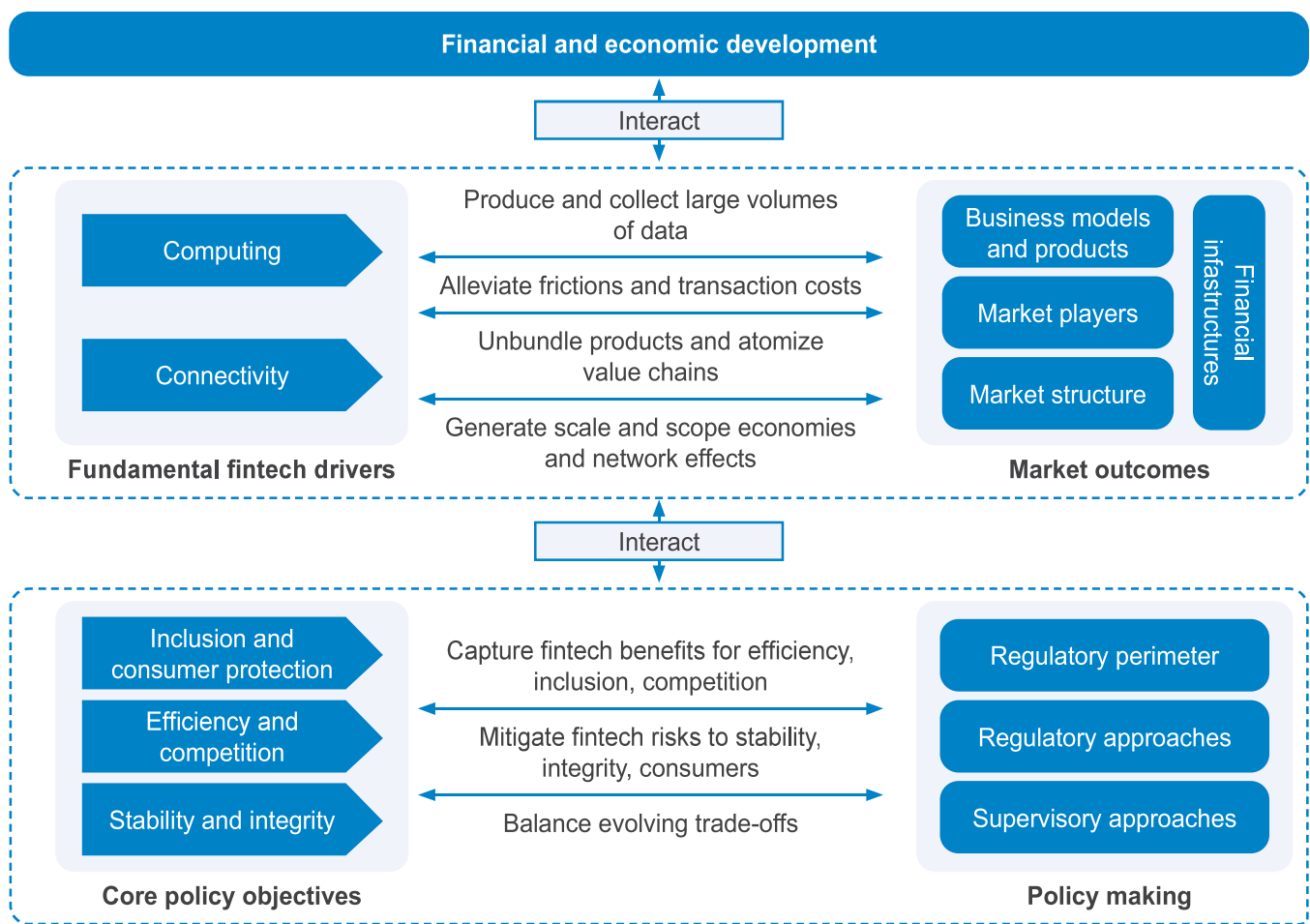


Executive Summary

The ongoing digitization of financial services and money creates opportunities to build more inclusive and efficient financial services and promote economic development. Countries should embrace these opportunities and implement policies that enable and encourage safe financial innovation and adoption. Technological advances are blurring the boundaries of both financial firms and the financial sector. New infrastructures, providers, products, business models, and market structures are shaping market outcomes in profound ways. As such, it is necessary to ensure that market outcomes remain aligned with core policy objectives as the financial sector continues to transform and policy tradeoffs evolve. This flagship report explores the implications of fintech and the digital transformation of financial services for market outcomes on one side, and regulation and supervision, on the other, and how these interact. This Overview Paper provides a high-level perspective for senior policy makers and is accompanied by a set of notes that focus in detail on selected salient issues for a more technical audience. Figure 1 below lays down a conceptual framework for fintech, and the interactions between markets, policy, and development.

Figure 1. Conceptual Framework for Fintech: Interactions between Markets, Policy, and Development



Source: Authors' elaboration.

The Fundamental Drivers of Fintech

Technology-enabled innovation in financial services, fintech, is re-shaping financial products, payments, business models, market players, market structure and even money itself. The adoption of fintech was accelerated by the COVID-19 pandemic. Fintech adoption can further financial development by promoting core policy objectives such as financial stability, integrity, inclusion, efficiency, innovation, and competition, and provide firm foundations for the digital economy to flourish. Fintech-enabled business models and products can support economies to become more resilient and promote an equitable recovery from the COVID-19 pandemic (World Development Report 2022). At the same time, a balanced policy approach is required to also mitigate various risks related to, among others, financial stability and integrity, consumer and investor protection, and data privacy.

The two fundamental drivers of this wave of fintech are ubiquitous connectivity through mobile, internet-connected devices and communication networks, and low-cost computing and data storage. Together these enable new business models for the delivery of technology, such as cloud computing. Applications leveraging these advances, such as e-commerce and mobile apps, create reams of Big Data about users and transactions. Low-cost computing and storage allow that data to be mined for insights. Data and connectivity can alleviate key frictions in the provision of financial services, such as information asymmetries and transactions costs, and have enabled a wide range of data-driven process automation and product applications, from credit and insurance underwriting to investment robo-advisors. Data-driven business models are able to scale rapidly, leveraging positive feedback loops from customer activity that generates data that is used to provide additional services, which in turn generate more user engagement and data. Lenders that previously relied on a borrower's credit history or collateral to fill information gaps about cash flows and ability to repay can use data-driven credit scores and real time payments data on cash flows to extend credit to previously underserved individuals and small and medium enterprises (SMEs), reaching them at lower cost through mobile channels.

These drivers enable the reconfiguration of the value chains that produce financial services. Transaction costs and barriers to information flows have long defined the scope of what was produced within a single firm; reduced transaction costs and friction-free information flows allow a reconfiguration of financial services value chains and product bundles. Connectivity and data exchange allow a product or service to be broken up into distinct components (atomization), which can be offered by different providers and recombined in new ways. Account opening, for example, has moved from a single-provider service delivered at the bank branch using its own front and back office, to a range of potential configurations: an account at a bank might be opened through the physical locations or the mobile app of a partner such as a retailer or an e-commerce platform, with ID verification provided by a specialized fintech, the ledger sitting on an outsourced cloud-based IT infrastructure, and customer service provided by an off-shore call center. That account might be branded as a product of the bank or might be delivered by the partner as a service 'powered by' with the consumer barely aware of the underlying financial institution.

The ability of customers and providers to access information and move funds more easily has enabled the unbundling of financial services: specialized providers offer single products and customers are able to choose a set of service providers that collectively meets their needs. Rather than using the deposit, payment, and loan products of a single institution, the customer can choose to keep deposits in one (or more), shop around for the best loan offer, and use different payments providers for different uses—paying bills, splitting a restaurant bill, or sending money overseas. Customers can now assemble their own set of services and bundle them at the level of app icons on a smartphone screen. Critically, the same advances in computing power, data, and connectivity allow services providers, who do not own the whole customer financial relationship (as banks once did), to provide single solutions and new packages of financial services, or rebundle financial services with other business or commercial activities.

Atomization, unbundling, and rebundling are re-shaping business models and product economics as well as the provider landscape. An account holder might choose a 3rd party application for remote access to an account, effectively

separating the account-holding institution from the end product and user interface—and much of the consumer value creation. Economy-wide trends such as wider use of application programming interfaces (APIs) in technology architecture and the rise of multi-party platforms in e-commerce, logistics, and other sectors further enable information exchanges and the rebundling of financial services, which are being embedded into non-financial products and workflows. The introduction of variable and on-demand (cloud-based) infrastructure, automation, remote channels, and capital-light and embedded business models is reducing costs to customers. The new array of customer-facing providers will, however, take some of the margin that was previously earned by banks, even where regulation may still require that a bank sit behind the product.

