Fintech Data Gaps in LAC

VI Meeting on Financial Information Forum
of Latin American and the Caribbean Central Banks

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Financial Information Forum and Fintech Forum

Financial Information Forum

■ The Financial Information Forum (FIF) is a regional response for central banks' needs in identifying, monitoring and discussing common issues related to the improvement of financial information models in line with international efforts made in this field.

■ By doing so, the FIF contributes:

1. to improve the analytical capacity for monetary policy and suitable macroprudential regulation and supervision;

2. to discuss about topics like the harmonization of national financial statistics; and primarily

3. to foster technical collaboration among the Forum members.

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Financial Information Forum

■ The FIF is made up of :

1. an Executive Committee, acting as a coordinating body;

2. an Advisory Committee, composed of representatives of international organizations and non-regional central banks;* and finally,

3. CEMLA, which acts as the permanent Secretariat of the FIF and its primary responsibility is to ensure the proper functioning of the agenda and activities of the Forum, supporting the Plenary and the Executive Committee.

* The IFC, IMF, Banco de España, Banco de Portugal, Deutsche Bundesbank, European Central Bank, Bank of Canada, ASBA, Board of Governors of the Federal Reserve System.

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FinTech Forum

■ The FinTech Forum is a regional initiative that aims to address strategic challenges that financial innovation entails for monetary and financial stability, and for the proper functioning of central banks of Latin America and the Caribbean.

■ The FinTech Forum contributes:

1. to disseminate and share best practices, experiences and knowledge of experts from different areas of specialization;

2. to contribute to a better understanding of the interaction of new financial technologies with monetary and financial stability; and

3. to understand the design, functioning, regulation and surveillance of financial technologies.

Fintech Forum

- The Fintech Forum has two working groups:

    I.   *Working Group Fintech Data Gaps*: identify and evaluate the main problems faced by Central Banks for data collection in Fintech activities and to identify best practices and recommendations.

    The participant countries are:
    Brazil, Chile, Costa Rica, El Salvador, Honduras, Jamaica, Mexico, Trinidad and Tobago, and Spain which some of them are also members of the FIF.

    II. *Working Group on Central Bank Digital Currency (CBDC):* deepening in specific aspects of CBDCs projects, specially on technology and implementation issues.

    The participant countries are:
    Bahamas, Chile, Colombia, Eastern Caribbean, Ecuador, Jamaica, Perú, Uruguay and Sweden

- Innovation Hub

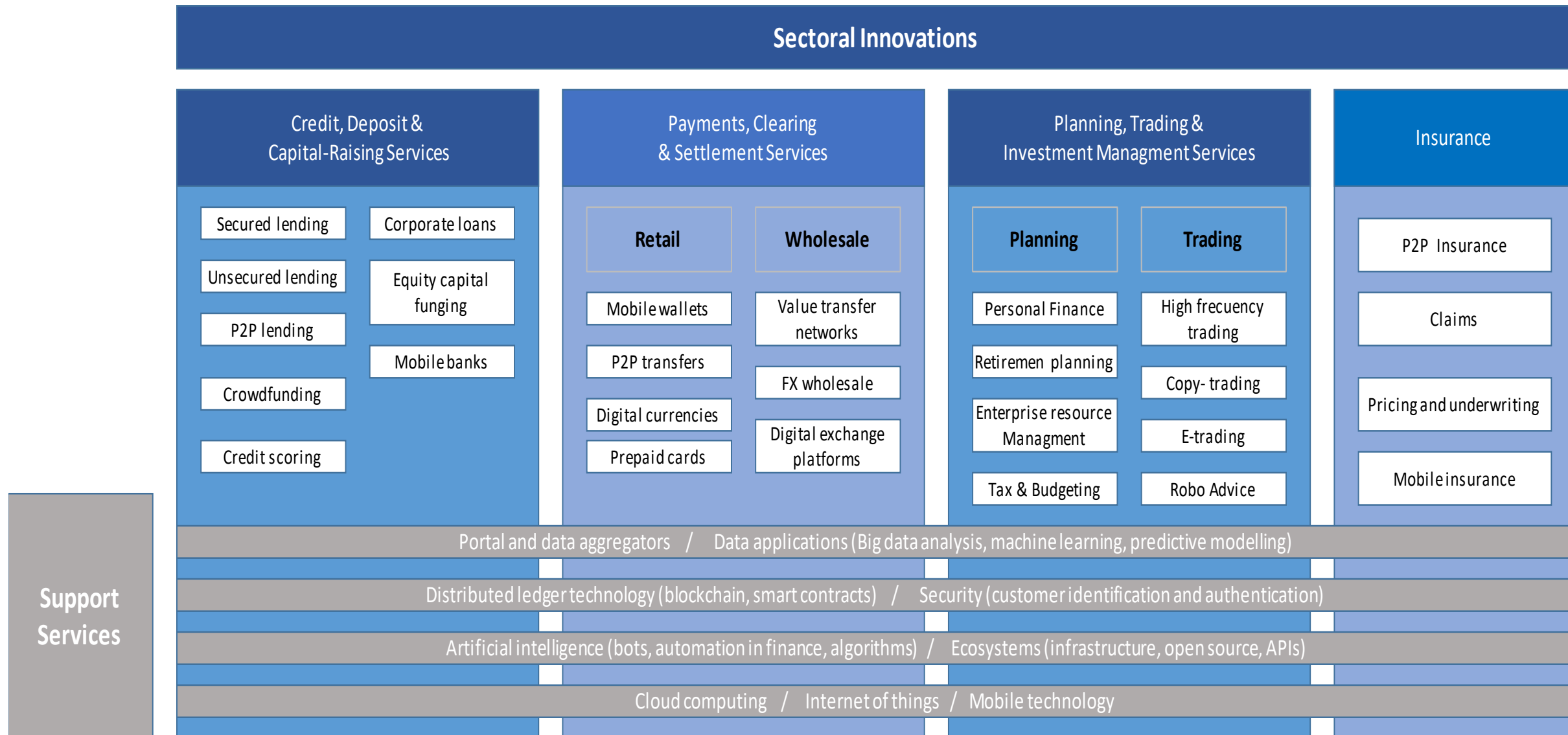# FinTech Definition

FinTech Definition

- There are many different definitions for Financial Technologies (Fintech).

