What can machines learn and what does it mean for occupations and the economy?”. MIT Initiative on the digital economy research brief. Vol 4, 2018.

³ Furman J. and Seamans R. “AI and the economy”, NBER Working Papers Series. National Bureau of Economic Research, number 24689, June 2018.

⁴ A lodging company, which specializes in connecting real estate owners with people looking for accommodation.

⁵ Such as safeguard consumer data, enable competition between incumbent firms and facilitate entry by startup firms.

⁶ For example: policy and regulatory solutions such as data portability regimes, temporary data monopolies, trusted third parties, among others.

On a slightly different but related matter Cockburn *et al.* (2018) claim that artificial intelligence could become a general-purpose “method of invention”, which will be used more frequently to deal with labor-intensive research tasks.⁷ However, this idea is not completely new. John Koza, a former professor at the University of Stanford claimed, almost 20 years ago, that genetic programming (which is an artificial intelligence technique) can be used as an “automated invention machine”. Professor Koza reinvented, resorting to genetic programming, more than thirty patented human inventions and using the same evolutionary technique patented two completely original inventions.

With this let me go back to the beginning of my speech. We are witnessing new processes, products, services, and business models that are transformed or have a direct effect on markets, institutions, and even in the innovation processes themselves. The transformation covers diverse industries such as automotive, aerospace, medicine, education, advertising, metallurgy, biology, entertainment, and for each one the labor market and their market structure are facing changes too.

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Let me focus on the new financial technologies, and the buzz word “fintech”. But what does exactly fintech entail? According to the Financial Stability Board, fintech can be seen 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*”.⁸ In other words, fintech is basically the application of technology to alter the processing, delivering and usage of financial services.

As I mentioned earlier, we are witnessing a major transformation explained by the digitization of the economic and financial activities. In the particular case of the financial system, new emerging technologies are reshaping the existing so-called financial ecosystem -including marketplaces, providers and services- in such a way that governments and, more specifically, central banks and other relevant financial authorities, have been prompted to play an active role in ensuring that the fintech promise evolves while keeping a close eye on potential risks. In fact, important efforts from the international financial community are taking place to identify implications and risks stemming from financial technologies. For instance, by assessing if financial access can be broadened by means of new products and providers, and ensuring that, given new technologies, such services could be more efficient and fit for the users’ needs. At the same time, monitoring if fintech developments could lead to new forms of risk in the financial system, and the economy as a whole.

⁷ Cockburn I., Henderson R., and Stern S. “The impact of Artificial Intelligence on innovation”, NBER Working Paper Series. National Bureau of Economic Research, number 24449, March 2018.

⁸ FSB. “Financial Stability Implications from FinTech,” Report, 2017.

And while central banks have a long story of dealing with financial innovation, this time may be somewhat different. For example, Balyuk *et.al.*⁹ found that some peer to peer (P2P) lending schemes evolved from trading venues into new credit intermediaries. This is very important as the original intention of such platforms was to only serve as a meeting point for lenders and borrowers without banks acting as intermediaries, but now these incoming start-up entities have replaced traditional financial intermediaries as a key decision maker and potentially resulting in a highly centralized market.

These findings bring some important implications for financial authorities. On the one hand, the rapid evolution and adoption of such schemes could inevitably generate new risks both for borrowers and lenders. On the other, it may represent a significant challenge for financial authorities to either provide the adequate regulation or to develop the proper infrastructure to monitor these industry adjustments. This is explained by the fact that several fintech developments are continually changing while regulation remains unmodified, leaving room for under- or non-regulated activities and entities. Among the various issues to tackle this sort of fintech challenges for financial authorities, data is a critical aspect.¹⁰ Ongoing work in this field led by the Irving Fisher Committee (IFC) will certainly contribute to these new tasks for our institutions, and today we will be briefed by our colleagues of the Committee in this matter.

As you can imagine, this is just one example of how fintech could be challenging traditional mandates of central banks and relevant financial authorities, including financial and monetary stability, financial regulation and supervision, the proper functioning of payment systems, and more recently, the provision of legal tender.

In light of this complex scenario, the response of central banks and other relevant financial authorities is a building block for the sound development of financial innovation. In other words, we all in this room must be active and vigilant actors of the fintech phenomenon to ensure that our policy and regulatory framework is one that harnesses the potential benefits brought about by technology, while mitigating the risks properly.

CEMLA, as a prime cooperation body for central banking in the region, took an important step by constituting the Fintech Forum as a vehicle to assist our Membership in a better understanding and coordinating of the response to fintech developments. This decision was welcomed by 18 central banks of the region that comprises this regional initiative, including the special collaboration of the Bank of Spain.

