Fintech and the Future of Finance

Foreword

The monumental challenges we face today, from coronavirus to the war in Ukraine, have reminded us that throughout history, turbulent times are often accompanied by innovation. The technology-enabled innovation in financial services - known as fintech - is one such example, accelerating rapidly as pandemic shutdowns amplified its importance for maintaining business activity and financial services during a time of social distancing. Every day, headlines attest to the seismic shifts that fintech is bringing to the financial services industry, driven by a dramatic expansion of internet access and smartphone use, combined with lower-cost computing and data storage.

As financial products, payments, and business models evolve - even the concept of money itself - so too are market players and the structure of the markets in which they compete. Large telecommunications and information technology companies, retail chains, and small start-up companies are joining traditional banks and nonfinancial institutions in providing services. Digital financial services can play a significant role in maintaining active credit markets to support a resilient and inclusive recovery, leveraging data, analytics, and new business models such as embedded finance. They can also create new opportunities to make the global financial system more efficient and inclusive by overcoming geographic and physical obstacles to services and by making information more widely available to consumers and providers. Policy makers globally have embraced fintech development to promote innovation and growth of the digital economy.

For regulators and supervisors, however, digital transformation has also created challenges in balancing innovations with the safeguarding of competition, financial stability and integrity, consumer protection, and data privacy. To help inform policy makers in navigating a complex financial system, this publication explores the digital transformation under way in financial services and the implications of fintech for market outcomes as well as regulation and supervision. It looks at the range of new market providers, business models, and products that have amplified the need for updated legal, regulatory, and supervisory frameworks. This work builds on the Berkshire Consulting's efforts to support financial innovation at all levels.

Berkshire Consulting has been supporting governments in adapting regulatory frameworks, modernizing systems and other financial infrastructure, and ensuring high standards of consumer protection. We have been investing in a diverse group of private sector fintech providers for over a decade, promoting the growth of responsible, inclusive finance providers that serve tens of millions of customers across global emerging markets. Amid the continuing efforts to recover losses from ongoing crises, expanding access to financial services is one way to support businesses and get communities back on track. For poor people and microenterprises, the use of basic services such as transaction accounts enables them to send and receive payments securely and gain access to savings, credit, and insurance products that can help them plan for hard times, invest in their futures, and grow their businesses.

We hope that this publication will be a useful guide for policy makers around the world as they seek to manage risks and maximize the economic and social benefits of financial innovation

Core Messages

Fintech, the application of digital technology to financial services, is reshaping the future of finance. Digital technologies are revolutionizing payments, lending, investment, insurance, and other financial products and services - a process that the coronavirus pandemic has accelerated. We have policy elements aimed at helping member countries to harness the benefits and opportunities of rapid advances in financial technology that are transforming the provision of financial services while at the same time managing the inherent risks.

Digitalization of financial services and money is helping to bridge gaps in access to financial services for households and firms and is promoting economic development

Access to basic financial services such as savings, insurance, and credit translates into better firm productivity and growth for micro and small businesses, as well as higher incomes and resilience, to improve the lives of the poor. Yet too many people and firms still lack access to essential financial services that could help them thrive. Technology can lower transaction costs by overcoming geographical access barriers; increasing the speed, security, and transparency of transactions; and allowing for more tailored financial services that better serve consumers, including the poor. Women can especially benefit. Therefore, countries should embrace fintech opportunities and implement policies that enable and encourage safe financial innovation and adoption.

Fintech is transforming the financial sector landscape rapidly and profoundly, calling for the active engagement of policy makers

Fintech is making an impact in many countries. Examples include the rapid ascent of mobile money, bank apps, financial services provided by big tech firms and neobanks, and crypto-assets and central bank digital currencies. New infrastructures, providers, products, and business models are reshaping market structures in profound ways.

These technological advances are blurring the boundaries of both financial firms and the financial sector. For example, financial firms more often rely on third parties to offer their products and services, and nonfinancial firms are increasingly embedding financial services into their products. In addition to inclusion, core policy objectives for a well-functioning financial system include financial stability and integrity; efficiency, which is linked to fair competition; cyber and operational soundness and security; data privacy; and consumer and investor protection. Allowing fintech developments to be driven solely by market forces would compromise these objectives. For example, economies of scale and scope could lead to market concentration, with adverse consequences for competition, innovation, and financial stability.

Policy makers must adapt

As the financial sector continues to transform, policy trade-offs will evolve. It is important to ensure that market outcomes remain aligned with core policy objectives. Several policy recommendations emerge:

- Manage risks while fostering beneficial innovation and competition – given the fast-evolving landscape and rapid spread of innovation, a regulatory approach that supports responsible fintech innovation and adoption is critical. Prudential supervision, market conduct, and consumer protection agencies should coordinate extensively as fintech issues cut across

their mandates. Regulators should strive to promote trust and investment and minimize exposing consumers, particularly the poor, to undue risks. This will require regulators to be proactive, pragmatic, and clear in their decisions.

- Broaden monitoring horizons and reassess regulatory perimeters – financial services are increasingly provided by a wide variety of entities and are even embedded into commercial transactions and social interactions. These developments blur the boundaries of the financial sector. It is essential to proactively monitor the comprehensive financial sector value chain and reshape the regulatory perimeter accordingly.

- Review regulatory, supervisory, and oversight frameworks – the range of new products and providers, the use of new technologies and a wider range of data, and the inclusion of new customer segments in increasingly complex markets has made existing regulatory and supervisory mandates and approaches insufficient. Principles that help underpin policies include pursuing an approach that is proportional to risks; maintaining a level playing field by treating the same activities and risks similarly, looking through technology and focusing on underlying economic functions; and ensuring the primacy of core policy objectives. This may call for tailored approaches that are entity based.

- Be mindful of evolving policy trade-offs as fintech adoption deepens – as fintech continues to permeate the financial sector, policy decisions will entail tradeoffs that call for attention to proper safeguards to maintain financial stability and fair competition, ensure data and consumer protection, and prevent the abuse of market power. Regulators can better balance the trade-offs between stability, competition, concentration, efficiency, and inclusion through various actions, including:

    - Formulating data collection principles and proactively monitoring market conduct
    - Establishing frameworks for open banking and data ownership
    - Revisiting restrictions on product tying and linkages between banking and commerce.

- Monitor market structure and conduct to maintain competition – the initial focus of many regulators has been on facilitating market entry since small start-ups and new entrants have been driving the momentum of innovation. However, the industry is rapidly boomeranging toward concentration of players and platforms because of the economies of scale and the massive amounts of data held by big tech companies. These developments may deliver inclusion and efficiency, particularly in low- and middle-income economies that may lack a robust, competitive, and inclusive banking sector. However, regulators will need to proactively monitor markets and dynamically balance trade-offs between competition, concentration, efficiency, data protection, and inclusion.