Market Outcomes

While the digital transformation of the financial sector remains a work in progress, it is already changing financial infrastructure, products, and business models, bringing new entrants and reshaping incumbents and market structure. Customer behavior is changing and competition increasing. There is potential to vastly improve financial inclusion, particularly in EMDEs, by overcoming physical and geographic barriers to access and closing the information gaps for credit and other products. Incumbents and entrants alike assign strategic priority to digitizing customer channels, internal processes, and product adoption. Market outcomes will ultimately depend on a variety of factors including scale and scope of economies, customer preferences for choice versus convenience, and the policy framework, including regulatory approaches to licensing, data, and competition.

Digital transformation both creates a need for new infrastructure—such as fast payment systems, digital ID, and data exchange platforms—to support the other market outcomes, and also provides new ways to meet that need. The impact of changing financial infrastructure may be largest in EMDEs, where prior infrastructure is most lacking. Financial infrastructures are no longer the sole purview of the central bank, incumbent payment system operators, and authorized credit bureaus or asset registries. In more developed markets, advances in connectivity between bank systems has enabled faster payments and these are now increasingly being adopted in EMDEs as well. Further, in EMDEs, mobile money systems are filling a gap in access to retail accounts and payments, enabling individuals to easily transact at a distance, and digital payments acceptance by SMEs. Mobile money systems have become a significant component of the payments landscape and are taking on some functions usually associated with financial infrastructure. In India and Estonia, government-provided digital IDs have become part of the foundational infrastructure for access to financial and other services. In most markets, digital ID-verification services are layered on top of existing non-digital government IDs by private sector innovators. Technology has expanded the potential coverage and impact of existing infrastructures such as credit information and collateral registries. Further, technological developments have opened the door for new quasi-infrastructure solutions including innovative providers of alternative data credit scoring and industry-led factoring and reverse factoring platforms. As technology enables a broader range of providers to offer financial services, the role of both traditional financial infrastructures and quasi-financial infrastructures become essential to new entrants and incumbents seeking to participate in the market; giving rise to potential challenges related to competition, pricing, and fair access.

Technology enables providers to serve and profit from broader markets as well as defined market segments. Digital channels enable providers to reach a broader market without high-cost branch infrastructure. The low-cost reach of digital banks paired with customer access to digital search enables focused providers to find and serve a dispersed niche customer segment. Automated data-driven processes can serve low-value/high volume segments efficiently and profitably. Products can be configured and tailored to meet specific needs of a particular consumer or business segment, enabling, for example, the provision of products like trade finance, invoice discounting, and FX services to SMEs that were once reserved for high volume large corporates. The growth of affinity digital banks serving the specific needs of segments such as freelancers and gig workers, musicians, or LGBTQ customers, demonstrates that eliminating geographic constraints and product tailoring can enable assembly of a viable customer base within even a narrow market

segment. These business model and product innovations are building on mobile access to drive meaningful financial inclusion, making available a wider range of products and services appropriate for previously excluded retail and SME market segments.

While technology has enabled niche providers to be economically viable, even in the digital age, classic economies of scale and scope remain strong forces, and convenience and trust matter to consumers. Economies of scale, scope, and network effects in customer acquisition and servicing, and data production and use increasingly drive digital business models. These forces confer advantages on providers with larger customer bases, such as big tech platforms. Scale and scope economies encourage a re-bundling of financial services, and allow diversified fintech and big tech companies, and other new players to deepen their inroads in core financial products. Furthermore, while unbundling gives users more choice, there can be time, effort, and monetary costs to assembling individual financial services from different providers. Simplicity, convenience, and trust therefore continue to be prized by consumers; these factors favor brand names and large players offering a broad range of products. Providers will optimize across their comparative advantages in technology, skills, reputation, capital, customer base, and other assets to determine how to position along the spectrum from single service within a product value chain, to single product, to broad multi-product player.

Strategic positioning as either a focused niche provider or as a large, multi-product provider could lead to a “barbell” market structure outcome. The resulting market configuration would be one of large banks and fintech and big tech firms co-existing with a competitive tail of targeted niche firms. Many firms are taking strategic decisions consistent with this market path, as evidenced by continued entry of new players alongside the trend to re-bundling, including fintech firms seeking banking licenses. Ecosystems in which small providers can thrive by connecting independently to customers or through partnerships with platforms for whom they fill product or service gaps, can enable persistence of this bi-modal market.

Crypto-assets, including stablecoins and decentralized finance (DeFi), as an emerging industry and asset class, offer new opportunities, but also significant challenges. Technology is blurring one of the last functional boundaries, the distinction between an individual and a financial intermediary. Distributed Ledger Technologies (DLT) underpin new decentralized financial infrastructures that reduce or remove the role of intermediaries, enabling users to interact directly on a peer-to-peer basis and providing open-source platforms that anybody can use and build upon, spurring innovation and network effects and giving rise to new, interoperable financial services and vibrant ecosystems. Crypto-assets, including stablecoins, and DeFi are DLT-based decentralized forms of digital value and financial services that aim to serve a range of economic functions. They hold promise for financial innovation, inclusion, efficiency, capital formation, and transparency. For example, they could improve the speed and cost of cross-border payments and remittances, which are key for EMDEs. However, these new technologies carry significant risks related to, among others, financial integrity, consumer and investor protection, financial stability, fair competition, and monetary sovereignty.

Policy Objectives and Role for Policy Makers

Allowing fintech developments to be driven solely by market forces may ultimately not serve core policy objectives. These objectives include promoting financial innovation, efficiency, and inclusion, while mitigating risks associated with financial stability and integrity; cyber and operational risks; data, consumer and investor protection; fair competition; and (cross-border) regulatory arbitrage. Technology enabling niche providers targeting a particular product or segment to be economically viable does not ensure open and competitive markets. The tendency to market concentration in particular due to economies of scale and network effects in data, raises concerns about potential anti-competitive conduct, but may also deliver inclusion and efficiency, particularly in developing economies that do not benefit from competitive and inclusive financial sectors. A concentrated provider or a big tech crossing over into finance may provide financial services otherwise unavailable. Consumers can benefit from a wave of fintech-induced innovation and competition even as markets become

more concentrated. Proper policy safeguards hence become increasingly important for maintaining fair competition and preventing abuse of market power. Similarly, crypto-assets and DeFi ecosystems could reduce costs and spur innovation, but they currently lack transparency and adequate investor/consumer and financial integrity protections.

Policy tradeoffs evolve as countries rise on the fintech adoption ladder to ensure market outcomes remain aligned with core policy objectives. At lower levels of fintech development, providing basic policy support for innovation and mitigating immediate risks, such as illicit activity and protection of customer funds, may yield good short-term outcomes as policy makers aim to reap innovation, inclusion, and efficiency gains. Consumers have benefited from a wave of fintech-induced innovation and competition even as markets have become more concentrated. Policy makers however need to be aware that adoption can increase rapidly and hence will need to improve their monitoring tools and be ready to step in. Strengthening or clarifying policy frameworks and improving financial infrastructures become increasingly important to continue to safely support fintech adoption, as fintech reaches more consumers, increases volume and dependence on user data, and as certain providers reach scale.

EMDEs have adapted regulatory and supervisory frameworks in response to fintech developments, although market participants indicate there is scope for improvement. Various EMDEs have sought to bring fintech activities within the regulatory perimeter by applying or adapting existing regulatory frameworks or developing bespoke regulations or sandboxes to promote safe innovation. Some countries have done so after a period of observing industry developments and letting some fintech activities go unregulated. This may entail risk. Countries also feel the need to evaluate the appropriateness of their supervisory frameworks as the financial sector undergoes digital transformation. And, according to market participants, supervisors will need to catch up, particularly in EMDEs. The approach to dealing with fintech failures needs strengthening in many EMDEs, although special wind-down procedures are only indicated in cases where the provider has systemic relevance. Many advanced economies are adopting comprehensive data protection and privacy frameworks, while EMDEs typically lag.

Policy makers have taken a cautious stance regarding crypto-assets. Jurisdictions aim to provide an environment for safe innovation and adoption and are clarifying existing legal, regulatory, and supervisory approaches, or creating new ones; although some jurisdictions have limited or banned some or all crypto-assets activities. In light of their supra-national and decentralized nature, crypto-assets pose domestic and international regulatory arbitrage risks. Various standard-setting bodies are applying general and transparent principles to provide guidance, set minimum requirements, and promote cross-border collaboration. In doing so, there is a need to focus on economic functions, using a “same risk, same activity, same treatment” approach while aiming for simplicity to ensure a future-proof, technology-neutral stance. However, this remains a work in progress and many national authorities still lag behind in upgrading their policy frameworks and address regulatory fragmentation.