- However, it is important to have a common definition for FinTech. In the report we follow the FSB definition:

FSB definition:

"*as 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.*"*

*Source: FSB (2019), FinTech and market structure in financial services: Market developments and potential financial stability implications, FSB Press Releases.

FinTech Activities

Sectoral Innovations			
Credit, Deposit & Capital-Raising Services	**Payments, Clearing & Settlement Services**	**Planning, Trading & Investment Managment Services**	**Insurance**

Credit, Deposit & Capital-Raising Services		Payments, Clearing & Settlement Services		Planning, Trading & Investment Managment Services		Insurance
		Retail	**Wholesale**	**Planning**	**Trading**	
Secured lending	Corporate loans	Mobile wallets	Value transfer networks	Personal Finance	High frecuency trading	P2P Insurance
Unsecured lending	Equity capital funging	P2P transfers	FX wholesale	Retiremen planning	Copy- trading	Claims
P2P lending	Mobile banks	Digital currencies	Digital exchange platforms	Enterprise resource Managment	E-trading	Pricing and underwriting
Crowdfunding		Prepaid cards		Tax & Budgeting	Robo Advice	Mobile insurance
Credit scoring						

Support Services

Portal and data aggregators / Data applications (Big data analysis, machine learning, predictive modelling)

Distributed ledger technology (blockchain, smart contracts) / Security (customer identification and authentication)

Artificial intelligence (bots, automation in finance, algorithms) / Ecosystems (infrastructure, open source, APIs)

Cloud computing / Internet of things / Mobile technology

*Source: Own elaboration with information of BIS, IAIS and IOSCO.

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FinTech Data Gaps

FinTech Data Gaps

- The FinTech industry is still small in comparison with the banking sector; however FinTech may have the potential to move commercial banks' credit intermediation and place it in less supervised institutions.

- The lack of information about FinTech services could potentially distort the information that monetary authorities need to follow the economy.

- Central banks should care about these possible data gaps for two main reasons:

    1. it is important to monitor and to classify adequately FinTech activities within the national accounts statistics. It is challenging because of the nature of FinTech activities.

    2. the rapid growth of FinTech sector and activities (such as credit lending, payment systems, insurance, crowdfunding, cryptocurrencies) could have important implications for the development and stability of the financial system. Moreover, it is also important to design adequate monetary and regulatory policies.*

Working Group on FinTech Data Gaps

Working Group on FinTech Data Gaps

- The Fintech Data Gaps working group (WG) aims to identify and evaluate the main problems faced by Central Banks for the collection of data in FinTech activities and identify best practices and recommendations.

- The participating countries within the WG are: Brazil, Chile, Costa Rica, Honduras, Jamaica, Trinidad and Tobago, Spain, Mexico, and El Salvador.

- LAC Countries with some data reporting initiatives for the FinTech industry are: Brazil, Colombia, El Salvador, Guatemala, Mexico, Nicaragua, Paraguay, Peru, and Uruguay.

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Policy Report on FinTech Data Gaps*

Working Paper in collaboration with LAC central banks and Banco de España.

Objective

- This document aims to provide an overview of the main issues related to data gaps to facilitate monitoring of FinTech and overcome the significant challenges towards incorporating FinTech activities in regular statistics.

- Also, it describes the main findings based on the Irving Fisher Committee (IFC) survey "Central Banks and Fintech data" answered by **16** Latin American and Caribbean (LAC) countries.

- Finally, the next steps are proposed based on a policy discussion and how LAC countries could overcome data gaps and improve data collection based on their current experience.

Policy Report on FinTech Data Gaps

■ The Policy Report includes the following main sections:

I. Implications on Central Banks:

  ■ Implications of data gaps on monetary policy and on financial stability.

  ■ Payment Systems.

  ■ Economic Activity.

  ■ Other implications: BigTech and Cybersecurity.

II. Current Situation

III. Policy Discussion (on course)

  Appendix 1. National experiences and initiatives on payment systems to close FinTech data gaps.

  Appendix 2. Specific initiatives that LAC countries are launching in order to close FinTech data gaps.

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Implications on Central Banks on monetary policy

➢ Monetary policy is designed to achieve price stability and is probably the most important mandate for most central banks.

➢ One fundamental aspect is the understanding of monetary policy transmission. There are mainly five main channels in the literature:

  ➢ Credit, interest rates, asset prices, inflation expectations and exchange rates.

➢ For example, interest rates are an operational objective for the implementation of monetary policy. Monetary policy interest rates should be transmitted towards interest rates in the financial system. However, there is empirical evidence that this pass through is incomplete.

➢ Authorities must have a profound knowledge of how the transmission mechanism of their policy instruments impact the economy.

➢ Commercial banks are important (interbank rates, reserve requirements)

  ➢ There are many regulatory reports for banks.

Implications on Central Banks on monetary policy II

➢ Almost all Fintech firms are outside the regulatory perimeter, thus they are not obliged to report their activities.

➢ There are new entrants all the time. It is still difficult to gather this information and to include them in the current statistics.