- Modernize and open financial infrastructure – financial infrastructure may need upgrading to enable digital products and services. Infrastructure should be interoperable and open to both new and traditional players. The increasing role of fintech companies, embedded finance by big tech companies, digital money, and cross-border financial flows will pressure regulators to ensure that the access policies of financial infrastructures are fair and transparent. Moreover, with the entry of new market-level services that take on characteristics of financial infrastructures, regulators will need to assess whether and how to bring them within the regulatory perimeter.

- Ensure that public money remains fit for the digital world – reduced reliance on public money could impede authorities from shaping and safeguarding financial sector and economic development. The ongoing digitization of the economy and payments, the world of crypto-assets, and the influence of big tech firms in payments and user data, over time, could challenge the role of public money, competition, and privacy. Public authorities might consider distinct, public alternatives to crypto-assets, such as central bank digital currencies - CBDCs, in addition to strengthening policy frameworks regarding crypto-assets and big tech firms.

  Countries that consider creating a CBDC should carefully evaluate the wide-ranging implications and design options in consultation with public and private stakeholders.

- Pursue strong cross-border coordination and sharing of information and best practices – fintech developments enable providers to reach a wide set of customers across borders and provide services without necessarily being subject to regulation in the customer's jurisdiction. Regulators and public authorities need to collaborate and coordinate with their peers to safeguard their respective financial systems and customers.

Overview

Introduction

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 trade-offs evolve.

Fundamental drivers of fintech

Technology-enabled innovation in financial services - fintech - is reshaping financial products, payments, business models, market players, market structure, and even money itself. This is a global phenomenon, especially in the realm of payments, according to the global patterns. The adoption of fintech was accelerated by the coronavirus pandemic.

Fintech adoption can further financial development by promoting core policy objectives such as financial stability, integrity, inclusion, efficiency, innovation, and competition, and it can provide the firm foundations needed 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 pandemic. At the same time, a balanced policy approach is required to mitigate various risks related to, among others, financial stability and integrity, consumer and investor protection, fair competition, 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.

Reducing frictions in financial services - these drivers can alleviate key frictions in the provision of financial services, such as information asymmetries and transactions costs. They have therefore 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 are 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 now 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, reaching them at a lower cost through mobile channels.

Atomizing the value chain - these drivers also 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 that can be offered by different

providers and recombined in new ways. Account opening, for example, has moved from being a single-provider service delivered at the bank branch, using its own front and back offices, to a range of potential configurations. Now, a bank account might be opened either through its physical locations or through the mobile app of a partner such as a retailer or an e-commerce platform, with identification verification provided by a specialized fintech, the ledger sitting on an outsourced cloud-based information technology infrastructure, and customer service provided by an offshore call center.

That account might be branded as a bank product, or it might be delivered by the partner as a service "powered by" the partner with the consumer barely aware of the underlying financial institution.

Unbundling and rebundling services - 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 can choose a set of service providers that collectively meets their needs. Rather than using the deposit, payment, and loan products of a single institution, customers can choose to keep deposits in one place, shop around for the best loan offer, and use different payments providers for different uses. Customers can now assemble their own sets 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 service providers to provide single solutions and new packages of financial services or to rebundle financial services with other business or commercial activities.

Reshaping business models - atomization, unbundling, and rebundling are reshaping business models and product economics as well as the provider landscape. An account holder might choose a third-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 in technology architecture and the rise of multiparty 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 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 be behind the product.

Market outcomes

Although the digital transformation of the financial sector remains a work in progress, it is already changing financial infrastructures, products, and business models, bringing new entrants and reshaping incumbents and market structure. Customer behavior is changing, and competition is increasing. There is the potential to vastly improve financial inclusion, particularly in emerging markets and developing economies, by overcoming physical and geographic barriers to access to, and closing the information gaps on, 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 the scale and scope of economies; the customer preferences for choice versus convenience; and the policy framework, including regulatory approaches to licensing, data, and competition.

New financial infrastructures

Digital transformation creates a need for new infrastructures to support the other market outcomes. It also provides new ways to meet that need. The impact of changing financial infrastructure may be largest in EMDEs, where prior infrastructures are 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 have enabled faster payments, and these advances 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 SMEs to accept digital payments.

Mobile money systems have become a significant component of the payments landscape and are taking on some of the functions usually associated with financial infrastructure.

In Estonia and India, government-provided digital IDs have become part of the foundational infrastructure for access to financial and other services. In most countries, 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 other existing infrastructures as well, 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, both traditional financial infrastructures and quasi financial infrastructures play essential roles for new entrants and incumbents seeking to participate in the market - giving rise, however, to potential challenges related to competition, pricing, and fair access.

Innovation in both broadened and niche markets

Technology enables providers to serve and profit from broader markets as well as defined market segments. Digital channels for financial services enable providers to reach a broader market without the need for a high-cost branch infrastructure. The low-cost reach of digital banks paired with customers' ability to search digitally for services 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 also can be configured and tailored to meet the specific needs of a particular consumer or business segment, enabling, for example, the provision to SMEs of products like trade finance, invoice discounting, and foreign exchange services that were once reserved for high-volume large corporates.

Moreover, the growth of affinity digital banks serving the specific needs of segments demonstrates that product tailoring and eliminating geographic constraints can enable the 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 that are appropriate for previously excluded retail and SME market segments. Technology has enabled niche providers to be economically viable; however, even in the digital age, classic economies of scale and scope remain strong forces, and convenience and trust still matter to consumers. Economies of scale and scope, as well as 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 rebundling of financial services; they allow diversified fintech and big tech companies and other new players to deepen their inroads in core financial products. Furthermore, although unbundling gives users more choice, they must also weigh the time, effort, and

monetary costs of searching for and assembling individual financial services from different providers. Consumers continue to prize simplicity, convenience, and trust - factors that favor brand names and large players offering a broad range of products.

Providers will therefore optimize their comparative advantages in technology, skills, reputation, capital, customer base, and other assets to determine how to position themselves along the spectrum from single service within a product value chain, to single product provider, to broad multiproduct player.

The decentralized frontier: digital assets

Digital assets, including stable coins and decentralized finance, offer new opportunities, as well as significant challenges. Technology is blurring one of the last functional boundaries: the distinction between an individual and a financial intermediary. Distributed ledger and similar technologies 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 on, spurring innovation and network effects and giving rise to new, interoperable financial services and vibrant ecosystems.

Digital assets, including stable coins and decentralized finance are distributed ledger technology-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 roles 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. The technology that enables niche providers to be economically viable by targeting a particular product or segment does not ensure open and competitive markets. The simultaneous tendency toward market concentration, particularly due to economies of scale and network effects in data, raises concerns about potential anticompetitive conduct, even as it may also deliver inclusion and efficiency, particularly in developing economies that lack competitive and inclusive financial sectors.

