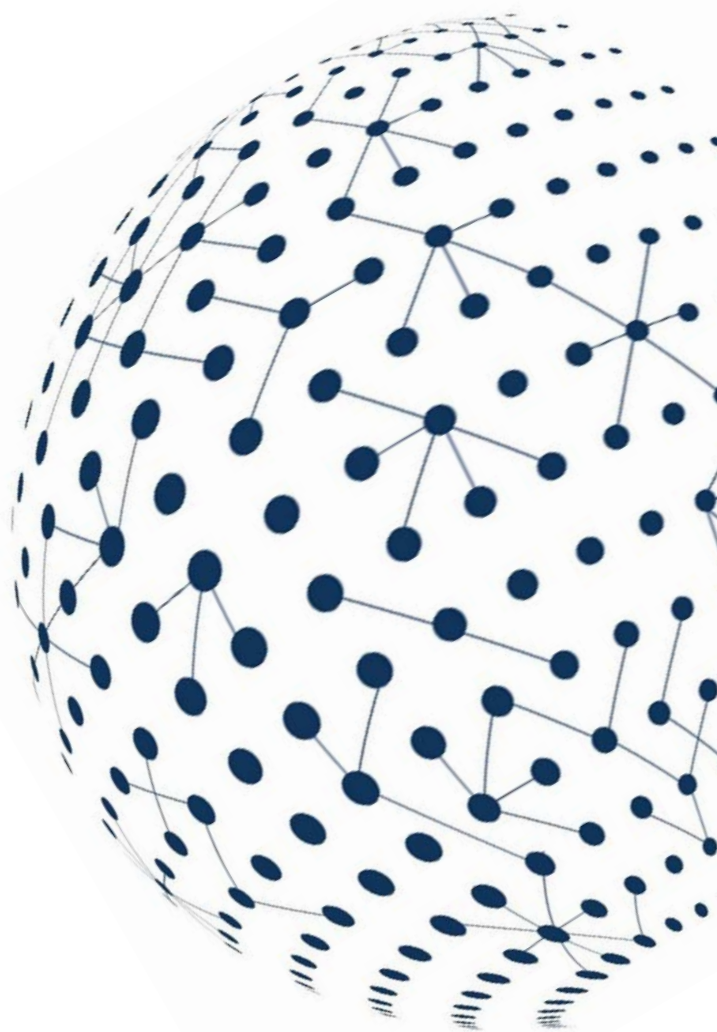


# BigTech Firms in Finance in Emerging Market and Developing Economies

Market developments and potential  
financial stability implications

12 October 2020



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## Executive summary

The expansion of BigTech firms into financial services in emerging market and developing economies (EMDEs) has generally been more rapid and broad-based than that in advanced economies (AEs). The range of financial services provided by BigTech firms in EMDEs is also wider than in AEs.

Lower levels of financial inclusion in EMDEs create a source of demand for BigTech firms' services, particularly amongst low-income populations and in rural areas where populations are under-served by traditional financial institutions. Customers in low-income countries may also be attracted to the potentially lower cost of financial services provided by BigTech firms. Populations in EMDEs might also embrace BigTech firms' use of innovative technology, and/or have a strong demand for services such as incoming remittances.

The supply of financial services by BigTech firms in EMDEs has been supported by the increasing availability of mobile phones and internet access. Such technology – along with the data it generates and the flow of such data across borders – allows BigTech firms to extend financial services to customers who were previously under-served, for example, due to their lack of credit history. BigTech firms also make lending decisions based on novel sources of customer data, including from their core technology businesses.

The expansion of BigTech firms in EMDEs has had benefits. Use of technology has increased the efficiency with which financial services are provided. It has also given rise to financial services that can be cheaper, more convenient, and tailored to users' needs, thereby offering opportunities to improve consumer welfare and support financial stability.

However the expansion of BigTech activity also gives rise to risks and vulnerabilities. Risks concerning consumer protection may also be larger in the case of EMDEs, particularly where customers have lower financial literacy, and when BigTech firms make greater use of personal data (including that acquired from their non-financial business). Where BigTech firms are the principal or even sole providers of financial services to some EMDE populations, they may be particularly prone to dominating the market for such services. They may also be subject to heightened operational risks, particularly in environments with weaker communications and financial infrastructure. Competition from BigTech firms may, in places, also reduce the profitability and resilience of incumbent financial institutions and lead to greater risk-taking.