Some types of crypto-assets notably global stablecoins have the potential to attract broad public usage as a means of payments including in the De-Fi ecosystems. In this context, public authorities are exploring issuing Central Bank Digital Currencies (CBDCs). Widespread adoption of crypto-assets could challenge the primacy of public money with implications for, among others, monetary policy and financial stability. Some authorities have also noted the concentration, data protection, and privacy risks that large-scale payment service providers can pose, particularly the ones employing a data monetization-led business strategy. It is perceived that a CBDC, being a digital version of fiat currency, could imbue public money with the necessary digital features and enable it to provide a safer and efficient alternative to society, while promoting competition and innovation. The perceived potential of CBDCs to advance financial inclusion is also of interest to some public authorities, notably the EMDEs. CBDCs however are not a panacea for financial inclusion since key behavioral, technological, and infrastructural barriers faced by other digital payment solutions may remain in place.

Several jurisdictions and international standard-setting bodies are studying design options and developing roadmaps to introduce CBDCs. The scale and pace of adoption and implications are not fully clear at this point, but the general thrust appears to position CBDCs as co-existing with other forms of money and payment

mechanisms. CBDCs could be limited for use by regulated financial-sector players—wholesale or open-to-all retail CBDCs. Wholesale CBDCs, given their limited use, do not pose any significant policy challenges. A retail CBDC may however adversely impact bank funding and credit intermediation, impact monetary stability, distort the level playing field, and raise financial integrity and data privacy challenges. As such, careful attention needs to be given to various implementation options related to, for example, distribution, wallet limits, privacy features, onboarding, and verification mechanisms. At the time of this report writing The Bahamas, Eastern Caribbean Central Bank and Nigeria have already launched retail CBDCs, with a few more in advanced stages—China, Ghana, and Jamaica have launched large-scale live testing. The guidance emerging from standard-setting bodies, notably BIS-CPMI, calls for striking a balanced approach. This would likely translate to retail CBDCs being distributed through regulated banks and payment service providers, being interoperable and co-existing with private money, and come with transaction limits and restrictions on cross-border usage.

Policy makers are also actively pursuing other avenues to advance the reach and efficiency of payment systems.

The reform actions being pursued include, inter alia, implementation of fast payment systems, expanding access to payment systems to non-bank entrants, promoting open banking, extended hours of operations, and expanding direct access to central bank settlement services to non-bank institutions. These could also enable smoother introduction of CBDCs later.

The cross-sectoral nature of fintech has profound implications for regulatory frameworks. The growing diversity of financial service providers resulting from atomization and unbundling requires re-evaluation of the regulatory perimeter. In this regard, regulators are confronted with three questions—what to regulate, when to regulate, and how to regulate. Finance has long been intertwined with other commercial activities. Long standing practices related to payment terms for account payables implicitly include credit extension. The terms of such credit may come under commercial conduct codes, but is generally not part of financial sector regulation. Further, given atomization and unbundling, multiple financial and non-financial entities are often involved in the production of financial services. Bringing every other instance of finance and all entities involved in the production of financial services under the financial sector regulatory perimeter would not be viable in most markets. At the same time, addressing conduct-related risks might necessitate defining a wider financial sector regulatory and oversight perimeter. The potential “bar-bell” market outcome requires financial sector regulators to take an active role in collaboration and co-ordination with competition authorities to lower the barriers to entry and keep the market contestable even when there could be natural tendencies for a concentrated market in some financial services.

These regulatory challenges in turn have implications for supervisory frameworks. The expansion of the regulatory perimeter will have a knock-on effect on supervisory approaches and stretch supervisory capacities. Establishing a risk-based framework to prioritize supervisory actions and calibrate supervisory intensity becomes relevant. Further, supervisors will need to marshal new skills through strategic staffing, partnerships, and industry collaborations. Strengthening and expanding data-sharing and collaboration frameworks among domestic authorities and at the international level are important. As the fintech market evolves, ensuring an orderly exit of unviable market players could become critical necessitating strengthening of wind-down processes and tools and financial sector safeguards.

Lastly in this context, the design and governance of financial infrastructures become a key policy lever to fully harness efficiency gains and safeguarding competition. Several financial infrastructure components will become central to the financial services chain. Ensuring open, fair, and transparent access to these infrastructures become critical to provide a level playing field and allow new entrants a fair chance to compete with incumbents. Payment systems, credit reporting systems, and secured transaction registries are particularly relevant. In addition, increasing reliance on remote provision of services and data-driven processes, require new types of financial infrastructure to emerge—for example, digital ID, data-exchange hubs, and gateways to data held with governments.

In conclusion, the ongoing digital transformation presents a paradigm shift that has various policy implications, including:

- Foster beneficial innovation and competition, while managing the risks.
- Broaden monitoring horizons and re-assess regulatory perimeters as embedding of financial services blurs the boundaries of the financial sector.
- Be mindful of evolving policy tradeoffs as fintech adoption deepens.
- Review regulatory, supervisory, and oversight frameworks to ensure they remain fit for purpose and enable the authorities to foster a safe, efficient, and inclusive financial system.
- Anticipate market structure tendencies and proactively shape them to foster competition and contestability in the financial sector.
- Modernize and open up financial infrastructures to enable competition and contestability.
- Ensure public money remains fit for the digital world amid rapid advances in private money solutions.
- Pursue strong cross-border coordination and sharing of information and best practices, given the supra-national nature of fintech.

Global Patterns of Fintech Activity and Enabling Factors (Fintech Activity Note)

by Tatiana Didier, Erik Feyen, Ruth Llovet Montanes, and Oya Ardic

The objectives of this paper are to take stock of the available fintech-related data, to document patterns of fintech activity across the world, and to help identify enabling factors. Fintech has seen remarkable growth over the past few years and will likely continue to shape the financial sector in terms of products, business models, and industrial organization. Yet, measurement of fintech activity is challenging, complicated by both the lack of a widely accepted definition, as well as important data limitations.

This paper tackles this measurement challenge by leveraging a wide range of data sources and developing a novel, country-level index of fintech activity for 125 countries, covering the period 2014-2018. The index covers three dimensions of fintech activity: fintech firm creation and growth through the availability of early-stage equity financing; usage of fintech credit and digital payments—now the most commonly used digital financial services, especially in developing countries; and the usage of mobile distribution channels for financial services.⁵²

The fintech activity index is positively correlated with countries' overall level of economic development. For instance, high-income countries generally rank higher than middle- and low-income countries not only in terms of the aggregate fintech index, but also along its four constituent dimensions. However, significant variation across both regions and income groups persists, suggesting that other enabling factors matter.

This paper then uses the index to systematically analyze the association between fintech activity and a wide range of economic and technological factors in a multi-variate regression setting. Specifically, the paper explores the role of three broad set of enabling factors: basic foundations, including information and communications technology (ICT) and financial infrastructures; financial sector development, distinguishing between the development of the banking system and capital markets; and the enabling policy environment, capturing the legal and regulatory frameworks for digital financial services.

There are three key findings in this paper. First, the estimations show that fintech activity is positively associated with ICT and financial infrastructures, though the relevance of the latter varies across types of fintech services. Specifically, the evidence indicates that ICT payments infrastructure plays a more important role in the usage of digital payment services, whereas the development of credit information systems, a financial infrastructure, is more relevant for the usage of digital lending services.

Second, the analyses also show a robust negative association between fintech activity and bank development, consistent with the view that digital financial services may have more opportunities to develop in countries where the under- and un-served share of the market is relatively large. Countries with more stringent overall banking regulations exhibit subdued fintech activity, suggesting that this is linked to a less permissive environment for innovation and fintech entrants. At the same time, there is a higher prevalence of bank app downloads in countries with more stringent banking regulations, suggesting in these cases that the digital transformation is driven by incumbents. Importantly, the estimations also show that fintech activity is positively correlated with capital market development. These correlations stem from the development of digital financial services by institutions other than banks, such as fintech companies. The positive association with capital market development suggests that a supportive funding environment for fintech firms, especially start-up equity financing, can play an important role. For example, the mobile app data show that downloads of non-banking apps are significantly positively related to the development of capital markets but negatively associated with

52. Nascent, but rapidly evolving digital financial products and services such as central bank digital currencies, crypto-assets, stablecoins, and decentralized finance (DeFi) are beyond the scope of the current version of our index.

banking system development. The opposite patterns are observed for bank app downloads. The analysis thus supports the idea that the distinction between incumbent banks and fintech companies is particularly important when exploring the potential drivers of fintech activity.