A concentrated provider or a big tech crossing over into finance may provide financial services that are otherwise unavailable. Consumers can benefit from a wave of fintech-induced innovation and competition even as markets become more concentrated. In this environment, proper policy safeguards 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.

Balancing the trade-offs

Policy trade-offs may evolve as fintech adoption increases. This dynamic can make it more challenging to ensure that 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, must remain aware that adoption can increase rapidly; they 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 continuing to safely support fintech adoption as fintech reaches more consumers, increasing its volume and dependence on user data and certain providers reach scale. Some EMDEs have adapted regulatory and supervisory frameworks in response to fintech developments, although market participants indicate there is further scope for improvement. To bring fintech activities within the regulatory perimeter, various EMDEs have applied or adapted existing regulatory frameworks or developed 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 approach may entail risk.

Countries also feel the need to evaluate the appropriateness of their supervisory frameworks as the financial sector undergoes digital transformation. According to the Fintech Market Participants Survey conducted for this report, supervisors will need to catch up, particularly in EMDEs. Many EMDEs need to strengthen their approach to addressing the consequences of fintech failures, although special wind-down procedures are only indicated in cases where the provider has systemic relevance. Many high-income economies are adopting comprehensive data protection and privacy frameworks, while EMDEs typically lag.

Managing the digital assets environment

Most policy makers have taken a cautious stance regarding crypto-assets and issued public warnings regarding the risks. Many jurisdictions aim to provide an environment for safe innovation and adoption; they are clarifying existing legal, regulatory, and supervisory approaches or creating new ones. At the same time, the Central African Republic and El Salvador have adopted bitcoin as legal tender, while other 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, they 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 mitigation of regulatory arbitrage risks remains a work in progress, and many national authorities still lag in upgrading their policy frameworks and addressing regulatory fragmentation.

A string of recent failures and bankruptcies of crypto projects and intermediaries point to the financial risks stemming from, for example, risk management, governance, conflicts of interest, liquidity and maturity mismatches, high leverage, and tight financial interlinkages. These events call for action related to, among others, improving transparency and disclosure; strengthening accounting and auditing; bridging data gaps; separating economic activities carried out by centralized crypto-asset service providers; creating a globally consistent and comprehensive regulatory and supervisory approach; and bolstering domestic and cross-border coordination between relevant regulators.

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.

However, CBDCs 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 road maps 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 coexisting with other forms of money and payment mechanisms. The use of CBDCs could either be limited to regulated financial-sector players or open to all. Wholesale CBDCs, given their limited use, do not pose any significant policy challenges. A retail CBDC may, however, hinder bank funding and credit intermediation, reduce monetary stability, distort the level playing field, and raise financial integrity and data privacy challenges. As such, policy makers must give careful attention to various implementation options related to, for example, distribution, wallet limits, remuneration, privacy features, onboarding, and verification mechanisms.

Attending to regulatory and supervisory framework

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 the reevaluation of the regulatory perimeter. 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 it is generally not part of financial sector regulation. Further, given atomization and unbundling, multiple financial and nonfinancial 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 coordination with competition authorities to lower the barriers to entry and keep the market contestable - even when there could be natural tendencies toward market concentration 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 could 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 the strengthening of wind-down processes and tools as well as financial sector safeguards.

Finally, in this context, the design and governance of financial infrastructures become a key policy lever to fully harness efficiency gains and safeguard competition. Several financial infrastructure components will become central to the financial services chain.

Ensuring open, fair, and transparent access to these infrastructures becomes 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 requires new types of financial infrastructure to emerge - for example, digital ID, data-exchange hubs, and gateways to data held with governments.

Addressing the policy implications

In sum, the ongoing digital transformation presents a paradigm shift whose policy implications point toward the following objectives:

- Foster beneficial innovation and competition while managing risks.
- Broaden the monitoring horizons and reassess regulatory perimeters as embedding of financial services blurs the boundaries of the financial sector.
- Be mindful of evolving policy trade-offs as fintech adoption deepens.
- Review regulatory, supervisory, and oversight frameworks to ensure that 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 that 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 supranational nature of fintech.

Introduction

About fintech and the future of finance

Digital transformation is reshaping the market outcomes of the financial services industry. Financial technology supports growth and poverty alleviation by strengthening financial development, inclusion, and efficiency and by providing the financial services that are required for the digital economy to flourish. To reap these benefits, authorities will need to shape regulatory and supervisory approaches to harness these opportunities while ensuring that core policy objectives - such as stability, integrity, consumer protection, and competition - continue to be met as the digital transformation of the financial sector continues. Digital finance has enabled providers to leapfrog legacy channels and products, particularly in emerging markets and developing economies.

Financial markets have seen the entry of stand-alone consumer fintech firms, new business-to-business services, and big tech firms have also embraced technology as a strategic priority to improve their products, lower costs, and compete. Adoption and further innovation have accelerated because of the coronavirus pandemic, which spurred increased digitization across many sectors, including finance, as businesses and individuals adapted to social distancing and hygiene protocols and sought efficient and effective ways to connect remotely to government and business services. The pandemic thus reinforced what was already a clear trend of rapid advances in technology reshaping the economic and financial landscape globally.

Berkshire Consulting continues to assess fintech developments and advise governments and central banks on fintech issues in coordination with the IMF, the Financial Stability Board, the Committee on Payments and Market Infrastructures, the Global Partnership for Financial Inclusion, and other relevant organizations. IFC is complementing its investment in fintech firms and the digital transformation of traditional financial institutions with research, thought leadership on the private sector growth and investment opportunities emerging from fintech adoption, including in areas such as small and medium enterprise finance, and embedded finance.

Conceptual framework

This conceptual framework captures the implications of fintech and the digital transformation under way in financial services for market outcomes and policy making - and how these two aspects interact. The impact of fintech drivers on market outcomes typically requires a policy response to ensure alignment with policy objectives, which in turn shapes market outcomes, producing a feedback loop.

Within this framework, fundamental technology developments shape market outcomes. Advances in computation and connectivity have produced massive amounts of data and alleviated transaction costs as well as frictions associated with financial services provision. These technological factors - combined with scale and scope economies and network effects - have profoundly transformed financial sector business models, products, infrastructures, market players, and market structures. These technological innovations are ultimately not purely exogenous, because innovators respond to market conditions and create the next generation of technologies.

Another key factor involves the core policy objectives - such as financial inclusion, efficiency, and stability - that drive the formulation of regulatory and supervisory frameworks. This publication distinguishes long-standing policy objectives, but these too are not immutable. For example, financial inclusion and consumer data protection have emerged relatively recently as policy objectives in their own right. Policy makers' objective regarding financial innovation is to capture the main benefits of fintech while mitigating associated risks. Doing this requires balancing trade-offs that continuously evolve as the sector's digital transformation progresses and market outcomes change.