➢ Most of the existing statistical frameworks need to be adjusted to register properly fintech activities.

➢ Fintech firms are not always classified in accordance to the service they provide and are either new firms or existing IT companies which have developed a financial service or traditional financial intermediaries which are offering a new set of technological products.

➢ Balyuk et.al. (2016): Lending market

    ■ Fintech start-ups: P2P lending.

    ■ Transformation:

        From Access point to new credit intermediaries

    ■ Moral Hazard

Implications on Central Banks on monetary policy III

➢ Digital currencies and Stable coins could have a profound impact on monetary policy implementation and transmission.

➢ Despite their technological advances and global reach, virtual currencies are far from being able to challenge the dominant position of sovereign currencies and the monetary policies of central banks.

➢ In extreme cases (hyperinflation, political turmoil, etc.), they can become a means of currency substitution.

➢ What options do we have?
   ➢ Bring them to the regulatory perimeter
   ➢ Collect data from regulatory sandboxes
   ➢ Activity based regulation instead of entity based

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Implications of Fintech activities on financial stability

- In identifying potential Fintech risks for financial stability, so it is needed to understand how FinTech operates, how it is interrelated with other financial system participants, and which risks for the system as a whole are arising from Fintech.

- The risks for financial stability can be addressed in two directions:
  - Identification of current vulnerabilities in the financial system that could be increased by Fintech, or new vulnerabilities generated by Fintech; and
  - Understanding how shocks coming from FinTech can be amplified and propagated throughout the financial system and to the real economy.

- Some of the activities carried out by Fintech could be similar to those conducted by other financial intermediaries, their associated risks would be comparable: credit risk, market risk, liquidity risk, maturity mismatches, among others.

Implications of Fintech activities on financial stability II

➢ The is a lack of information of FinTech firms because many of them fall outside the current reporting frameworks. This is important because of their innovative business models, and their increasing participation in the financial system.

➢ There is an important data gap regarding the interest rates on P2P lending, the size of interrelationship with other financial institutions (funding), size of credit exposures, and to identify common users of FinTech firms. This data could be useful to measure emerging risks to financial stability.

➢ It is essential to have enough information available to adequately assess the risks inherent to the business models of FinTech.

➢ Authorities should measure the complexity of the financial system by the increasing level of interconnectedness and detect important changes to the structural properties of the financial ecosystem.

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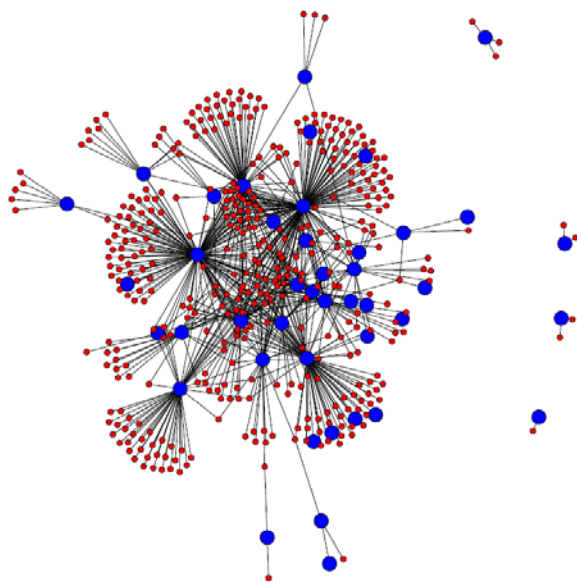# Quantification of systemic risk in multilayer networks

- Banking multi-layer network of Mexico on 30 September 2013.

  (a) Network of exposures from derivatives,

  (b) security cross-holdings,

  (c) foreign exchange exposures,

  (d) deposits & loans and

  (e) combined banking network.

- Nodes (banks) are colored according to their systemic impact in the respective layer: from systemically important banks (red) to systemically safe (green).

- Node size represents banks' total assets.

- Link width is the exposure size between banks, link color is taken from the counterparty.

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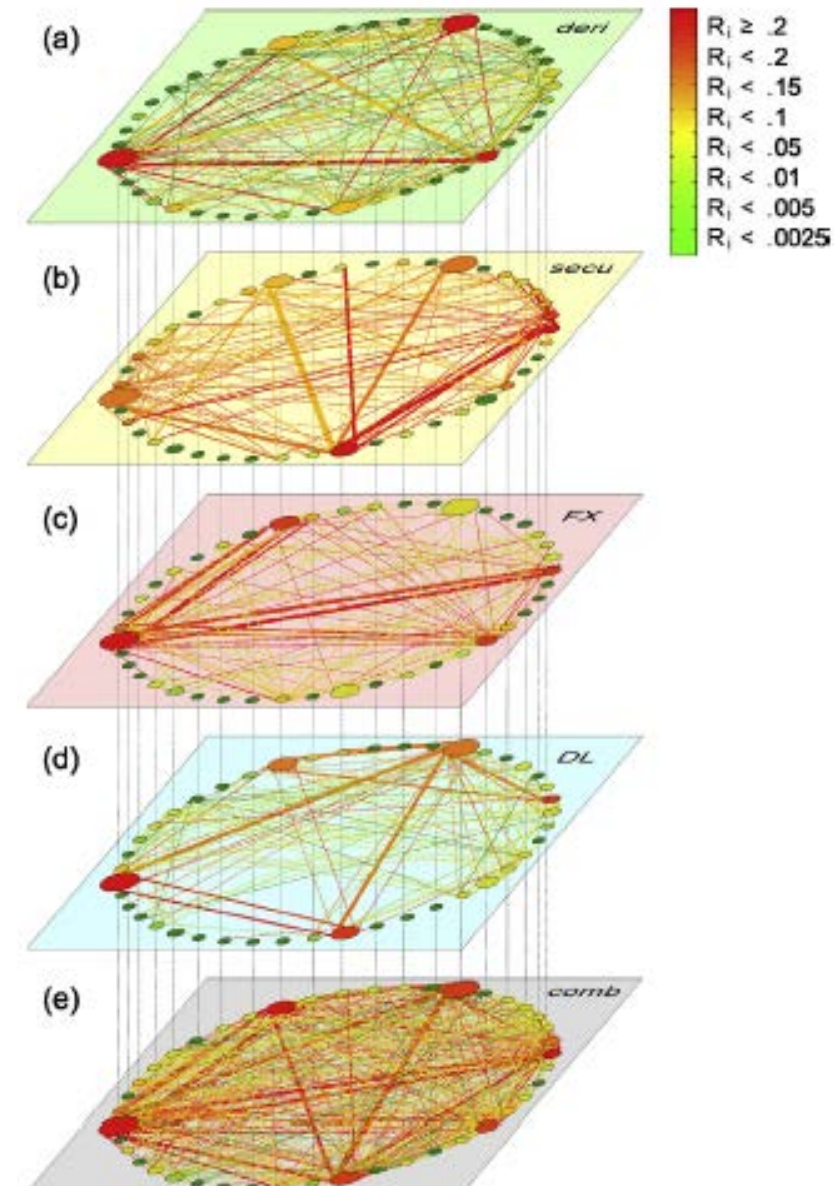
Sovereign and financial risk