Third, the empirical results are consistent with a high-quality policy environment as a necessary, but insufficient condition for fintech development. Other factors need to be in place as well for fintech activity to flourish. The degree of fintech activity is consistently on the low end of the distribution in countries scoring poorly on policy indices that capture the existence of legal and regulatory frameworks relevant for digital financial services. Whereas, it varies widely across countries scoring high on these indices. In fact, there are several countries that despite having a supportive enabling policy environment exhibit relatively low levels of fintech activity. Finally, regulation could have positive and stabilizing impact on fintech activity in the longer term. These benefits are not likely to be reflected in the analysis, given the relatively short time horizon.

Regarding the role of sector-specific legislation and regulations, our results show mixed patterns. While the existence of laws and regulations for e-money, digital IDs, and e-signatures—electronic know-your-customer (e-KYC) frameworks—tend to be positively associated with fintech activity, the coefficient on consumer protection tends to be negative. The results, however, are not as forceful as those related to the other set of enabling factors and may reflect the complexities of policy interactions, pre-conditions, and tradeoffs at different levels of fintech development as well as measurement challenges. Moreover, it is important to recognize that alternative policy combinations can promote innovation and foster fintech activity, with similar outcomes. Overall, the demands on the enabling environment will likely evolve as fintech activity develops. Finding the right balance between trade-offs at every stage of fintech development remains essential to promote activity and innovation while keeping excessive risks in check.

Finally, separate in-depth analyses documented in the appendices explore two additional topics: the impact of the pandemic on finance app downloads and the link between the digitization of remittances services and remittance costs. On the former, the paper's analysis of mobile app download trends indicates that the pandemic may have accelerated fintech adoption. Moreover, the evidence indicates that the strict social distancing practices, including government implemented containment measures such as lockdowns, quarantines, and travel restrictions required to mitigate the spread of the coronavirus, has amplified the use of digital financial services. On the latter, the results indicate that digital service providers may help lower the costs of cross-border remittances, a key financial service for households in many EMDEs. Specifically, the analysis shows that remittances costs are lower in corridors with a higher prevalence of digital service providers.

Global Market Survey: Digital Technology and the Future of Finance Survey (Fintech Market Participants Survey) by Erik Feyen, Harish Natarajan, Guillermo Rabadan, Robert Paul Heffernan, Matthew Saal, and Arpita Sarkar

Digital technologies have made an indelible impact on the provision of financial services by new entrants and incumbents alike. The World Bank Group conducted a global survey on fintech and digital transformation of a range of financial market participants. The survey sought to capture market perceptions of the impact of fintech and digital technology on:

- Market developments, including the impact, risks, and benefits of fintech and digital transformation.
- Evolution of consumer behavior, including consumer relationships with traditional and new financial service providers, and use of physical locations.
- Competition and market structure, including the perceived risk of losing customers, risks to profitability, potential to reduce costs, market concentration, competition, and outsourcing.
- Corporate strategy, including priorities at the board level, strategic fintech activities, challenges to digital transformation, and impact of COVID-19 on strategic priorities.
- Regulatory environment, including enabling environment for innovation for incumbents and new entrants, and whether regulatory framework and guidance are fit for purpose in key product areas.

During the period of May 2020 to February 2021, 330 market participants from 109 countries responded from May 2020 to January 2021. These included traditional banks, payments/remittance service providers, fintech firms, insurance companies,⁵³ non-banking companies, tech companies, telecom companies, industry associations, and other financial market players from countries in all six World Bank Group regions. The survey was updated to include questions on the impacts of the COVID-19 pandemic.

Consistent with other surveys conducted by the World Bank Group, IMF, and the Cambridge Center for Alternative Finance (CCAF), fintech and digital transformation, accelerated by the pandemic, was expected to increase in importance. This trend was largely welcomed by respondents⁵⁴ and seen as positive for financial services businesses. Key strategic priorities for firms included digitization of customer acquisition and account opening, creating new digital products, and transforming internal processes. More than 80 percent of respondents felt that the COVID-19 pandemic increased the need for fintech and digital transformation and made digitization in customer channels, product adaptation, and internal processes a strategic priority. There were differing expectations, often by type of respondent, on channels and customer preferences. Reduced entry barriers were expected to increase competition, yet except for NBFIs, most respondents expected markets to become more concentrated. Respondents were concerned about operational and cyber risks increasing as a result of fintech and digital transformation. The regulatory framework and guidance for fintech and digital transformation innovation could be improved, particularly with respect to remote onboarding and account opening, use of agents or third-party channels, and automation of new products.

This paper is organized as follows: Section 1 provides background on the survey's objective. Section 2 summarizes the demographics of survey respondents. Section 3 presents survey findings, organized according to the key topics covered by the questionnaire, from digitization trends to evolving customer needs to provider views on risk and regulation. Section 4 synthesizes this analysis and highlights six key themes that emerge:

53. This has been used as a generic term for insurers of all types

54. Unless specified otherwise, the term 'respondent' refers to the institutions that chose to respond to the specific question or questions being discussed.

1. **Digital transformation of financial services was pervasive, strategically imperative, and was accelerated by the COVID-19 pandemic.** 82 percent of all respondents across all types of institutions expected an increase in the digital proportion of key activities. Fintech and digital transformation were a strategic priority at the boardroom level for 82 percent of respondents. More than 70 percent of respondents indicated that the pandemic increased the need for digital transformation across customer channels, internal processes, and product adaption. Respondents expected digitization to deliver significant benefits to customers and the firms themselves.
2. **The future combines physical and digital aspects—“phygital.”** Digitization does not spell the end of physical infrastructure for financial services. Half of banks and remittance operators, and 60 percent of MFIs and NBFIs, as well as payments operators, expected business to be conducted largely through physical locations in the next five years. Banks expected to continue serving customers through branches and proprietary digital channels, while other providers looked to more diverse channels and partners.
3. **Customer relationships are changing, and incumbents and new entrants perceived customer relationship preferences very differently.** Who will “own” the consumer relationship is in flux, as is how the customer will be served. There were strong expectations that new types of providers—neo-banks, fintech firms, big techs, platforms, and aggregators—will dominate customer relationships. Even as banks continued to expect customers to have a single core relationship for their financial services, only 34 percent expected that to be with traditional banks.
4. **Banks and fintech firms did not see each other as competitors.** Respondents tended to see the greatest competitive threat coming from institutions that are similar to them. Banks mostly saw other banks and neo-banks as a bigger competitive threat than other fintech players. Fintech firms expected to compete with other new types of players such as big techs, platforms, or aggregators. While there may be distinct customer segments, given the broader ambitions of neo-banks, fintech firms, and incumbents, they cannot all be correct about what the majority of customers prefer.
5. **Most financial services will be more competitive, but also more concentrated.** 48 percent of respondents believed that competition will increase and barriers to entry will lower to a great degree while another 40 percent believed that this will happen to a moderate degree. Except for NBFIs, most respondents expected markets to also become more concentrated. This is consistent with a bifurcated market in which lower barriers to entry increases competition for smaller players or in specific segments such as those where NBFIs mainly operate, while economies of scale and network effects drive consolidation among large multi-product institutions such as big banks, larger fintech firms, and big techs.
6. **Regulatory and supervisory barriers to innovation need attention.** While the regulatory stance with respect to enabling innovation was seen as “about right” by a majority of respondents, in 9 out of 12 specific areas the regulatory framework and guidance was seen as lacking (that is, less than 60 percent of respondents agreed that it is fit for purpose).

Fintech and the Digital Transformation of Financial Services: Implications for Market Structure and Public Policy (Market Structure Note) by Erik Feyen, Jon Frost, Leonardo Gambacorta, Harish Natarajan, and Matthew Saal

Financial intermediaries, such as banks and insurance companies, act as the middleman, linking together participants in financial transactions. Economic frictions in the form of information asymmetries and economic forces, such as economies of scale and scope, give rise to financial intermediaries and shape financial markets. While technological advances are not new to finance, digital innovation has brought major improvements in connectivity of systems, in computing power and cost, and in newly created and usable data. This digital innovation is shaking up financial intermediaries and the markets in which they operate.