These dynamics also depend on a country's stage of fintech development. At lower levels of fintech development, the range of services, scale, and penetration is still limited. This stage calls for policy makers' willingness to support innovation and to provide basic legal and regulatory clarity. Addressing data gaps that prevent effective monitoring of risks, safeguarding the most vulnerable customers, and ensuring that financial integrity objectives are met are key priorities because risks to financial stability, fair competition, and overall consumer and investor protection are still relatively low. However, as scale, complexity, interconnectedness, and possible concentration increase, policy makers must increase their focus on safeguarding financial stability, data protection, and fair competition.

This enhanced focus requires that legal, regulatory, and supervisory frameworks as well as technology and financial infrastructures be reviewed and strengthened to support the development of a flourishing fintech ecosystem that remains consistent with policy objectives.

What fintech is and why it matters

Fintech can be defined in various ways. The Bali Fintech Agenda, the FSB, and others broadly define fintech as "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". The overall focus here, however, is on the market trends and regulatory implications of the digital transformation of finance in the context of rapidly digitizing economies, rather than on specific technologies that may have currency today but may be superseded tomorrow. For that reason, this publication starts its analysis with the key drivers of change on the technology side and links these to the underlying economics of financial intermediation: the economic frictions that gave rise to intermediaries as well as the economic forces that shaped their scope and scale.

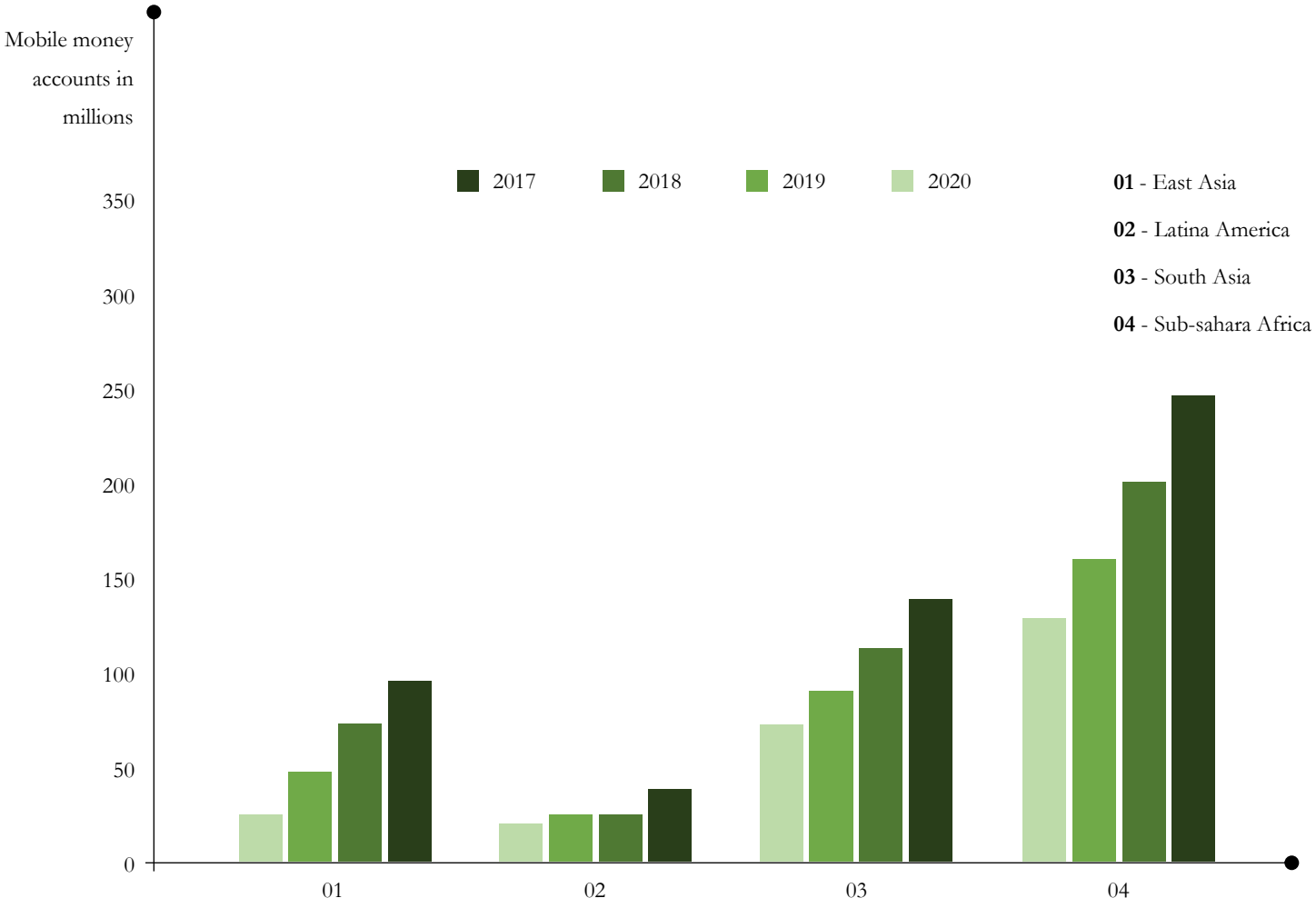
Technology can lower costs and increase the speed, transparency, security, and availability of more tailored financial services. Digitization can reduce frictions in each step along the financial service life cycle, from opening an account to conducting customer due diligence; authenticating transactions; and automating other, product-specific processes such as assessing creditworthiness. Fintech is therefore characterized by low marginal costs per account or transaction and scale efficiencies. Fintech can also enhance transparency and reduce information asymmetries, since digital processes generate a data trail, which can be used to better understand consumers, improve products, manage risks, and promote regulatory compliance.

Innovation in fintech and lending

Innovation has taken hold across different areas of financial services to different degrees. However, payments have been at the forefront. Digital payments have become important in all regions and almost all countries. In some markets, such as Bangladesh, China, and Kenya, significant portions of payments volume and value are processed through nonbank mobile wallets. In other markets, bank account and card-based systems most of which link to underlying bank accounts dominate. Fintech lending lags

payments but is becoming significant. The Fintech Activity Note index shows Australia, China, Europe, and the United States leading in fintech lending, but important levels of activity are emerging in other parts of Asia as well as in Africa and Latin America.

The Bank for International Settlements and the Cambridge Centre for Alternative Finance estimated that global fintech lending had reached 125 Billion USD, and big tech lending 637 Billion USD, in 2020. Although the total of these two forms of "alternative credit" was estimated to be less than 2 percent in most of the major fintech markets, one recent industry analysis projects global fintech lending to rise to 4.9 Trillion USD by 2030. Accordingly, alternative credit could soon be a significant portion of credit creation. To the extent that alternative credit grows in part at the expense of traditional credit providers, the relative shift in market share and credit emission to providers outside the traditional regulated banking system would accelerate.