The experience of some EMDEs demonstrates the positive role that strong regulation, supervision and other official-sector policy can play in supporting innovation in financial services and mitigating risks. Governments in some EMDEs have also driven the development of financial infrastructures and digital identity. In doing so they have facilitated the growth of financial technology, including that employed by BigTech firms.

The experience of EMDEs also underscores the need to apply the principle of 'same risk – same regulation' with respect to BigTech firms' activities, whilst tailoring regulatory frameworks to reflect the relative size and scope of BigTech firms' activities. Financial authorities may also usefully contribute to the development of robust public policy and frameworks with respect to data governance, consumer protection and operational risk management.

# 1. Introduction

This report examines the provision of financial services by BigTech firms in finance in emerging market and developing economies (EMDEs).<sup>1</sup> BigTech firms are large technology companies with extensive customer networks. Some have expanded their business models and use their platforms to facilitate the provision of financial services.<sup>2</sup> They include firms with core businesses in social media, internet search, software, online retail and telecoms. In EMDEs, they also include those whose core business is in telecoms. BigTech firms can achieve scale very rapidly, including in financial services. They typically do so by leveraging their large customer networks, brand recognition, proprietary data and experience with technology. BigTech firms also typically benefit from substantial revenue streams derived from their core (non-financial) business, which can support the development of their financial services proposition.

The expansion of BigTech firms into financial services in EMDEs has generally been more rapid and broad-based than that in advanced economies (AEs). This can be attributed in part to the relatively lower levels of financial system development in EMDEs, combined with lower levels of financial inclusion, particularly amongst lower income populations. These give rise to opportunities for BigTech firms to provide services to previously unbanked or underserved populations. Mobile payment platforms, for example – including those integrated into social networks – have seen rapid uptake by hundreds of millions of users across numerous jurisdictions, many of whom were not previously within the regulated financial system. The range of financial services provided by BigTech firms in EMDEs is also often wider than that in AEs. This is particularly true in some jurisdictions in Asia, where some BigTechs offer a suite of financial services that include lending, insurance and investment products, both via their own platforms and in partnerships with incumbent financial institutions.

This report focuses on the provision of financial services by BigTech firms in EMDEs, and how the nature and scale of such activities differs from those in advanced economies.<sup>3</sup> In particular, it describes the drivers of demand for – and the supply of – financial services provided by BigTech firms in EMDEs, including the benefits and risks they pose. It also discusses some of the challenges to regulating such activities.

The report was commissioned by the FSB Plenary in response to a proposal by the 2020 Saudi Arabian G20 presidency. It follows a report published by the FSB in December 2019,<sup>4</sup> which focussed on the totality of BigTech firms' activities in financial services worldwide.

This report draws on various sources of information from EMDEs across both the official and private sectors. This includes the results of a survey of EMDE members of the FSB and its Regional Consultative Groups (RCGs). This survey gathered data on the provision of financial

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<sup>1</sup> The IMF World Economic Outlook designates 154 member countries as EMDEs – see IMF (2014), *Proposed New Grouping in WEO Country Classifications*, June. EMDEs are a diverse group of countries with unique economic characteristics and policy goals.

<sup>2</sup> BigTech firms that offer financial services are a subset of FinTech firms – a broader class of technology firms (many of which are smaller than BigTech firms) that offer financial services. See FSB (2019), *BigTech in finance: market developments and potential financial stability implications*, December.

<sup>3</sup> See FSB (2019).