Digital improvements have alleviated transaction costs and given rise to new business models and new entrants. As technology has increased information exchange and reduced transaction costs, the production of financial services could be disaggregated. Specialized players have unbundled financial services, allowing consumers to find and assemble their preferred suites of products.

Digital technologies are reshaping payments, lending, insurance, and wealth management—a process that the COVID 19 pandemic has accelerated. While this is making financial services in many economies more diverse, competitive, efficient, and inclusive, it may also increase concentration in markets. Economies of scale and scope, and network effects are present in many aspects of financial services production, including customer acquisition, funding, compliance activities, data and capital (including trust capital). Despite advances in technology, the costs of consumer search and assembly remain significant. These forces encourage re-bundling, and confer advantages to large multi-product providers, including technology (big tech) firms expanding into financial services from adjacent markets.

Moreover, new risks may arise to a range of key public policy goals. This paper draws on the underlying economics of financial services and their industrial organization to examine—with recent empirical evidence—the implications of digital innovation for market structure and attendant policies, including financial and competition regulation.

The organizing framework for the discussion is built around how economic frictions and economic forces, mentioned above, are driving market changes. For example, mobile phone use has surged globally; social and economic activity has shifted online—often to platform-based businesses—and new technologies like cloud computing have been widely adopted.

These improvements have alleviated frictions, blurred firm and industry boundaries, and given rise to new business models. New and often smaller and more specialized financial technology (fintech) players have unbundled services (see definitions). Economies of scale and network effects are strong in digital platforms and cloud computing. These scale effects, alongside economies of scope, encourage re-bundling, and allow large technology (big tech) firms and other new players to deepen inroads into core financial product markets. Available evidence shows that big-tech firms are rapidly expanding their footprint in finance and can use Big Data in ways that reduce the need for collateral. Meanwhile, incumbent financial institutions have adapted by adopting new technologies and by disaggregating their production of financial services to improve efficiency.

Digital innovation could drive a range of industrial organization outcomes. On the one hand, digital technology enables niche providers to reach a target customer base and be economically viable. On the other, customer acquisition, funding, “assembly,” and switching costs tend to favour larger providers. One possibility is a “barbell” shaped market, composed of a few large players and many niche players. The large, multi-product players could include traditional financial institutions, fintech and big tech firms—both incumbents and new entrants. Small players may include product, geographic or sector-focused fintech firms and incumbents.

While a “barbell” is not the only potential outcome, it is a central case, given the economic forces at work. It is a potential steady-state market structure as some participants leverage scale economies and network effects to grow larger, while innovation continues to result in new entrants. Market forces will push players to either hyper-focus or to aim for the large, multi-product type of service offering. However, atomization—the reduction of services to their most basic parts—may continue and re-aggregation could stall, leading to a market of more small players. Then again, limits on entry could result in a completely different market configuration. It’s difficult to predict.

This analysis gives rise to important policy issues regarding competition, regulatory perimeters, and ensuring a level playing field. Concentration risks may increase in the provision of financial services to end-users, and in the provision of infrastructure to financial institutions. Market structures that concentrate data and supercharge network effects could reduce intermediation costs and broaden inclusion. In many markets, however, the resulting market power might be detrimental. Competition regulators will have to strike a balance appropriate to the needs of their markets, since different societies will attach different preferences to market structure outcomes.

At the same time, financial regulatory authorities are working to manage policy trade-offs between stability and integrity, competition and efficiency, and consumer protection and privacy. The barbell outcome, for example, could present challenges in terms of stability with respect to both large and small payers. Widespread access to data raises privacy concerns. Regulators need to balance the innovation and efficiency brought by new entrants with the potential challenges for oversight, enforcement, and consumer protection. Emerging policy approaches—such as new anti-trust rules for the digital era, data mobility requirements, and data protection laws—may help mitigate the policy trade-offs. Yet the responsibility for these changes generally lies with different public authorities, and with legislatures.

Financial services are undergoing a profound transformation. To navigate this new territory effectively, and to balance the necessary policy goals, authorities will need to collaborate. This will need to occur both domestically—with cooperation between central banks, financial sector regulators, other industry regulators, and competition and data protection authorities—and across borders. Such collaboration can help to ensure regulatory consistency and peer learning within and between countries, and ultimately better development outcomes for the country.

Regulation and Supervision of Fintech: Considerations for EMDE Policymakers (Regulation Note) by Tatiana Alonso Gispert, Pierre-Laurent Chatain, Karl Driessen, Danilo Palermo and Ariadne Plaitakis with contributions from Ana M. Carjaval and Matei Dohotaru

Fintech is transforming the global financial landscape. It is creating new opportunities to advance financial inclusion and development in Emerging Markets and Developing Economies (EMDEs), but also presents risks that require updated supervision policy frameworks. Fintech encompasses new financial digital products and services enabled by new technologies and policies.⁵⁵ Although technology has long played a key role in finance, recent fintech developments are generating disruptive innovation in data collection, processing, and analytics. They are helping to introduce new relationship models and distribution channels that challenge traditional ways of financem while creating additional risks. While most of these risks are not new, their effects and the way they materialize and spread across the system are not yet fully understood, posing new challenges to regulators and supervisors. For example, operational risk, especially cyber risk, is amplified as increasing numbers of customers access the financial network on a 24/7 basis. Likewise, increased reliance by financial firms on third parties for provision of digital services, such as cloud computing, may lead to new forms of systemic risks and concentration on new dominant unregulated players such as big techs.⁵⁶

This note aims to provide EMDE regulators and supervisors with high-level guidance on how to approach the regulating and supervising of fintech, and more specific advice on a few topics. Preserving the stability, safety, and integrity of the financial system requires increased attention to competition and ensuring a level playing field and to emerging data privacy risks. As a general principle, policy response should be proportionate to risks posed by the fintech activity and its provider. While striking the right balance can be challenging in the absence of global standards, the IMF-World Bank Bali Fintech Agenda (BFA), along with guidance by Standard Setting Bodies, provides a good framework for reference.

A sound policy design must start with assessment of the fintech landscape, its risks and regulatory gaps. Simplicity and pragmatism—for example combining simple regulations with supervisory judgment—increases the odds of successful policy. In practice, this will mean different things, depending on local context. In many cases, a clarification or review of existing frameworks will be sufficient and is easily done through enhanced supervisory guidance. In others, a full regulatory overhaul might be required. In some systems, an activities-based, technology-neutral approach, based on the function of the financial service can help balance stability and innovation goals. In others, a combined approach, taking into account the activity and the entity, might be necessary to ensure financial stability. In any case, there needs to be clear definition of which activities are under the regulatory perimeter and which requirements apply, including the need for licenses. Some fintech activities will require licences with integrity (AML/CFT) and conduct requirements. The introduction of data protection provisions in licensing frameworks is common. Activities that could potentially pose risks to stability should face prudential requirements.

Competition and inclusion objectives will become more relevant from a financial policy view, given the growing interdependencies and trade-offs with core priority mandates of preserving stability, integrity, and safety of the financial sector. The multiplicity of new entrants and the potential for dominant players (for example, incumbents, big techs, platforms) and first movers (for example, M-Pesa) to create barriers and generate distortions has led to an increased recognition of the strong links between inclusion, competition, and financial stability. Indeed, a targeted participation by

55. According to the Bali Fintech Agenda and the Financial Stability Board.

56. According to the FSB, big tech firms are large companies with established technology platforms, such as Alibaba, Amazon, Apple, Baidu, eBay, Facebook, Google, and Microsoft. Big techs that offer financial services are a subset of fintech firms—a broader class of technology firms (many of which are smaller than big tech firms) that offer financial services.

financial service authorities in competition policy matters is increasingly being observed in EMDEs. The potential role of prudential and conduct regulation in mitigating barriers to market access and reining in abusive dominant practices should not be understated.

Cooperation, both interagency and cross-border, can help in the design and implementation of a sound supervisory response to fintech, which can be particularly challenging for EMDE countries suffering from supervisory capacity constraints or juggling competing policy priorities. An effective supervisory function for fintech activities is as essential as an appropriate regulatory regime. Supervisory processes and methods may need significant changes. Supervisors' knowledge, skills, and tools should keep pace with the speed of innovation and related risks, including cyber threats. Building proper expertise is crucial and suptech and regtech solutions could be excellent catalysts for this. Fintech is cross-sectoral and cross-country, making cooperation among agencies at the national and international levels essential for sound supervision. While many supervisors in G20 EMDEs participate in international fora, smaller jurisdictions may need to rely on International Financial Institutions (IFIs) and other available channels—for example, Global Financial Innovation Network (GFIN)—to raise issues, keep abreast of global developments, and exchange best practices. Involving the industry in fintech policy coordination efforts in a responsible and transparent way also appears increasingly relevant in areas such as cybersecurity, data, payments and securities, and for the design and implementation of regtech and suptech solutions (Appaya et al., 2020).