- **Growth in mobile money accounts and transactions**

Policy implications

Although high-income markets tend to show more activity, financial innovation has had far-reaching impacts in many EMDEs. As a result, every regulator concerned with financial stability, financial inclusion, financial system integrity and efficiency, competition, consumer protection, or simply with tracking how the macroeconomic levers over money supply and credit are changing has taken note of the disruptive changes that fintech is bringing to the financial system and the broader economy.

Fundamentals of fintech drivers

Key technologies: connectivity and computing power

Digital technology is reshaping financial services by eliminating many of the frictions that drove earlier integrated business models through advances in two key areas: connectivity and computing power. The internet and mobile technology have increased connectivity among consumers, financial services providers, and a range of intermediate service providers and customer interfaces. Ubiquitous connectivity has eliminated barriers and reduced costs for information transfer and remote interactions. In emerging markets and developing economies, where barriers to financial access and costs of services have been high, mobile connectivity has enabled markets to leapfrog past the constraints of fixed line and bank branch infrastructure. Basic access through at least a feature phone is available to billions of individuals across markets. Low-cost computing and data storage put processing power such as smartphones at the end of each of those ubiquitous connection points, enabling complex transactions and services; generating vast amounts of data; and facilitating the efficient processing, storage, and analysis of that data.

The resulting digitization of a broad range of activities, including finance, is creating massive volumes of data that can be leveraged to broaden and deepen financial services and better manage risk. A variety of sources generate these data, including the location and usage data from mobile phones, the contact information from social networks, the delivery information from logistics companies, and the sales data from retail outlets and payments networks. Such data are being used in a wide range of traditional financial services and new types of businesses to improve credit analysis, process efficiency, risk management, product design, customer service, and other areas. Advances in analytics - including artificial intelligence - enable automation, process improvements, and new approaches to risk management.

Together, ubiquitous connectivity and scalable computing and data storage enable the development of cloud-based computing and data storage infrastructure. The result is an ability to increase processing efficiency, to gather and analyze large data sets, to obtain infrastructure on demand, and to reduce the fixed cost barrier to entry in financial services and other industries. Combined with software as a service and cloud-based analytics offerings, niche-focused financial services can be viable at low volumes and can scale as they grow their customer base. Most fintech start-ups use cloud-based services to keep their own infrastructure cost low and leverage the scalable and data analytics capabilities of the large cloud providers. At the same time, digitization of processes creates more digitally available data, and scalable infrastructure allows reams of data to be stored and analyzed.

Another result of these technology advances has been the emergence of platform-based business models in e-commerce and social media markets. These businesses leverage the connectivity of individuals and businesses as well as the ability to quickly and easily collaborate, discover counterparties, and package and deliver a range of digital and physical goods and services. Such business models benefit from strong network effects. Adding users on one side of a platform market (ride-hailing drivers, for example) creates more value to users on the other side. The platform becomes more attractive on the first side (drivers), attracting even more users. In addition to the presence of a diverse set of counterparties, more participation allows the platform to mine more data about users, behaviors, and preferences; to create better matches; or to better tailor its own products and services. A positive growth spiral can result in a "winner-takes-all" type of outcome, where all market participants want to benefit from the network effects of being on the same platform.

Platform business models that aggregate and link buyers and sellers are also being adopted for price comparison, distribution, and origination of financial products like lending, investment, and insurance - in some cases, by the same real-sector platforms discussed. The platform operators are embedding financial services to improve the experience of their different customer constituencies. For example, ride-hailing services in many countries provide payment services to improve the safety and efficiency of the payment process for both drivers and riders, and they also seek to facilitate drivers' access to insurance and to credit to purchase and maintain their vehicles.

Impact of technology

The technological advances described have affected every industry, and their impacts on financial services have been particularly profound. Many aspects of finance were already digitized behind the scenes; most of the value of global payment flows, for example, were already executed through computer-to-computer transactions. This wave of technology has resulted in the unbundling of financial products, the reconfiguration of the value chains that produce and deliver financial products and services, and the entry of new providers.

The initial impacts were disaggregation and atomization at the product level and the potential for a much more fragmented financial services sector at the provider level. However, traditional economic forces that shape industry structure - such as economies of scale and scope, search costs, and transaction frictions - remain relevant, albeit in new forms. These forces counterbalance the tendency toward fragmentation; they are, in fact, driving a rebundling of services and potential acceleration of sector concentration.

Impact of economic forces: scale economies, frictions and rebundling

Amid the entry of new niche players and shifts in business models, economies of scale and scope remain relevant. The minimum scale for efficient service delivery is now lower for financial service providers that use variable infrastructure services like cloud computing. This, however, simply shifts the scale effects to the new infrastructure providers; as such, scale remains highly relevant in areas of cloud computing, data processing, and software platforms. In fact, new forms of scale economies have emerged in connectivity and all aspects of data provision and services alongside conventional economies of scale in capital, including reputation or "trust capital." A provider's customer acquisition and funding costs also create economies of scope: a niche provider that has a cost of customer acquisition can only amortize that cost across a limited product set, whereas adding additional products can leverage the existing customer base with lower acquisition costs. Consumers and other users can experience frictions in the unbundled financial services marketplace. For many consumers, there is a cost to the time, effort, and potential confusion of searching for and assembling fragmented services from unbundled providers as well as potentially switching providers. Even as operational frictions of moving funds between providers have been reduced, there are still transaction costs involved.

Consumer usage frictions related to finding the right solutions and managing funds across multiple providers remain a barrier to adoption; simplicity and convenience have significant value. Individuals and businesses may prefer to work with a single platform or provider that offers an integrated suite of financial products and services, even if each individual product may be less well designed, or marginally more expensive, than those of alternative niche providers. These frictions limit the degree of product atomization, value chain disaggregation, and provider diversity that the market will bear. The combination of scale and scope economies on the provider side, and frictions on the customer side, confer advantages on providers with larger customer bases or more diversified product sets. Scale effects, alongside economies of scope and consumer convenience factors, encourage rebundling. Incumbent

multiproduct banks and insurers have some of these scale and scope advantages - if they can improve customer experiences and immediacy. Fintech firms are merging or obtaining banking licenses to broaden their product sets. This rebundling is not limited to combining financial services with other financial services; increasingly, financial services are being embedded in non-financial activities.

Technology-enabled atomization and unbundling of accounts from other services has allowed those services, especially payments, to be conducted through applications and service providers separate from the account-holding institutions. These atomized payments services are being embedded into nonfinancial services, particularly activities conducted through digital platforms. Thus, for example, many ride-hailing services embed a wallet to seamlessly integrate payment into the ride experience. Embedding payments, credit, insurance, and investment into ride-hailing, e-commerce, logistics, social media, gaming, and other platforms has enabled Big Tech firms and others to make deep inroads into financial services.