- Banks are exposed to systemic risk directly and indirectly
  - Propagate through different mechanisms and channels of contagion.
- Overlapping portfolios
  - Indirect interconnection. Financial institutions invest in common assets. An important source of contagion and systemic risk.
  - *Poledna et al (2019)[1] propose a network model to quantify systemic risk from direct and indirect exposures.*

Red: assests
Blue: banks
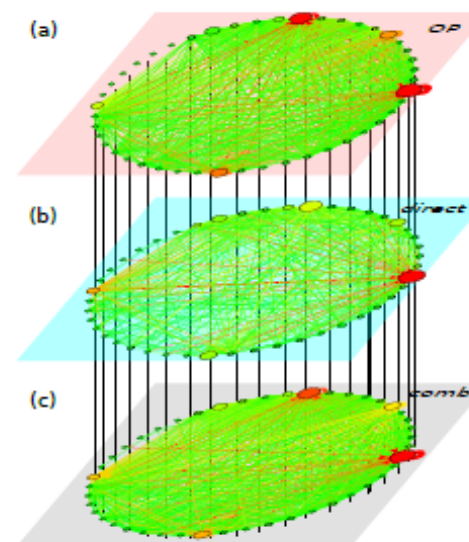
Multi-layered Mexican banking network

Poledna, S., Martinez-Jaramillo, S., Caccioli, F., Thurner, S., 2019. "Quantification of systemic risk from overlapping portfolios in the financial system." To be published, Journal of Financial Stability

Implications on Central Banks from payment systems

➢ The original thinking of the financial sector was prone to see an opposition between the banking system and the new entrants so called FinTech. Especially when related to payment systems.

➢ In fact, as technology provides these new entrants better and cheaper ways to compete for core banking business, many believed that banks' dominant position could be challenged.

➢ We have been already seeing disruptions in the financial sector. Nevertheless, what has been seen is a trend of a building partnerships between these two players (banks and FinTech).

➢ New FinTech entrants are coming into the marketplace regularly, while banks are trying to adapt to the new scenario of digitalization, advanced technology and increasing consumer demands.

➢ It is worth mentioning the initiative led by CEMLA since 2001 on payment systems data on a regional basis. The Yellow Book Statistics are inspired in the CPMI framework and are periodically updated in tandem with the Red Book.

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Implications on Central Banks from payment systems II

➢ Data collection requirements could be different and evolve quickly, in this sense it will be good to follow international guidelines such as the Red Book Statistics from CPMI (Yellow Book Statistics for LAC countries).

➢ Collaboration among institutions (FinTech and commercial banks) could reduce data gaps, since information is the basic resource that joints banks and FinTech in order to provide services together.

➢ Regulation of cryptocurrencies and stable coins. Within the era of digital money, these have been recognized as possible threats and as a big challenge to Central Banks, specifically, to the sovereignty of its currency.

➢ Money laundering activities and terrorism financing. As FinTech activities could move money from the traditional payments system to their own system, this disables the regulator from monitoring money movements. The regulator must collaborate with the service provider to get information and to prevent money laundering and the financing of terrorism.

Implications on Central Banks. BigTech.

➤ BigTech companies fall outside of the regulatory perimeter. Especially when these companies offer financial services with a personalized relationship with clients.

➤ An additional source of data gaps is when BigTech companies provide third-party services to traditional financial entities.

➤ Data gaps could be minimized if financial authorities set clear rules for the joint venture and third-party services.

➤ The cross-border dimension of a BigTech implies international coordination as a measure that should not be underestimated by regulators.

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Implications on Central Banks. Cybersecurity.

➢ The is an increase on software complexity. This opens many additional vulnerability points.

➢ A map of software dependency would be very useful to understand it.

➢ Incident dynamics: It has not been possible to share data about the activities led by each Incident Response Group (CSIRT) due to the nature of the information.

➢ Testing activities: A lack of information on what are the minimum data requirements of testing protocols could led to unleveled stress testing scenarios.

➢ Regulatory requirements: There are very few measures on operational and cyber risk. It is necessary to collect relevant data on cyber risk.