Further, authorities need to ensure that client funds are well preserved and that proper wind-down mechanisms are in place for systemically relevant firms operating in fintech. For crisis-management, fintech providers should be treated the same as their peers in traditional finance. For E-Money Institutions (EMIs) and payment institutions, regardless of their size, mechanisms should be established to require adequate ring-fencing of client funds and proper segregation, preferably by keeping them in government securities or deposited with the central banks. Where this is not feasible, segregation could be done by requiring that the funds are deposited with commercial banks, although this bears the risk of the commercial banks' failure, in which case the reserves could be lost. To mitigate this risk, some countries extend deposit-insurer protection to EMI customers, although challenges remain for the implementation of such protection, including that it would not cover the risk of misappropriation or fraud by the EMI as the EMI would not be a direct member of the deposit insurer. Other jurisdictions require that the EMI becomes a direct member of the deposit insurer—thus covering losses due to fraud or misappropriation. But this might clash with the purpose of a deposit insurance and impose costs that are not compatible with EMI business models or pose operational challenges that may render them ineffective.

Reaping the benefits from fintech in a sustainable and durable way will require adapting and strengthening financial-policy frameworks. Policymakers need to put in place a timely and proportionate regulatory and supervisory approach to managing financial risks arising from fintech. Ensuring financial stability, safety, and integrity will remain the core mandates, and these can, in turn, contribute to sustainable development amid healthy innovation and increased competition. Assessing the fintech landscape and related risks is a prerequisite to identifying regulatory gaps at an early stage. Then, authorities can set clear policy goals with a priority on surveillance and oversight mandates. As operational risks are amplified, defining a clear strategy for promoting operational resilience is important. Fintech-related changes may also require financial supervisors to scale up capacity and resources to meet the specific challenges posed by fintech, including through use of regtech and suptech solutions. Domestic and international cooperation is essential to successfully manage cross-sectoral risks, while achieving the benefits of fintech. And if an e-money institution fails, authorities should be well prepared by establishing safe mechanisms to protect customers' funds and to wind down systemic fintechs.

Financial Consumer Protection and Fintech: An Overview of New Manifestations of Consumer Risks and Emerging Regulatory Approaches (Consumer Protection note) by Gian Boeddu and Jennifer Chien

Fintech⁵⁷ is increasingly recognized as a key enabler worldwide for more efficient and competitive financial markets, and for expanding access to finance for traditionally underserved consumers. As noted in the Bali Fintech Agenda,⁵⁸ launched in October 2018 by the World Bank Group (WBG) and the International Monetary Fund (IMF), fintech can support economic growth and poverty reduction by strengthening financial development, inclusion, and efficiency. The critical challenge for policy makers is to harness the benefits and opportunities of fintech while managing its inherent risks.

Some of these risks are new. But many represent new manifestations of existing risks due to the technology that supports and enables fintech offerings, from new or changed business models, product features, and provider types, and from greater consumer accessibility to sometimes unfamiliar or more complex financial products.⁵⁹ For example, a rapid expansion of the peer-to-peer lending (P2PL) market in China in the first half of the 2010s was followed by significant platform collapses, incidents of fraud, and platform operator misconduct, which caused significant losses to consumers.⁶⁰ While digital microcredit has expanded access to credit in some developing economies, countries such as Tanzania and Kenya have seen large numbers of borrowers unable to repay loans due to irresponsible lending practices.⁶¹ Similarly, while there was significant uptake of electronic money (e-money) in many developing markets, this has been accompanied by a rise in a variety of risks for consumers, including potential loss of funds due to fraud and unscrupulous fee-charging. Such negative experiences, in addition to causing direct harm to consumers, may also lead to greater mistrust of fintech and the financial sector, overall.

The COVID-19 pandemic has further accelerated the widespread transition of consumers to digital financial services and fintech, highlighting their significant benefits while also demonstrating how risks to consumers can increase in times of crisis and economic stress. For example, reports from Indonesia indicate that individual lenders/investors have been adversely affected by risky loans made through P2PL platforms, as have been borrowers who obtained such loans, and are now struggling to get lenders/investors to restructure them.⁶² Significant numbers of low-income consumers have faced difficulty repaying existing debts due to the pandemic.⁶³ Small enterprises have been severely affected by widespread closures and safety measures to slow the spread of COVID-19, thus decreasing enterprises' profitability and impeding repayment obligations.⁶⁴ This in turn exposes their investors to increased risk of loss from their investments. In addition, significant increases in fraudulent app-based digital microcredit lenders have been observed during COVID-19 lockdowns.⁶⁵

Authorities responsible for financial consumer protection (FCP) regulations are increasingly faced with the challenge of developing or adapting regulations that may be necessary to address risks to consumers generated by fintech. The task of regulators in developing countries is even more difficult if they tackle this new challenge while

57. For the purposes of this note, *fintech* refers to advances in technology that have the potential to transform the provision of financial services, spurring the development of new business models, applications, processes, and products. See World Bank Group and International Monetary Fund, *Bali Fintech Agenda*, 12.

58. World Bank Group and International Monetary Fund, *Bali Fintech Agenda*.

59. For an overview of risks and benefits in a digital financial services context, see G20/OECD Task Force on Financial Consumer Protection, *Financial Consumer Protection Policy Approaches*, 12–14.

60. See, for example, Duoguang, "Growing with Pain," 42; Owens, "Responsible Digital Credit," 8–9; Huang, "Online P2P Lending," 77; Hornby and Zhang, "China's Middle Class."

61. For example, a 2017 MicroSave study found that 2.7 million Kenyans were blacklisted in credit reference bureaus in the past three years; 400,000 of these for amounts of less than \$2. See MicroSave, "Where Credit Is Due."

62. See, for example, Faridi, "P2P Fintech Lending Sector in Indonesia."

63. For example, 76 percent, 80 percent, and 89 percent of low-income survey respondents in Ghana, India, and Kenya, respectively, indicated they were late in making loan repayments since the pandemic began. See BFA Global, "Dipstick Surveys."

64. See, for example, Gibbens, "Helping Small Businesses."

65. <https://www.centerforfinancialinclusion.org/combating-the-rise-in-fraudulent-fintech-apps>.

having to implement a baseline FCP regulatory framework.⁶⁶ In a recent survey, regulators identified their limited internal technical expertise as the foremost impediment to regulating and supervising “alternative finance” (such as P2PL and equity crowdfunding) effectively.⁶⁷

This note provides (1) an overview of new manifestations of consumer risks that are significant and cross-cutting across four key fintech products: digital microcredit, P2PL, investment-based crowdfunding, and e-money;⁶⁸ and (2) examples of emerging regulatory approaches to target such risks. This note is based on a more detailed recently-published WBG Policy Research Paper titled *Consumer Risks in Fintech—New Manifestations of Consumer Risks and Emerging Regulatory Approaches*. The research paper delves more deeply into each of the four key fintech products and their associated risks. The appendix provides an overview of product-specific risks for which more information can be found in the research paper.

The primary focus and objective of this note, and the paper on which it is based, is to inform authorities’ development of regulatory policy. The examples included here are intended to assist regulators considering potential FCP regulatory approaches to fintech. However, it is hoped that the discussion of manifestations of consumer risks in a fintech context can also assist authorities with related key areas, such as market conduct supervision.