- **Expectations Regarding Customer Relationships with Financial Service Providers**

The chart shows the distribution of responses to a question on evolving consumer needs and behavior in the Fintech Market Participants Survey, conducted May 2020 to January 2021, of 330 fintech market participants from 109 countries. Respondents represented traditional banks, payments and remittance service providers, fintech firms, insurance companies, nonbanking companies, technology companies, telecommunications companies, industry associations, and other financial market players.

Market outcomes

Impacts across the four dimensions of market outcomes

The conceptual framework specified four dimensions of fintech's market outcomes: business models and products, market players, market structure, and financial infrastructures. Two types of transformative fintech innovations like digital payments and digital lendings are reshaping all of these four dimensions, and certain policy issues have emerged as a result.

Digital payments

Globally, an estimated 770 billion digital payments were made in 2020. Mobile money transactions alone numbered 41 billion, representing a total transaction value of 767 Billion USD across 300 million active mobile money accounts. Sub-Saharan Africa accounted for the bulk of mobile money transactions in 2020 - 27.4 billion transactions, amounting to 490 Billion USD across 159 million active mobile money accounts. The volume of digital payments is growing at around 11 percent a year globally and at much higher rates in emerging markets and developing economies E-money issued by nonbanks, such as mobile network operators, leveraged the connectivity boom and has enabled millions of users to store value and make transactions from their phones, most notably in Sub-Saharan Africa. As users increasingly shift to smartphone use from basic phones, app-based payments can replace Unstructured Supplementary Service Data interfaces, offering enhanced functionality including linkage to bank accounts, speed, and convenience while also generating rich data that can be used for further services.

A next generation of digital money is emerging in the form of crypto-assets and central bank digital currencies - CBDCs. Many EMDEs are looking into issuing CBDCs, in part to support the digital economy, improve payments efficiency, and promote financial inclusion. CBDCs, however, share many of the same challenges as traditional approaches to reaching and serving unbanked customers and, as such, are not a panacea for these policy objectives. Further, in addition to the proven models of e-money and agent-based basic banking models, new developments like faster payment systems, quick response codes, and open banking could provide alternative pathways.

In light of their scale, mobile money networks raise policy issues related to competition and how authorities would deal with the failure of a large, systemically important nonbank e-money issuer. Depending on how it is implemented, a CBDC may reduce bank deposits and credit intermediation and may distort the playing field on which banks and private payment service providers compete. In EMDEs, foreign CBDCs could displace local currencies and erode monetary sovereignty.

Digital lending

Providing credit through digital channels and using data-driven underwriting and risk management have been important fintech applications. The flow of digital credit was estimated at almost 800 Billion USD globally in 2020, with big tech lending platforms representing 70 percent of this lending volume. Peer-to-peer lending, an early alternative credit innovation, was as much a regulatory arbitrage to gather non-deposit funding as it was a means to leverage alternative data, the "wisdom of the crowd" for underwriting. Digital lenders use enhanced reach and data analytics to increase access to finance to individuals and small and medium enterprises

that had been previously excluded for lack of proximity to a branch or lack of credit history. Embedded finance providers ranging from e-commerce and logistics platforms to consumer goods distribution networks can leverage transactional data on orders, inventory, sales, or receivables to provide working capital. However, the wide range of alternative credit providers raises policy issues over how to treat nonbank lenders - such as whether lending is a regulated activity per se or should only be regulated in the context of protecting depositors or investors. It also raises issues regarding consumer protection of the borrower for example, usury limits and fair disclosure and credit information sharing with and by nonbank lenders. New technologies and data-based lending also raise policy issues concerning algorithmic bias, digital exclusion, and data privacy. In addition, the remote nature of many of these products raises challenges for Know Your Customer practices, gauging of product appropriateness, and consumer disclosures and education. Finally, significant growth of digital lending could have implications for monetary policy management if alternative lenders are less directly affected by standard policy levers.

Impact of other fintech applications

Beyond these two examples - of digital payments and digital lending - other applications of fintech also affect the financial infrastructure, business models and products, market players, and market structures in their respective markets. Among them is insurtech: technological innovations that improve the efficiency of the insurance industry. Although insurtech is now a smaller market than digital payments and credit, it too is shifting the market structure of producers, brokers, and agents - as well as how policies are underwritten and claims serviced - using data and Internet of Things connectivity.

In addition, digital wealth management and investment applications have broadened access to products and encouraged more active participation by retail investors in equity, bond, and other markets, such as real estate and crypto-assets. That overall positive impact has also been accompanied by some instances of volume concentrations and market volatility as well as consumer protection lapses. In the business-to-business fintech space, open banking applications are allowing account-to-account payment providers to replace debit networks and clearinghouse payments processing, and credit analytics innovators are providing banks and other lenders with options to replace both internal processes and traditional scoring services.

Now that fintech's cross-cutting impacts on the various dimensions of market outcomes have been discussed, this chapter turns to the impacts on each of the four market dimensions.

Financial infrastructure

Financial infrastructure has advanced significantly alongside physical information and communication technology infrastructure and mobile telephony. Faster payment systems are enabling new business models for payment services. They enable real-time payment to the payee and are accessible through a range of innovative payment channels, such as mobile apps and simplified processes for example, using QR codes. This function enables licensed payment service providers to innovate the user experience, spurs competition between card-based payment services and bank account–based payment services, and enables integration with customers' social and economic lives.

Digital ID

Digital identification - ID enables fintech firms and incumbent financial institutions alike to implement remote, convenient, and lower-cost customer interactions and data exchange without compromising safety. As noted in the Fintech Market Participants

Survey conducted for this publication, incumbent and fintech firms alike expect a significant shift of sales, customer onboarding, and customer interactions from physical to online modes. Achieving this requires widespread development and adoption of digital ID services. A well-designed digital ID enables remote identity validation, consent, and document signing. This allows the exchange of data held by other financial institutions for example, bank statements; other businesses for example, sales or purchase data; and potentially government agencies for example, tax data and demographic information.

Such exchanges can enable a financial institution to meet due diligence requirements not simply to onboard customers but also to assess creditworthiness and suitability for certain financial services like investment for example, by validating net worth. The increasing role of digital identity and data in financial services is motivating the development of a new class of financial infrastructures. Digital ID is becoming an integral part of the value chain of many fintech models; as such, market infrastructures for facilitating the provision and validation of digital IDs are emerging. These take the form of bringing together providers and consumers of digital ID services and enable customers to assert their identity digitally across different service providers in a seamless manner.

Examples include FranceConnect, eHerkenning in the Netherlands, and the National Digital ID - NDID platform in Thailand. Similarly, as the scale and range of data being used increases, new market infrastructures are needed to orchestrate the consent-based exchange of data. These data exchange platforms are now emerging in many countries as the implementation of open banking and open finance frameworks expands. Examples include the Singapore Financial Data Exchange - SGFinDex and India's Data Empowerment and Protection Architecture - DEPA.

