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.

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**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 supranational 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 “barbell” 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.