The key consumer risks and corresponding regulatory approaches discussed in this note include the following:

- **Factors, such as the novelty and opaqueness of fintech business models, responsibilities of fintech entities’ in the context of those business models, and a lack of consumer understanding of the new offerings can lead to heightened risks of fraud or misconduct by fintech entities or third parties.** Platform finance (P2PL and investment-based crowdfunding) poses risks to consumers; both lenders/investors and borrowers. Lenders/investors may face losses due to the conduct of platform operators or related parties, such as fraudulent lending or investment opportunities, misappropriation of funds, or facilitation of imprudent lending or investment to generate fee revenue for the operator to the detriment of consumers who will ultimately bear resulting losses. Consumers borrowing from such platforms may similarly suffer harm from the resulting imprudent lending. Holders of e-money face risks related to agent misconduct, including charging of unauthorized fees, splitting transactions to earn more commissions, and “skimming” into agent accounts. Regulatory approaches to addressing such risks include: vetting of fintech entities during the authorization stage; risk management and governance obligations for platform operators; imposing clear responsibility and liability on providers for the conduct of persons acting on their behalf; placing targeted obligations on platform operators to safeguard consumers’ interests regardless of business model (such as requiring P2PL platform operators to undertake creditworthiness assessments even if they are not themselves the lender); warnings and provision of other key disclosures to consumers regarding the risks associated with fintech products; and segregation of client funds.
- **Certain characteristics of fintech business models can lead to conflicts of interests between consumers and fintech entities.** For example, business models heavily dependent on fees generated by new lending business can give rise to perverse incentives for fintech entities to act in a manner inconsistent with the interests of their consumers, such as P2PL platforms or digital microcredit providers focusing on loan quantity over quality to maximize fee-related returns. Such risks can be exacerbated in markets where fintech entities are attempting to grow their revenues and size quickly. Potentially harmful conflicts can also arise where fintech entities are empowered to take decisions affecting the risk of loss on loans, but where that risk is borne by consumers—such as a P2PL or crowdfunding platform operator assisting with loan or investment selections without performing adequate due diligence. Corresponding regulatory

66. For an overview of key elements of an FCP regulatory framework (being an element of a broader legal and supervisory framework for FCP), see, for example, World Bank Group, *Good Practices*, 14, 68, 102, and 140.

67. World Bank Group and CCAF, *Regulating Alternative Finance*, 63.

68. Selected as examples of fintech offerings that may address some of the most basic needs of first-time, and thus inexperienced, financial consumers—namely, making payments, borrowing, or saving or investing money—as well as representing different stages in the development of fintech product offerings and corresponding regulatory and policy frameworks that surround them. See section 2.2 for definitions of these terms as used in the paper.

approaches include placing positive obligations on fintech entities to manage and mitigate conflicts of interest, to act in accordance with the best interests of their consumers, to undertake adequate assessments regardless of business model, and to prohibit business arrangements that encourage conflicted behavior.

- **Consumers may face a heightened risk of adverse impacts due to platform or technology unreliability or vulnerability.** Consumers may be more vulnerable to cyber fraud when acquiring fintech products than when accessing financial products through more traditional channels as interaction with providers is largely or exclusively via digital and remote means. Platform or other technology malfunctions can have adverse impacts on consumers ranging from inconvenience and poor service to monetary loss and loss of data integrity, the risk of which may increase due to heavier reliance on automated transaction processing. Regulatory approaches to addressing such risks include specific obligations on fintech entities to address technology and systems-related risks and risks associated with outsourcing.
- **Some fintech entities may be at greater risk of business failure or insolvency than established financial service providers (FSPs), due to inexperience, untested businesses, and market factors affecting long-term viability.** This can mean that consumers, whose funds are held or administered by a fintech entity, face correspondingly greater risk of loss if the provider becomes insolvent or the business ceases to operate. Consumers may risk losing their committed loan principals and investment funds or repayments and earned investment returns that are being held or administered by a P2PL or crowdfunding platform that fails. Insolvency of e-money issuers or banks holding e-money floats similarly puts client funds at risk, especially where there is no deposit insurance. Regulatory approaches to address such risks include requirements for client funds to be segregated from other funds held by a fintech entity and requiring that fintech entities have in place business-continuity and resolution arrangements.
- **The digital environment poses inherent challenges for disclosure and transparency, amplified by the novelty of fintech product offerings and consumers' lack of experience with such products.** Information provided via digital channels may not be appropriately formatted to assist in understanding or retention by consumers. Poor design of user interfaces may hamper consumer comprehension or exploit behavioral biases by concealing or underplaying "negative" aspects such as risks and costs. Fintech can also give consumers access to products, such as P2PL or crowdfunding investment opportunities, to which they may previously have had limited or no exposure, thus making clear and understandable information even more essential for good decision-making. Approaches to address such issues include requirements to disclose key information in a consistent and clear format, on a timely basis, and in a manner that can be retained by consumers. Behavioral insights can also be utilized to disclose information via digital channels in a manner that aims to increase the likelihood of consumer comprehension.
- **Consumers face potentially heightened risks when acquiring fintech products due to their lack of sophistication or inexperience.** With the development of fintech, consumers increasingly have access to novel and complex financial products, but they may lack the knowledge or experience to assess or use these products properly. For example, platform finance enables more individuals to act as investors and lenders. This has positive implications for financial inclusion but can present enhanced risks for ordinary consumers new to assessing more complex opportunities. Potential regulatory approaches include setting limits on individual investments, such as overall caps on how much an individual may borrow through a P2PL platform or how much money a company can raise on a crowdfunding platform, or limitations on specific types of investors or exposures; targeted warnings to potential investors; requiring consumers to confirm that they understand the risks they are undertaking; and cooling-off periods. Risks may also arise with respect to digital microcredit products being offered to consumers that are unsuitable and unaffordable. Regulatory approaches include requiring effective creditworthiness assessments and applying product design and governance principles, particularly where automated credit scoring is utilized.
- **Use of algorithms for consumer-related decisions is becoming particularly prevalent in highly-automated fintech business models.** Consumers may face a range of risks as a result, such as discriminatory or biased outcomes. Emerging approaches in this context include applying fair treatment and anti-discrimination obligations

to algorithmic processes; putting in place governance frameworks that require procedures, controls, and safeguards on the development, testing, and deployment of algorithms to ensure fairness; auditing requirements; and providing consumers with rights regarding how they or their information may be subjected to algorithmic decision-making.

It is not the intent of this note to suggest that all risk mitigants it discusses should be implemented. For any regulator contemplating implementing the kinds of regulatory measures discussed in this note, it will be important to prioritize and take a risk-based approach, to tailor regulatory approaches to country context, and to balance the need for consumer protection with the resulting impact on industry and market development and innovation. It would not necessarily be advisable for a country to implement all of the regulatory measures discussed in this note immediately or to transplant approaches from other jurisdictions without adjustment. This note also summarizes a range of key implementation matters for regulators to consider.

Innovation in Payments: Opportunities and Challenges for EMDEs (Payments Note)

by Dorothee Delort and Jose Antonio Garcia Garcia Luna

The global economy is undergoing a rapid digital transformation that is changing many conventional notions about our behavior and preferences. This includes the way in which we—as consumers, as businesses, or in interactions with government—seek out goods and services and pay for them or how we receive money from others or transfer it to family or friends. As the payments industry undergoes radical changes due to digital transformation, users, providers of payment services, and regulators are adapting to the new dynamics at varying paces.

This note discusses the most significant innovations in payments and their key impacts and implications on users, banks and other payment service providers, regulators, and the overall structure of the payments market. The note places special emphasis on how Emerging Markets and Developing Economies (EMDEs) can reap the benefits of payment innovations in terms of costs, convenience, accessibility, and inclusion for individuals and firms, and allow them to leapfrog development of their payments markets and effectively support economic activity.

Payments are probably the financial activity most affected by innovation, undergoing radical changes from various perspectives. This transformation has been prompted by the adoption of new technologies and business models, by the emergence of new market players, and by changes in the structure of the market. This is having a profound impact beyond the realm of payments and is also affecting the real economy. Changes are significant.

- Payments have become a standalone product, no longer just a supporting function typically offered only by banks as part of a bundle of services and with comfortable profit margins. In other words, payments have become a separate, identifiable service offered by a growing number of providers, including non-banks, exercising downward pressure on fees and margins and upward demand for quality.
- The consumer experience has been transformed as long-standing barriers or deterrents to the use of digital payments are gradually being overcome, helping meet new demands from payers and payees for increased speed and convenience and lower prices.
- In some cases, as with ride-hailing or meal-ordering apps or “one-click” online ordering, the purchase experience has been totally transformed by making the actual payment process “invisible” from the customer’s perspective.
- Payments are increasingly becoming a source and provider of data that is critical for differentiation against competitors and for the provision of other products and services, including—but not limited to—those offered by financial sector entities.
- Innovation in payments has enabled and shaped major developments in the real economy, like the surge of e-commerce—including transactional online services offered by governments—and, in turn, new platform models that have placed additional demands on payment services.

Competition in payments has increased and is only intensifying, but may paradoxically lead to renewed concentration and an oligopolistic equilibrium. In essence, payments may evolve once again into a concentrated market served by a relatively limited number of providers. Unlike in the past, these providers could be technology giants and/or large telecommunication firms, rather than banking institutions. The consequences and challenges of this potential outcome are not fully understood.