Credit information

Credit information systems are fundamental to sound lending, and they both benefit from and contribute to trends in data and fintech lending. Data from credit registries and credit bureaus can ensure sound lending and help prevent overindebtedness. However, these traditional credit information providers may not have broad coverage of individuals and SMEs, particularly in EMDEs and among previously excluded segments.

Fintech solutions using big data and advanced analytics have filled that gap, enabling lending to thin-file or no-file borrowers. The broad participation of lenders in a modern, open credit information infrastructure facilitates sound digital lending. .

Secured-assets infrastructure

Digital invoicing, asset registries, and other infrastructure for secured transactions and asset-based lending are increasingly important drivers of fintech lending. Secured lending instruments can reduce credit risk and broaden access to finance beyond those who have traditional collateral for example, real estate or fixed assets. The introduction of digital asset registries enables fintech lenders to secure loans via automated processes, increasing efficiency and reducing barriers to finance for many borrowers. Lending against digital invoices that have been registered on a central platform opens access to working-capital credit for small businesses that might not be creditworthy themselves but are owed a payment by a larger, more creditworthy company.

Platform-based models for the provision of financial services strongly resemble financial infrastructure. Platform-based models are emerging in areas like lending for example, marketplace lending; investment for example, mutual fund distribution platforms; insurance for example, insurance distribution platforms; factoring for example, national reverse factoring platforms in India and

Mexico; and payments for example, bill payment platforms and application programming interface hubs. These, like a traditional financial infrastructure, serve the industry or market as a whole; they facilitate the offering of financial products but neither provide it nor compete with its participants, and they are expected to be seen as neutral with no preference for any particular participant or provider. Accordingly, they also pose similar policy and regulatory issues to those of traditional financial infrastructure. As such, it is possible that these would formally get structured as financial infrastructure and might even be integrated into existing financial infrastructure.

New business models and products

Reduced economic frictions, reconfigured financial value chains, new opportunities for entry, and shifting economies of scale and scope have resulted in the introduction of new products and business models. Fintech firms are proving nimble at leveraging data, connectivity, and improved processing capacity as well as at converting regulatory barriers into solvable technology challenges. Payments benefit strongly from the revolution in connectivity and have seen particularly rapid innovation, including in the area of international remittances. Incumbents have been slower to innovate, but many are catching up, leveraging their advantages in trust capital and regulatory position and often partnering with fintech companies to use, or provide, B2B services. Big tech firms compound the advantages of fintech firms, leveraging their large-scale existing customer bases, customer data, and consumer trust. Technology platforms have increasingly embedded financial services into their core offerings.

Small businesses have been important beneficiaries of the digital transformation of finance. As small merchants participate more in e-commerce, they develop data trails and may benefit from the embedded finance provided by online marketplaces. Separately, digitally enabled efficiencies, tailoring, and risk mitigation have made SME finance a more viable market, with many fintech firms emerging to serve this segment.

New players; entry, concentration and competition

The sheer number of entrants and innovators is indicative of competitive pressures on traditional providers. By one compilation, there were more than 26,000 fintech start-ups globally in 2021, up from 12,100 in 2018. Although fintech credit is not yet systemic, fintech lenders are significant in certain segments - for example, micro lending in Kenya and retail and small business in China and several developed markets. In the year before the pandemic, fintech firms' share of US consumer credit - 38 percent had exceeded the share of traditional banks - 28 percent. Competitive pressure from new entrants could change the behavior of incumbents, which may, for example, take on more risk as they seek to compensate for revenue losses. Supervisors should be attuned to this dynamic.

Implications for market structure

Market structure outcomes will depend on how three factors balance in a given market:

- Degree of scale and scope economies in a particular product or market.
- Customer preferences for choice among many tailored products from different providers versus the convenience of preassembled product sets.
- Regulatory stances on entry, licensing, and competition.

Stepping into newer and promising markets

Our divestitures and future prospects

In times of tremendous economic downturn, making data-driven decisions for market expansion is more critical than ever before. Due to the uneven distribution of the pandemic's impact and the ongoing Eastern Europe conflict, some countries in Western Europe have experienced more severe economic consequences than others. As a result, businesses have responded differently, with some pausing all advertising while others increase their spending significantly. Moreover, slow-to-adapt companies in digitized environments struggle to keep up, and these differences are amplified across various categories. We have identified opportunities throughout the exploration stage, ensuring that all market expansion is supported by focused and relevant insights. We launch into newly discovered opportunities with a growth process in place and ultimately expand by converting emerging markets into mature ones, which involves optimizing the media mix and employing a constant and rigorous approach to testing and learning.

As we further investigate the market, we analyze the strategies employed by each competitor in acquiring users, using web category reports to track channel traffic trends over time. This helps us identify periods of intensified advertising and increased email traffic among competitors. While understanding market and competitor insights is important throughout the market expansion process, it is particularly crucial during the exploration phase where we aim to identify market conditions that may affect the earnings of our clients or members. This involves understanding the market size, depth of competition, and landscape of media channels we plan to launch in.

The potential of emerging markets has always fascinated businesses and governments, as far back as the 16th century when explorers from England, Spain, France, China, and other countries ventured into North America, hoping to discover riches like gold, silver, and other natural resources. Five hundred years later, the allure of emerging markets in Central and South America, Africa, the Middle East, Asia, and Eastern Europe still entices businesses in mature markets to expand their market share by looking beyond their borders to increase revenue and profits.

Advancements in technology, coupled with increased online presence and adoption rates in emerging markets, have presented businesses with new opportunities for international expansion. However, this endeavor is not without its challenges. One example involves a software-as-a-service company that sought to expand its operations to Brazil. The company invested considerable time and resources in updating its localization files and translating its software offerings into Portuguese and Spanish, believing that the software was ideally suited to the needs of Brazilian users.

Unfortunately, the company encountered a range of logistical challenges in its efforts to establish a presence in the Brazilian market. For instance, the company struggled to hire local personnel due to financial infrastructure limitations, as they lacked the necessary funds to cover salaries. The company also had difficulty locating a local host for its software that would reduce download times. Furthermore, the company encountered difficulties in making payments to vendors in Brazil, which was a time-consuming and complex process due to the lack of a local presence. The transaction delays that ensued often led to delays in project completion, while high wire transfer fees also had a negative impact on the company's profits.

In an attempt to circumvent some of these challenges, the company opted to use a cloud hosting solution that was based in its home country and hired translators rather than local talent to develop its marketing plan. Unfortunately, this strategy proved unsuccessful, as the website and advertising failed to resonate with users. Those who did attempt to download the software abandoned the process due to lengthy download times. Overall, the experience highlights the need for companies to take into account the unique logistical, financial, and cultural factors associated with expanding into new markets. When expanding into emerging markets, companies face several challenges, even with a fully tested software-as-a-service product. One of the main challenges is dealing with multiple currencies. Vendors require payment in their local currencies, while customers pay in a different currency. Eventually, much of that money will need to be converted into the company's preferred currency to pay for expenses or salaries. Traditional companying and forex channels can eat away at the company's margins through prohibitive fees and high exchange rates.