<sup>4</sup> Ibid.

services in EMDEs, respondents' views as to their possible drivers and their perception of benefits and risks. 27 financial authorities from a range of EMDE jurisdictions responded to the survey. Details of these respondents are given in Box A. Survey questions are given in the Annex. Survey responses are, in places, augmented by analysis from the World Bank 2020 Country Classification system, which classifies respondents by both their region and income level.<sup>5</sup>

**Box A: Respondents to the survey of members of the FSB and its Regional Consultative Groups (RCGs)**

<b>RCG</b>	<b>Jurisdiction<sup>6</sup></b>	<b>Institution(s) that responded</b>
<b>Americas</b>	<b>Argentina</b>	Central Bank of Argentina
	<b>Brazil</b>	Central Bank of Brazil
	Chile	Central Bank of Chile
	Colombia	Colombia Financial Superintendent
	Guatemala	Banks of Guatemala
	<b>Mexico</b>	Central Bank of Mexico
	Panama	Superintendency of Banks of Panama
<b>Asia</b>	<b>China</b>	People's Bank of China
	<b>India</b>	Reserve Bank of India
	<b>Indonesia</b>	Bank Indonesia, Financial Services Authority (OJK)
	Thailand	Bank of Thailand, Securities and Exchange Commission
<b>CIS</b>	<b>Russia</b>	Central Bank of the Russian Federation
<b>Europe</b>	Hungary	Hungarian National Bank (MNB)
	Poland	Ministry of Finance
	Romania	National Bank of Romania
<b>MENA</b>	Jordan	Central Bank of Jordan
	Lebanon	Central Bank of Lebanon, Banking Control Commission of Lebanon
	Oman	Central Bank of Oman
	<b>Saudi Arabia</b>	Saudi Arabian Monetary Authority
	<b>Turkey</b>	Central Bank of the Republic of Turkey
<b>SSA</b>	Nigeria	Central Bank of Nigeria
	<b>South Africa</b>	South African Reserve Bank
	Bank of West African States	Central Bank of West African States

Details of the survey questions are given in Annex A.

<sup>5</sup> See World Bank (2020), *How does the World Bank Classify Countries*. Low-income economies are defined as those with a gross national income (GNI) per capita (calculated using the World Bank Atlas method) of US\$1,025 or less in 2018; lower middle-income economies are those with a GNI per capita between US\$1,026 and \$3,995; upper middle-income economies between \$3,996 and \$12,375; high-income economies are those with a GNI per capita of US\$12,376 or more.

<sup>6</sup> FSB member jurisdictions are shown in bold. An additional response was also received from the Bank of England.

The report was also informed by meetings undertaken with a number of BigTech firms that have significant financial service activities in EMDEs. These findings are referred to throughout the report using the language ‘*BigTech firm/firms reported*’.

The report proceeds as follows. The next section gives an overview of key trends and patterns of BigTech firms’ activities in financial services in EMDEs. Section 3 discusses the drivers of BigTech firms’ activities across EMDEs. Section 4 considers the benefits of these, as well as the risks they could pose to financial stability. A final section discusses potential implications for regulation and policy. Discussion of the impact of the recent COVID-19 pandemic, including both its effect on the demand for, and supply of, financial services in EMDEs, is discussed in Box B (between Sections 3 and 4). Box C (between Sections 4 and 5) provides more detail on the differences between the drivers of BigTech firms’ activities in financial services across countries.

## 2. Trends and patterns of BigTech entry into EMDEs

BigTech firms have a substantial presence in financial services in some EMDEs. For example, in payments BigTech firms processed payments equivalent to 38% of GDP in China in 2018 (Graph 1, LH panel).<sup>7</sup> BigTech firms also account for a small yet economically significant proportion of overall lending in some jurisdictions (Graph 1, RH panel).<sup>8</sup>

One prominent example of BigTech firms’ financial services in EMDEs can be seen in the provision of mobile money (Figure 1). In sub-Saharan Africa and South-East Asia, mobile money offered by BigTechs has substantially expanded the reach of financial services. In 2017, for example, ten years after M-Pesa’s launch in 2007, roughly 73% of Kenyans owned a mobile money account.<sup>9</sup>

Some BigTech firms also provide a wider range of financial services. In parts of Asia and South America, BigTech firms provide credit to a degree that – although small in absolute per capital terms – is much larger than that in AEs (Figure 2). China is the largest market for BigTech credit worldwide.<sup>10</sup> BigTech firms such as Alibaba/Ant Financial and Tencent/WeBank in China provide multiple financial services within a single platform, often combining payments with lending, wealth management, insurance and a wide range of non-financial products.<sup>11</sup> BigTech lending is estimated to have reached \$516 bn in China in 2019, with hundreds of millions of individual borrowers.<sup>12, 13</sup> In Saudi Arabia, payment service provider stc pay offers a range of financial services that include person-to-person transactions, local bank transfer, international

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<sup>7</sup> This is consistent with K Petralia, T Philippon, T Rice and N Véron (2019), *Banking Disrupted? Financial Intermediation in an Era of Transformational Technology*, Geneva Report 22, September.