➢ New services providers: Many of the activities held by such new entrants relates to software and supporting provision.

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Growth of Software Complexity in Aircraft
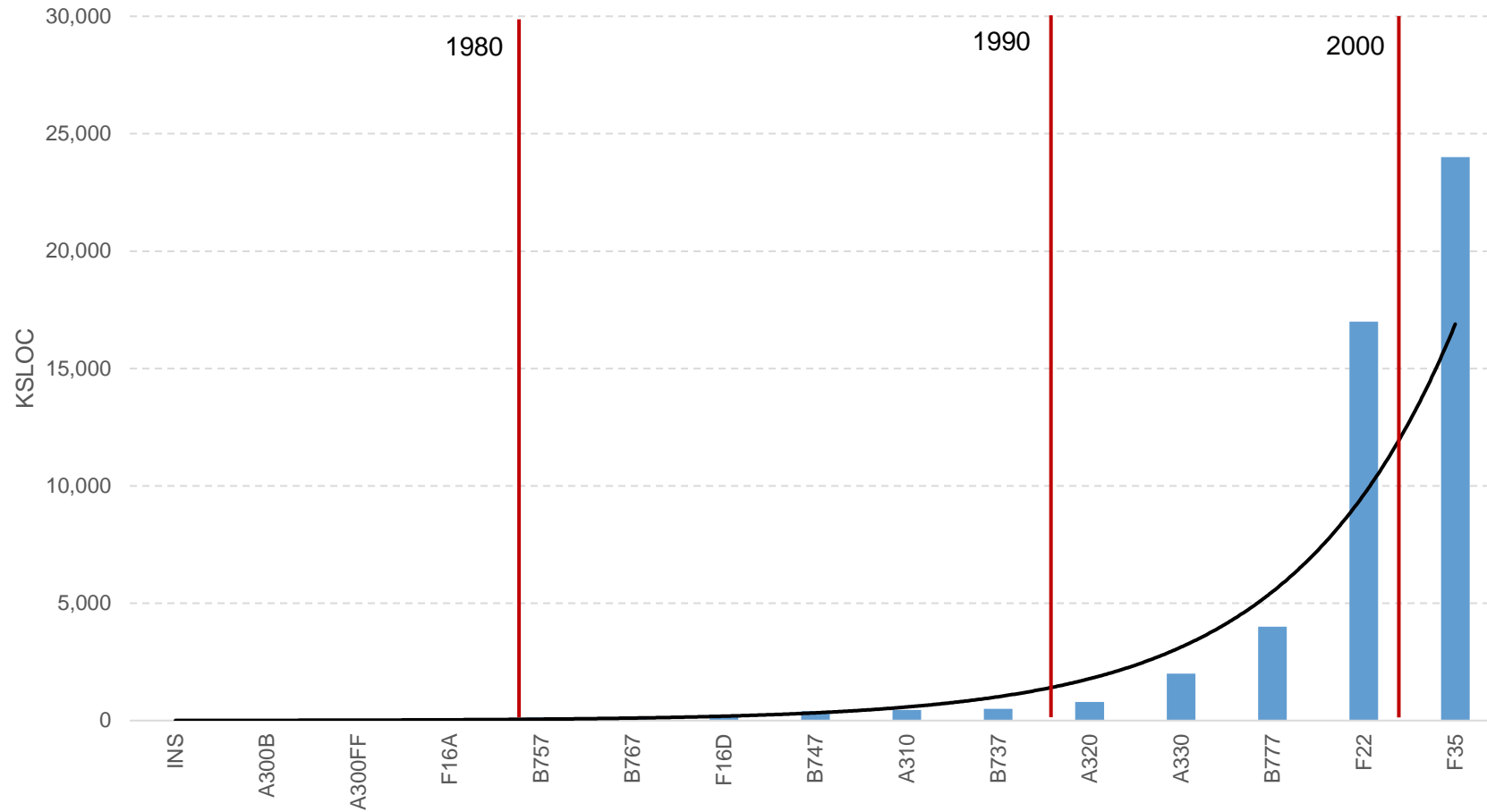
Note: Thousands of Lines of Code (KSLOC) Used in Specific Aircraft over Time.
Source: System Architecture Virtual Integration (SAVI) program. https://savi.avsi.aero/about-savi/savi-motivation/

Current Situation-I

- We described the main findings based on the Irving Fisher Committee (IFC) survey "Central Banks and Fintech data" answered by LAC countries to identify their different positions regarding this topic and the current initiatives that each one is launching.

- 16 LAC countries answered the survey. The countries who participate on the survey were Argentina, Bolivia, Brazil, Belize, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Honduras, Jamaica, Mexico, Peru, Suriname, Trinidad & Tobago and Uruguay.

- The majority of LAC banks report that FinTech is creating gaps in their statistics. Specifically, 90% of the central banks sees the development of new assets, services, and firms outside the regulation as reasons for FinTech creating gaps in statistics.

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Current Situation-II

- LAC central banks reported that Fintech's activities are creating gaps in its statistics because these companies are still too small and diverse. Moreover, the lack of regular information makes it difficult to include them within the classification system in Central Bank statistics.

- Additionally, most of LAC countries highlighted that another cause for Fintech gaps in statistics is due to the provision of fintech services by traditional financial intermediaries.