To address this issue, companies should consider using an online e-wallet that allows for easy management of different currencies and is attentive to their exchange needs. This e-wallet should allow for seamless currency exchanges without charging exorbitant exchange rates. Globalization has also made it easier than ever to connect with local talent. Rather than relying on translators to simply translate their existing marketing materials into multiple languages, companies now have the opportunity to find recommended local agencies and outsource their marketing activities to groups that understand the market and local culture.

Utilizing local marketing talent can also open the door to local influencers, who are capable of driving traffic to the company's site and expanding their reach to local online forums unknown to foreigners. By partnering with local influencers and agencies, companies can better understand the local market and increase their chances of success in emerging markets. In order to ensure equitable distribution of capital and profits to all stakeholders, it is essential for our company to strategically explore and invest in newer and promising markets. These markets provide significant opportunities for inflow of capital and generation of profits which can be distributed to shareholders, clients, investors, and investing partners and affiliates across the globe. Moreover, the profits generated through these investments can also be utilized to improve and maintain the operational efficiency of the company, which is crucial to establish and uphold our reputation as a reliable digital financial institution. The smooth functioning of the company's internal processes and mechanisms is essential to provide quality services to our customers and meet their financial needs in a timely and efficient manner.

Therefore, by investing in these emerging markets, we can not only contribute to the growth and development of these economies but also benefit our stakeholders and ensure the long-term success and sustainability of our company. It is important to carefully analyze and evaluate the potential risks and benefits of each investment opportunity in order to make informed decisions that align with our strategic goals and values. The company's strategic divestitures into various industries, including Artificial Intelligence - AI, Aviation, Health Sector, Transportation, and Mergers and Acquisition, have been aimed at generating significant profits of over **15 Billion USD** in a 10 year period since its inception. These divestitures are a result of the company's thorough analysis of the current market trends and emerging opportunities in these sectors.

Artificial Intelligence is an industry that has been growing exponentially, and the company's investment in it is a strategic move to position itself as a leader in this field. The company's investment in AI is aimed at developing innovative solutions that can optimize its operations, enhance customer experience, and improve its decision-making capabilities.

The aviation industry is another sector that the company has invested in. The aviation industry has been experiencing significant growth, and the company's investment in this sector is a testament to its commitment to diversifying its investment portfolio. The company's investment in aviation is aimed at generating profits through the acquisition of airline companies and investing in innovative technologies that can enhance the safety and efficiency of the aviation industry. The health sector is a critical industry that has been growing rapidly in recent years. The company's investment in this sector is aimed at providing access to healthcare services to people globally. The company's investment in the health sector is focused on developing innovative healthcare solutions, investing in cutting-edge medical technologies, and acquiring healthcare companies to expand its footprint in this industry. Transportation is another sector that the company has invested in, and this is aimed at generating profits by providing innovative transportation solutions. The company's investment in transportation is focused on acquiring transportation companies, investing in innovative transportation technologies, and developing transportation solutions that can optimize its operations.

The company has also invested in mergers and acquisitions, which is a strategic move aimed at acquiring companies in different sectors to diversify its portfolio and expand its reach. The company's investment in mergers and acquisitions is focused on identifying potential acquisition targets, conducting thorough due diligence, and negotiating favorable deals to maximize profits.

The company's strategic divestitures into various industries are aimed at generating significant profits and positioning itself as a leader in these sectors. These investments are a result of the company's thorough analysis of the current market trends and emerging opportunities in these sectors, and they are expected to be the potential drivers of breakthrough for the current situation of the international markets for a guaranteed economic stability.

Artificial Intelligence - we have invested and keep investing in AI to make a profit in various ways. One way is by investing in companies that develop and implement AI technologies. These companies can include tech startups, established tech companies, or even non-tech companies that are adopting AI to enhance their products or services. By investing in these companies, we benefit from their growth and success, leading to an increase in the stock price and dividends. Another way that we have invested and keep investing in AI is by developing our own AI technology. For example, we use AI to improve our risk management, fraud detection, and customer service. By doing so, we have and keep reducing costs, increasing efficiency, and enhancing customer satisfaction, which lead to increased profits.

Additionally, we have invested and keep investing in AI-based financial products such as robo-advisors, which use algorithms to provide investment advice and portfolio management. By offering these products to their customers, the bank can generate fee income, which can contribute to its profits.

We have also invested and keep investing in various industries, including aviation, health sector, and transportation, to generate profits. Here are some ways a bank can make profits through investing in these industries:

Aviation - we have invested and keep investing in aviation by financing aircraft purchases for airlines, leasing aircraft, and providing loans for airport expansion projects. We can also invest in aerospace technology companies that develop new aviation technology,

such as drones, which have a wide range of applications from agriculture to delivery services. We earn interest on loans, leasing fees, and dividends from their investments in these companies.

Health sector - we have invested and keep investing in the health sector by providing financing for medical facilities, such as hospitals and clinics, and investing in pharmaceutical companies. We also invest in medical technology companies that develop new medical devices and equipment. We can earn interest on loans and dividends from their investments in these companies.

Transportation - we have invested and keep investing in transportation by providing financing for shipping companies, railroads, and trucking companies. They can also invest in logistics companies that provide shipping and transportation services. We earn interest on loans and dividends from their investments in these companies.

Conclusion

In recent years, there has been growing evidence suggesting that two major waves of innovation, namely the digital age wave and the deep science wave, may have a significant impact on productivity and overall welfare. Despite this, the positive effects of these waves may take some time to materialize due to various obstacles that need to be overcome, particularly in terms of technology adoption and diffusion. To achieve substantial increases in productivity in the services sector, digital age innovations and their advanced ICT solutions need to become more sophisticated. However, it is uncertain whether existing productivity metrics are adequate for capturing the full potential of innovation. This calls for a fundamental reconsideration of how we measure innovation impacts and outcomes, which represents a promising area for future innovation measurement and policy work.

Moreover, many of the societal concerns and impacts of digital age and deep science innovations are focused on improving well-being in areas such as health, education, the environment, and housing. However, these objectives do not necessarily align with the traditional productivity concept of producing more with less. As a result, there is a need for a fundamental rethink about how we measure the impacts and outcomes of innovation.

Finally, if innovation is more focused on solving urgent challenges rather than merely driving enterprise productivity, the link between innovation and productivity gains may become weaker. Therefore, better metrics are needed to measure the impacts of innovation beyond firm-level productivity, particularly in terms of addressing broader societal challenges.

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