While innovation in the area of retail payments has been prolific, it has not fully transmitted to specific payment streams like international remittances and other forms of cross-border payments, some types of government payments, and business-to-business (B2B) payments.⁶⁹ For example, the Committee on Payments and Market Infrastructures (CPMI) reports that cross-border payments lag behind domestic payments in terms of cost, speed, access, and transparency.⁷⁰ In the area of government payments, many EMDEs have a long way to go in digitizing their payments and collections effectively, largely due to coordination challenges and other elements that slow down the general use of payment innovations. Here, however, the COVID crisis has accelerated digitalization efforts, for example to facilitate transfer of relief funds while trying to ensure social distancing. Regarding B2B payments, this market segment has certain unique requirements like linkage to invoicing processes and taxation, and payments tend to be for larger amounts. To date, these unique requirements have not been fully met.

Innovations in payments and their consequences on service providers and the overall payments market are also proving to be a unique challenge for central banks in their various statutory roles in payments.⁷¹ The regulatory and oversight roles of central banks are already being challenged by the changes in the structure of the payments market resulting from innovations. Furthermore, innovations may even disrupt the traditional divide between central bank money and commercial bank money, and therefore impact all aspects of the central bank's mission, beyond its mandate on payments, including monetary policy and financial stability. Central banks have no choice but to introduce changes in their own work processes and procedures, build new capacities and, more generally, rethink their approach to money. Their role is not diminished by innovation in payments; it is, on the contrary, made even more critical.

EMDEs can greatly benefit from many of these innovations but will need to carefully consider their multiple facets and implications and develop policies and institutional capacities accordingly. EMDEs should continue to create an enabling environment for innovation in their financial sector, fostering new products and providers while managing risks and protecting consumers. At the same time, they should not write off proven strategies and methods to accomplish important objectives like financial inclusion and stability. In any case, central banks and other regulators should be duly equipped and prepared to support their country's public and private sector actors so that they can maximize gains from the new reality.

Innovation in payments can be characterized on three levels, how it materializes, its structural impact, and how the central bank, as payments authority, needs to adapt. The main pillars of innovation in payments include: i) changes to the way payment services are linked to an account; ii) changes to the systems that process payment transactions; and, iii) changes in the way consumers interact with payments and the business model of payment service providers. Thanks to innovations like mobile wallets or super apps—combined with fast payments, APIs, and other technologies—customers now find it more convenient and less costly to make and receive digital payments, while enjoying a smoother user experience. At the same time, innovations are also redefining business models for payments, which in turn is having far-reaching consequences for the very structure of the payments market.

The most conspicuous effects of innovation on the structure of the market have been its impact on competition by opening up the payments market to non-banks, by putting downward pressure on payment service fees, and by making real-time payments the new normal. While new entrants challenge incumbents,

69. There have been also some relevant developments in large-value payments, which have been less visible for non-payments specialists and the general population. These include the adoption of ISO 20022 message standards, cloud-based hosting of the solutions and expanding access to large-value payment systems to participants other than banks.

70. CPMI (2020).

71. These include being operators of payment systems, supervisors of payment services providers, catalysts for change, and overseers of the National Payments System (NPS), which encompasses payment systems, payment services, and payment instruments.

innovation could end up having a paradoxical, centralizing effect and a tendency to increase concentration, with the major transformation being the shift of dominant market positions from incumbents to big techs. In addition to banks, other payments ecosystem players are deeply impacted by the ongoing changes, and it is especially the case for international and domestic payment card networks and ACH service providers. Government agencies are also significantly affected by the wave of innovation in payments: for interactions with citizens through the provision of government services and programs that involve making payments.

Innovation in payments challenges central banks in their typical roles vis-à-vis payments; that is, as operators, overseers, regulators, and catalysts for change. They also need to move beyond their typical mandates on payments as innovations continue to redefine money. The combination of traditional and new risks and causes for potential market failures calls for central banks to reassess and renew, not just policies, but also their internal organization, activities and tools, and heighten their level of collaboration and cooperation with authorities and stakeholders.

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Fintech and SME Finance: Expanding Responsible Access (SME Note)

by Ghada Teima, Ivor Istuk, Luis Maldonado, Miguel Soriano, and John Wilson

Small and medium enterprises (SMEs) represent the economic backbone of most developed and emerging countries. Globally, SMEs account for more than 90 percent of all businesses and more than 50 percent of employment. SMEs are also significant contributors of economic activity, representing on average 60 - 70 percent of the GDP of most countries worldwide.

SMEs play a major role in the economy, however their lack of access to finance in many cases is a critical barrier for them. There are many reasons preventing SMEs from obtaining adequate access to finance. These include, higher cost to reach and serve SMEs relative to the financial service revenue potential, information asymmetries that affect the availability of financial and credit data needed to assess their creditworthiness, the lack of collateral, the lack of financial literacy and difficulties in registration and verification.

Digital financial services (DFS) can help close the financing gap for SMEs, by providing access to alternative sources of funding and improving access to traditional players by enabling new digital products and process automation. Digitization and automation make the financing process more efficient, thereby lowering costs. The use of alternative data sources and Big Data analytics provides additional information sources to the credit risk-assessment process, allowing SMEs that were once unable to obtain finances to gain access. New business models, such as the sharing economy, e-commerce, digitization of SME-business processes, and open banking and APIs, provide rich data on SME activities and cashflows. This enables DFS and helps SMEs obtain access to financial products.

Globally, millions of small businesses are at risk of closing permanently and/or have suffered massive losses due to the COVID-19 pandemic. In a crisis, SMEs are more vulnerable in terms of access to finance when compared to large corporations. Speed of execution is critical for the provision of government relief funds to SMEs; digital financial products are essential to support SMEs during the COVID-19 pandemic.

However, there are obstacles and challenges which make it difficult for SMEs to fully adopt digital financial products. These are the main areas where challenges have been identified: digital financial literacy and awareness of DFS, digital infrastructure, financial supervision and regulation, identity, and data privacy and data protection. Some of the issues are more prevalent in emerging markets, which have less developed digital infrastructure, systems and processes.

Policy and regulatory approaches can facilitate access to finance for SMEs through DFS. Foundational elements where policy can have a positive impact include:

- Digital financial education programs for SMEs highlighting DFS awareness;
- Affordable digital infrastructure that fosters widespread internet access and usage, along with robust cybersecurity frameworks;
- Financial regulatory frameworks that encourage financial innovation while minimizing the risks created by digital financial products;
- Robust, secure and universally accepted company identification/registration frameworks for SMEs, and
- Adequate data protection and data privacy regulations.

In addition, policy and regulatory recommendations that are specific to digital financial products for SME financing can be classified around the following themes:

- a. Promote the digitalization of SMEs' operations, improve the availability of SME information, expand credit information sharing and support efficient and widely accessible digital payment systems;

- b. Develop modern credit infrastructure frameworks to support the introduction of Fintech asset-based lending products for SMEs;
- c. Support the growth and development of debt and equity capital platforms to improve SME access to finance through the establishment of regulatory frameworks that balance innovation with investor/consumer protection.

What Does Digital Money Mean for Emerging Market and Developing Economies? (Digital Money Note) by Erik Feyen, Jon Frost, Harish Natarajan, and Tara Rice

Physical cash and commercial bank money are dominant vehicles for retail payments around the world, including in emerging market and developing economies (EMDEs). Yet payments in EMDEs are marked by several key deficiencies—such as lack of universal access to transaction accounts, widespread informality, limited competition, and high costs, particularly for cross-border payments. Digital money seeks to address these deficiencies.

This note categorizes new digital money proposals. These include crypto-assets, stablecoins, and central bank digital currencies (CBDCs). It assesses the supply and demand factors that may determine in which countries these innovations are more likely to be adopted. It lays out particular policy challenges for authorities in EMDEs. Finally, it compares these with digital innovations such as mobile money, retail fast-payment systems, new products by incumbent financial institutions, and new entrants such as specialized cross-border money-transfer operators.

Proposals for global stablecoins have put a much-needed spotlight on deficiencies in financial inclusion, and in cross-border payments and remittances in EMDEs. Yet stablecoin initiatives are no panacea. While they may achieve adoption in certain EMDEs, they may also pose particular development, macroeconomic, and cross-border challenges for these countries and have not been tested at scale. Several EMDE authorities are weighing the potential costs and benefits of CBDCs. We argue that the distinction between token-based and account-based money matters less than the distinction between central bank and non-central bank money. Fast-moving fintech innovations that are built on, or improve existing financial plumbing, may address many of the issues in EMDEs that both private stablecoins and CBDCs aim to tackle.