⁹ Balyuk, Tetyana and Davydenko, Sergei A., Reintermediation in FinTech: Evidence from Online Lending (March 1, 2019). Michael J. Brennan Irish Finance Working Paper Series Research Paper No. 18-17; 31st Australasian Finance and Banking Conference 2018.

¹⁰ Borio, Claudio. “The Great Financial Crisis: setting priorities for new statistics”. BIS Working Papers No 408, April 2013

I deem that the Forum was -first of all- a timely and opportune decision, which has demonstrated to be a suitable vehicle to approach the various fintech challenges faced by the region, and I will spend the next minutes to brief you on what has been achieved by the two streams of work that the Forum established in its kick-off meeting in March 2018, namely the Working Group on Fintech Regulatory Aspects and the Working Group on Central Bank Digital Currencies.

Working Group on Central Bank Digital Currencies (CBDCs)

Let me start by addressing some important points that the Working Group has dealt with. As we all know, CBDCs has become a topical and challenging issue for the international central banking community.

If we try to dig into the very origins of the interest in CBDC, it is possible that several references to crypto-assets arise, but as we also know, money and payments¹¹ are well and long-established social conventions that have relied on the institutional and operational reputation of a central bank. This was the starting point for the Working Group: acknowledging that if a general-purpose CBDC is to see the light, it should be under the remit of central banks.

Those of you that took part of this working group can tell that it was not trivial discussing this, but thanks to this reflective exercise it is possible to say that the findings of the group are of great help for the Forum and for the rest of the CEMLAs Membership. Besides this, it is also noteworthy the work done by the Group, which was able to translate the analytical framework set by multilateral organizations like the IMF and the BIS, and the in-depth examination of selected CBDC cases, into a set of important lessons on conceptual and practical aspects of introducing a digital version of legal tender.

In the report resulting from the work by the Group, it can be found that issuing digital fiat money could result in 1) significant efficiency gains (by reducing the costs associated with cash management), 2) support financial inclusion efforts (especially in emerging economies that face lack of access and other financial industry shortcomings), 3) foster contestability in transactional financial services (including retail payments), and 4) potentially allowing authorities to trace transactional information for policy purposes. The Group, however, also recognizes in its report, that central banks must undertake a thorough cost/benefit analysis and assess the possible effects of issuing a CBDC on the financial system and on the economy. The said analysis should at least include the impact on funding costs for traditional financial institutions, potential operational challenges for the central bank, and other risks like cyber-attacks, to name a few.

¹¹ Ingves, S. (2018), “Money and payments: where are we heading”, Sveriges Riksbank, Speech at the Stockholm School of economics.

I would emphasize that assessing potential costs and related effects of introducing a CBDC will be valuable inputs for our central banks. As a matter of example, the Central Bank of Ecuador embarked in 2014 on a CBDC system that was shut down after negligible scalability and adoption, being the lack of involvement of the private sector -as part of the CBDC system- and the poor previous analysis of the needs and implications of digitizing fiat money, some of the ingredients that contributed to the failure.

Further research on the implications and impact of digitizing fiat money would be then needed to firmly state that CBDC could serve as a gateway to foster financial inclusion or as an avenue to ensure the existence of public alternative solution(s) in the national money and payment system, as it is the case of Sweden with the e-Krona project¹².

To conclude, I will perhaps encourage you to keep up with new experiments that are taking place, including those in the Bahamas, the Eastern Caribbean Currency Union and, of course, Uruguay -and beyond, as in China and Norway, in order to draw lessons that could be useful for our economies. Finally, I also deem pertinent that the Group analyze the convenience for CEMLA to serve as the vehicle to further address such research items.

Working Group on Fintech Regulatory Aspects

On the grounds of fintech regulatory aspects, the Working Group has identified that in most cases, and despite ongoing important efforts, it would be desirable to retool the legal framework and the institutional capacity to embrace new technologies. In this respect, one of the key findings in the report of the Group is that central banks and relevant financial authorities may wish to consider carefully the need for specific regulatory intervention, since the existing legal framework could already cover several innovations, but given the complexity, speed and dynamics of the fintech industry, certain developments may not be appropriately addressed. In that respect, to avoid that traditional regulatory arrangements (*entity-based approach*) could create an unlevelled playing field that, in turn, deters innovation or distorts competition, a new setup for financial regulation and policy must be considered.