- This is important in LAC countries where the number of unbanked people is around 206 million and in some jurisdictions Fintech firms represent the only way unbanked people could access financial services.
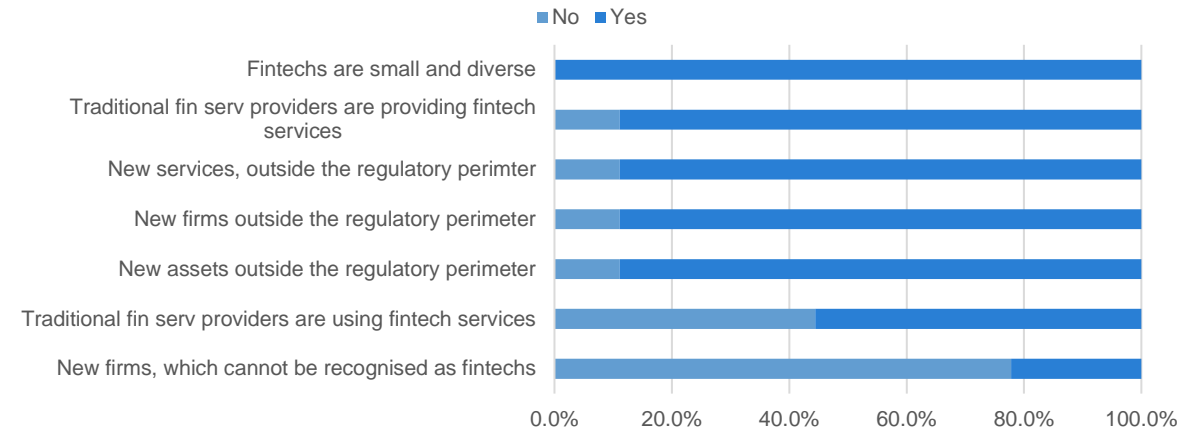
Current Situation- III

■ Regarding the data collection, in the LAC region it could be useful to boost the use of techniques such as APIs and web scraping, which represent a cost-effective form of data collection for central banks and regulators.

■ According to the survey, Fintech data needs for LAC countries are more relevant for payment systems, financial stability, and research. For example, the use of Fintech can reduce the cost of remittances through money transfer orders (MTO).

Graph 1. Do you have a special position for Fintech firms in your current statistical classification system (In per cent)
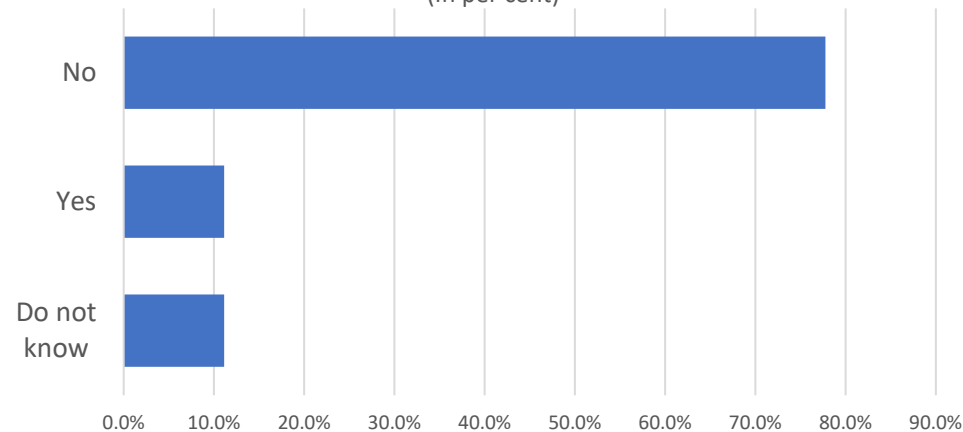
Graph 2. Why is Fintech creating gaps in statistics? (In per cent)

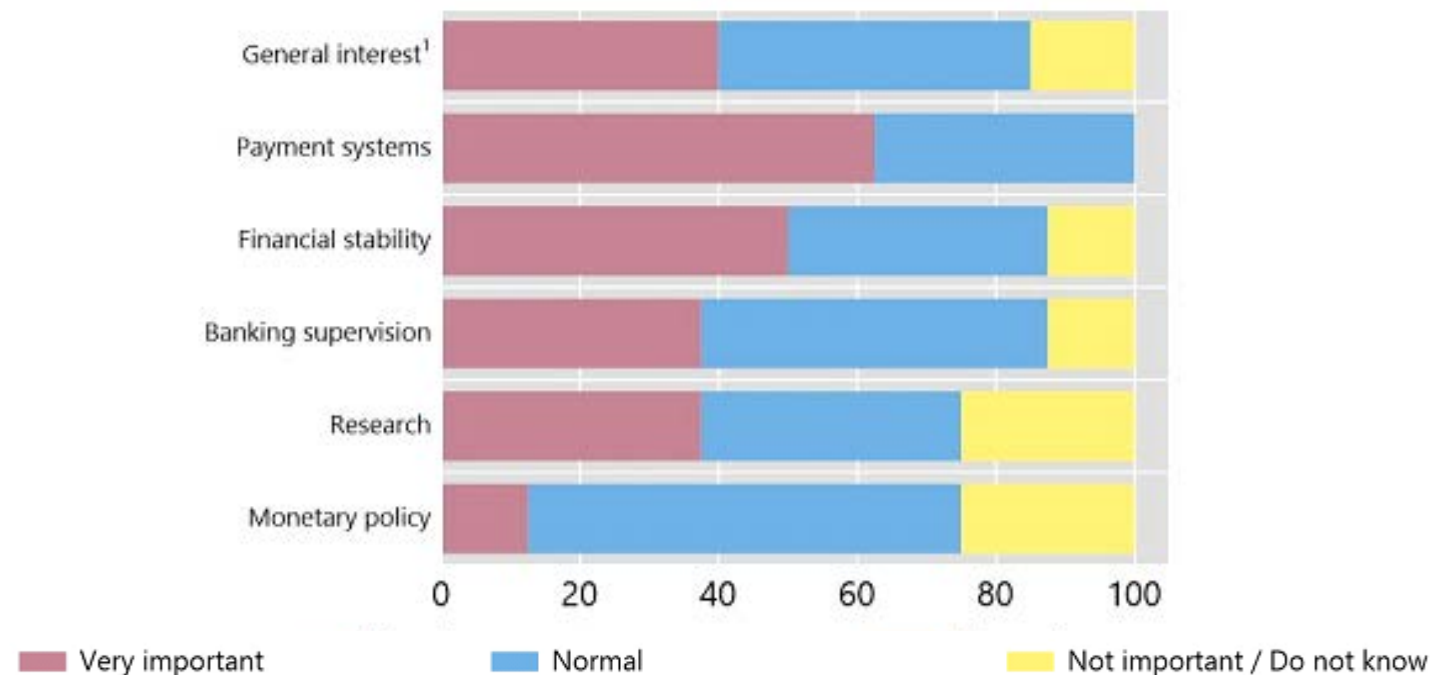Source: Own elaboration based on IFC Survey on Fintech data Source-LAC countries.