<sup>8</sup> For a further discussion of the drivers of FinTech and BigTech activities around the world, see J Frost (2020), *The economic forces driving FinTech adoption across countries*, BIS working paper 838, February.

<sup>9</sup> See World Bank (2017), *Global Findex Dataset*.

<sup>10</sup> G Cornelli, J Frost, L Gambacorta, R Rau, R Wardrop and T Ziegler (2020), *Fintech and big tech credit: a new database*, BIS working paper 887, September.

<sup>11</sup> See BIS (2019), *Big tech in finance: opportunities and risks*, Annual Economic Report, Chapter 3.

<sup>12</sup> Cornelli et al (2020).

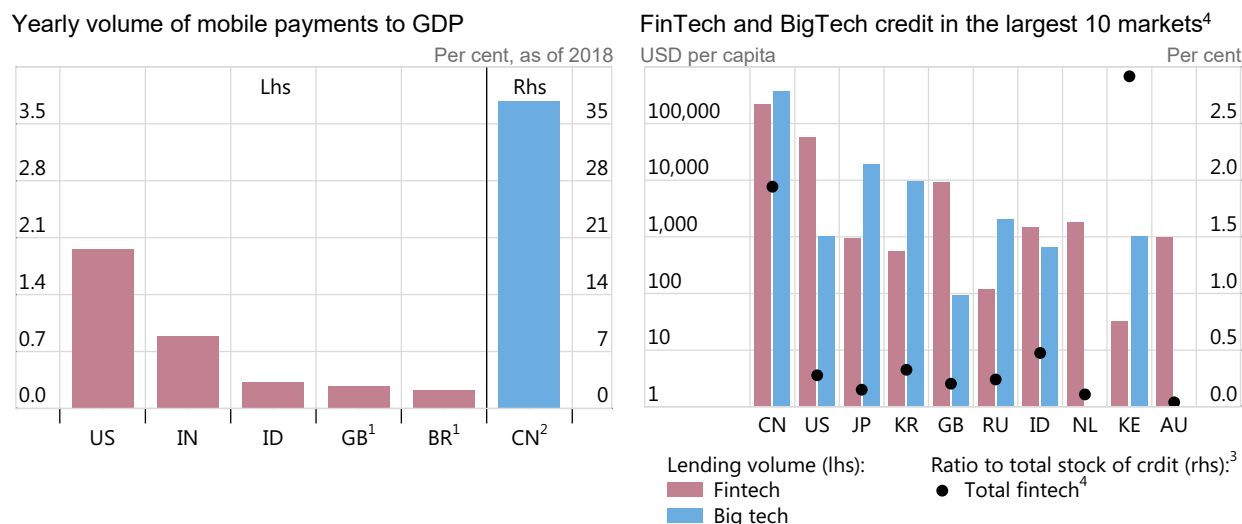
<sup>13</sup> In West Africa (Orange Money), Indonesia (Go-Jek, Grab, Ovo) and Bangladesh (bKash), some firms have provided a range of financial services, similar to the large Chinese players, but often in partnership with financial institutions. In Argentina, Brazil and Mexico, BigTech firms like Mercado Libre offer a range of payments, lending and wealth management services. In India (Google Pay), BigTech players used the public Unified Payments Interface (UPI) to develop digital payments solutions. See IMF-World Bank (2019), *FinTech – the experience so far*, IMF Policy Paper No. 19/024.



remittances, cards, and bill payments. The company has had notable success in serving Saudi Arabia’s large expatriate community with international remittances, given their innovative offering of fully digital services.