For Latin American and Caribbean Central Banks, this task is enriched by the fact that, as emerging economies, there is an interesting interplay seen in our financial systems. Aspects such as new customer needs, greater access to mobile phone technologies, a growing role of new service providers – including telcos and large retailers, are all features that should be considered too. For instance, given the rise of the so-called BigTech or Tech firms, including Amazon, Google and others, regional financial systems may be in front of a structural shift replacing the bank-centric financial intermediation with sharing economy platforms. This could challenge the effectiveness of the current regulatory approach and scope which in essence consists in setting requirements on financial intermediaries regarding their

¹² Riksbank (2018) “The Riksbank e-krona project: report 2”.

contractual relationships with their (third-party) service providers¹³

All the above poses a clear challenge for the regions' central banks and financial authorities. In light of this, the Group suggests considering some basic principles when attuning the policy and regulatory framework. These principles comprise: a 1) functional approach focused on the financial activity rather than on the type of financial entity; 2) proportionality to foster innovation with proper and suitable requirements for new entrants in exchange of limited licenses; 3) technological flexibility to ensure that innovation is not unnecessarily being held back while it accommodates new developments in a timely manner; 4) level playing field and competition, aiming at that all types of entities are given equal opportunities and, with this, achieving more efficient markets, better products and services and, in turn, higher welfare; 5) cybersecurity and data protection, considering measures to identify, mitigate and overcome cyber-threats as well as to ensure personal data protection frameworks; 6) intergovernmental coordination, since fintech implications may be also in the remit of other nonfinancial authorities, for instance consumer protection, Anti-Money Laundering and Countering Financing of Terrorism (AML-CFT), cybersecurity, data protection, taxation, or competition.

For this stream of work, I would probably underline the importance of devoting extra efforts in developing risk management frameworks that suit the new industry players, paying special attention to policy issues such as cybersecurity and financial stability. To achieve this, it may require some degree of creativity to deal with the well-known legal constraints that as central banks and financial regulators we continuously face.

Looking Ahead

CEMLA itself is working this year to enhance our role in the Forum. One mechanism that is underway is the design of training facilities to allow central banks directly testing new technologies, namely blockchain, artificial intelligence, machine learning and big data and, with that, to familiarize participants with said developments; so to say: learning by doing. For instance, creating supotech solutions to enable a fitted surveillance of fintech companies or products; alternatively, using machine learning and big data to develop oversight tools to better monitor digital retail payments.¹⁴ Other mechanisms include the creation of an innovation hub based on specific use cases that can shed light for the regional central banks on how new technologies can be used for their own activities, including reserve management,

¹³ Beau, D. "Financial regulation and supervision issues raised by the impact of Tech firms on financial services". Banque de France. Speech, January 2019.

¹⁴ According to BIS, FSI, supotech developments has focused on the areas of financial reporting and data analytics for supervisory purposes. Source: FSI Policy Insights. Innovative technology in financial supervision (supotech) – the experience of early users. July 2018.

payment systems, market operations, etc. The details of these value proposals will be discussed this Friday and I am confident that you will find them relevant and useful.

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Indeed, let me conclude by walking you through some of the details and expectations we set for the meeting's agenda.

Today, the two first sessions will be dedicated to the industry. In the opening session "*Fintech developments: the way forward for the financial industry*", we will have the opportunity to hear on the advantages of Distributed Ledger Technology/Blockchain technologies, open banking, machine learning, and AI algorithms, among others, to improve efficiency and the security in financial services. The second session will be a panel motivated on potential risks and problems these technologies may have. In both session representatives of Price Waterhouse Coopers, Adhara, the World Economic Forum and Minsait will be our speakers.

In the afternoon's session: "*The international fintech agenda and its implications for Latin America and the Caribbean*", we will benefit with presentations from the International Monetary Fund, the Association of Supervisors of Banks of the Americas (ASBA), the Irving Fisher Committee and the Committee on Payments and Market Infrastructures (CPMI) representatives. The aim is to delve into issues such as data needs for fintech, cybersecurity, wholesale settlement digital tokens, financial inclusion among others.

We will close the day by having presentations on the central bank fintech perspective, addressing the current interaction of the central institutes with the industry, the initiatives to foster these types of projects, and of course the projects on regulation and supervision. We have the collaboration of the central banks of Canada, Spain, Hungary and the United States.

The following days will be focused on the Fintech Forum issues, with the presentation and discussion of the two workstreams reports on regulation and central bank digital currencies; concluding with a round table on the regional fintech novelties and the discussion on the next steps for the Forum.

Before concluding, let me highlight and emphasize the superb job that Serafín Martínez Jaramillo is doing on leading CEMLAs activities in these topics. Also, Raúl Morales and Yazmín Pérez have done a wonderful job. All right now. Hoping you have a fruitful and pleasant stay in Mexico City, thank you for your attention, let's get going.