Source: Own elaboration based on IFC Survey on Fintech data Source-LAC countries.

Current Situation- IV

- According to the IFC Report on Central banks and fintech data issues, "*LAC central banks report significantly higher information needs compared to the overall results of the IFC survey.*"*

- "*On average across business areas, the need for fintech data is reported to be "very important" by around 40% of these LAC central banks, and "not important" by only 15% of them – compared to, respectively, 27% and 46% for the overall IFC survey.*" *


Panel A: Fintech data needs by business area

*Source: Central banks and fintech data issues 2020 Survey conducted by the Irving Fisher Committee on Central Bank Statistics (IFC), February 2020.

Current Situation- V

- "*Despite this different level of financial development, the fintech-related statistical implications reported by LAC central banks are relatively similar to the other jurisdictions.*"*

- "*…there are only minor differences in the ranking of the statistical initiatives perceived as important to close fintech data gaps .*" *

Panel B: Ranking of initiatives helpful to close fintech data gaps
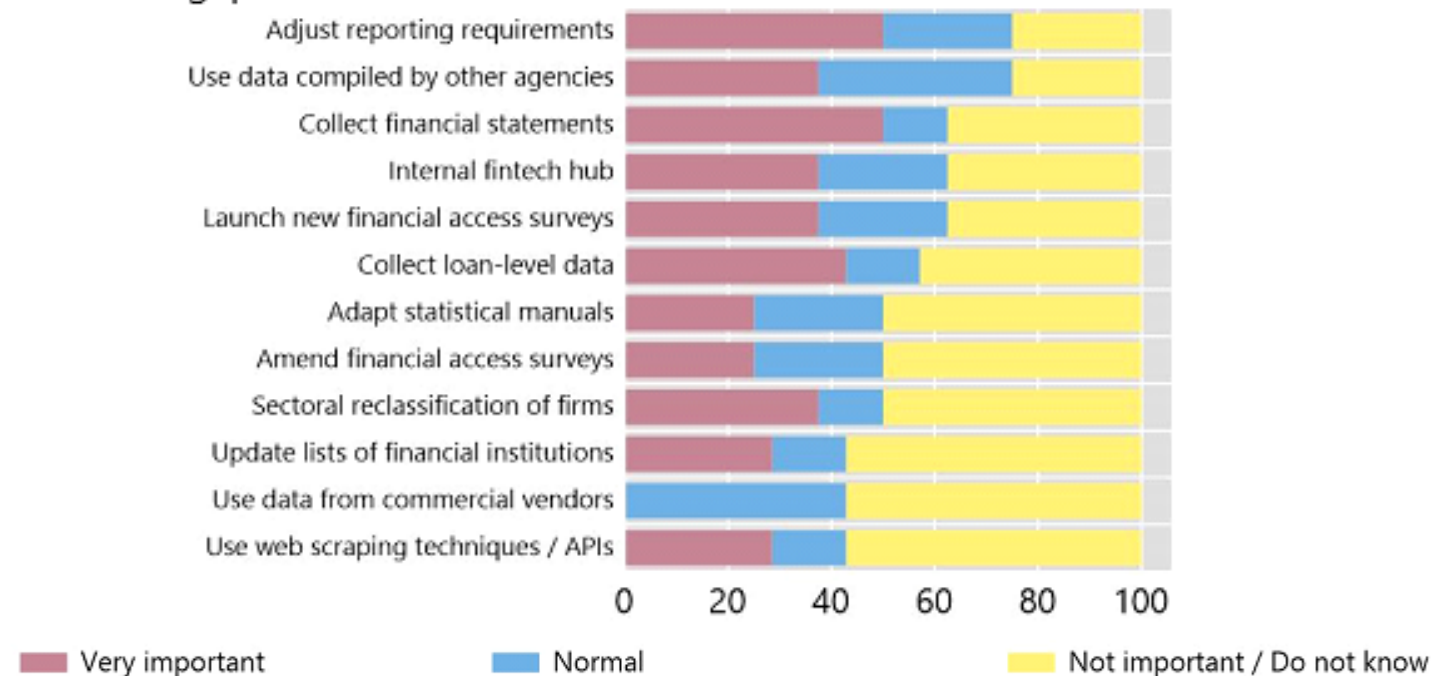
National experiences and initiatives on payment systems to close FinTech data gaps.

- **Brazil** is already working on a minimum set of critical information and is also preparing a template to survey of what type of data is already gathered by Central Banks in terms of FinTech activity.

- **Costa Rica** has taken an initial step on the identification of FinTech firms. With this strategy, the central bank experimented a new flow of requests from new companies that currently are being analyzed.

- **Honduras** is at an early stage with high development potential. Until October 2019, 23 FinTech initiatives have been identified, which the most representative business segment is payments and transfers with 43% of the total initiatives.

- **Trinidad and Tobago** published their Fintech and an e-money policy which activities are under the Financial Institutions Act. For closing data gaps reporting templates have been developed for some FinTech firms that are required to submit information to the Central Bank.
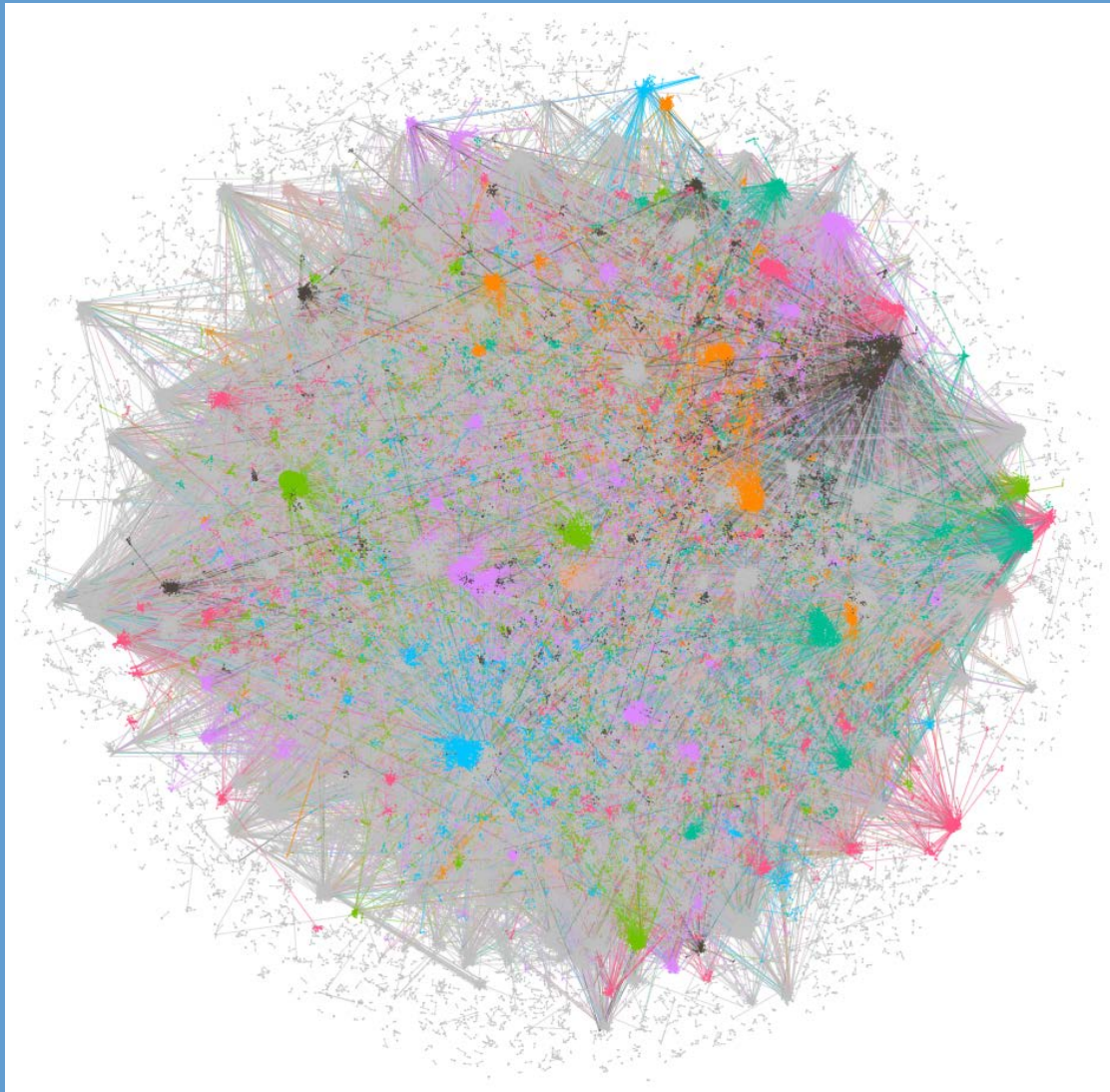
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Further work and Conclusions

Further work and Conclusions

- It is important to address more about data collection through the use of new techniques, such as application programming interfaces (APIs) or through the creation of data hubs owned by FinTech firms where central banks can collect data.

- According to the IFC survey, Fintech data needs for LAC countries are more relevant for payment systems, financial stability, and research.

- The majority of LAC banks report that FinTech is creating gaps in their statistics. Specifically, 90% of the central banks sees the development of new assets, services, and firms outside the regulation as reasons for FinTech creating gaps in statistics.

- The ranking of the statistical initiatives perceived as important to close fintech data gaps for LAC countries include adjust in reporting requirements, collect financial statements within the most important.

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Further work and Conclusions

■ LAC central banks reported that Fintech's activities are creating gaps in its statistics because these companies are still too small and diverse. Moreover, the lack of regular information makes it difficult to include them within the classification system in Central Bank statistics.

■ Data collection requirements could be different and evolve quickly, in this sense it will be good to follow international guidelines such as the Red Book Statistics from CPMI which determines data collection standards.

■ As FinTech activities could use non-traditional payment systems, the regulator must collaborate with the service provider to get information, monitor and to prevent money laundering and the financing of terrorism.

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Thanks a lot for your attention.