## BigTech mobile payment and credit services around the world

Graph 1



<sup>1</sup> Mobile point-of-sale payments data. <sup>2</sup> Only mobile payments for consumption. <sup>3</sup> Domestic credit provided by the financial sector. <sup>4</sup> BigTech firms are large technology companies with extensive established customer networks; BigTech firms that offer financial services are a subset of FinTech firms, a broader class of technology firms (many of which are smaller than BigTech firms) that offer financial services (see FSB (2019)).

Source: J Frost, L Gambacorta, Y Huang, HS Shin and P Zinder (2020), *BigTech and the changing structure of financial intermediation*, Economic Policy, forthcoming; R Rau, R Wardrop, T Ziegler, G Cornelli, L Gambacorta and J Frost (2020), *Fintech and big tech credit A new database*, mimeo; Asian Banker; Global Data; ire search; Statista; Nikkei; World pay; BIS; Cambridge Centre for Alternative Finance and Research Partners.

The financial situation of BigTech firms in EMDEs is more varied than in AEs. Whereas in some AEs and in China BigTech firms have market capitalisations and credit ratings comparable to those of large banks, the situation in EMDEs is more nuanced. Telecoms firms, for example, tend to have lower levels of cash and lower credit ratings than other BigTech firms (Graph 2). Firms that are not publically listed, whilst they often have high valuations, tend to rely on multiple rounds of private funding. Many can also be loss making for some years as they prioritise growth and investment over profit.<sup>14</sup>

The nature and degree of interaction between BigTech firms and incumbent financial institutions varies across EMDEs. Modes of interaction, and their implications for financial stability and policy, were examined in FSB (2019). They include:<sup>15</sup>

- Direct competition, where BigTech firms establish largely self-standing systems of financial services that, in some jurisdictions, compete directly with incumbent financial institutions. In EMDEs, this has been particularly notable in the provision of payment services. However, with regards to the provision of other types of financial products, BigTech firms have been gaining market share from customers that are either not served

<sup>14</sup> For example, see Singapore Business Times (2019), *The Start-up picture*.

<sup>15</sup> Examples that follow are drawn from IFC (2017), *Digital Financial services: challenges and opportunities for emerging market banks*.

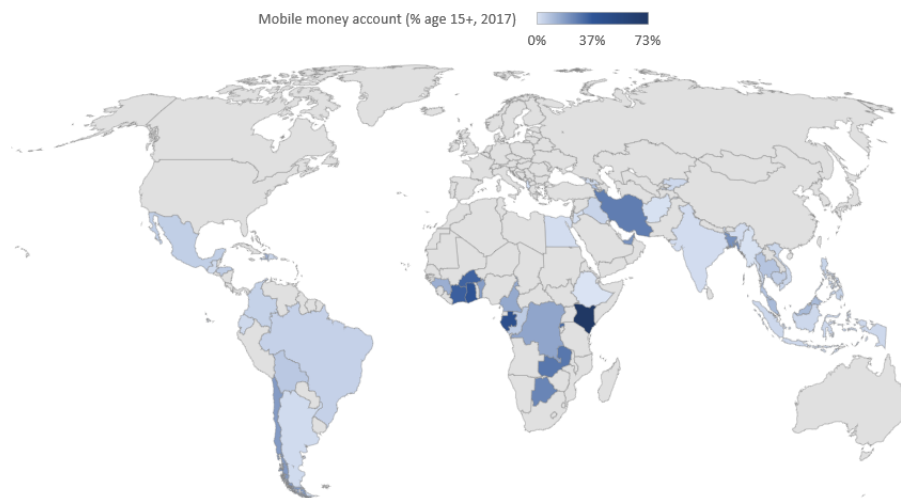
or are under-served by incumbents rather than competing for the existing customers of incumbent financial institutions.

- Partnerships between BigTech firms and incumbent financial institutions. Such partnerships include those where BigTech firms collaborate with financial institutions to originate and/or distribute financial products, provide technology services and infrastructure. Partnership can also take the form of 'interfacing', where BigTech firms act as intermediaries between financial institutions and their customers. A variant of the partnership model is the 'platform'-model, where the BigTech firms introduce providers of financial services to BigTech firms' (generally very large) customer bases.

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## Use of mobile money

Figure 1

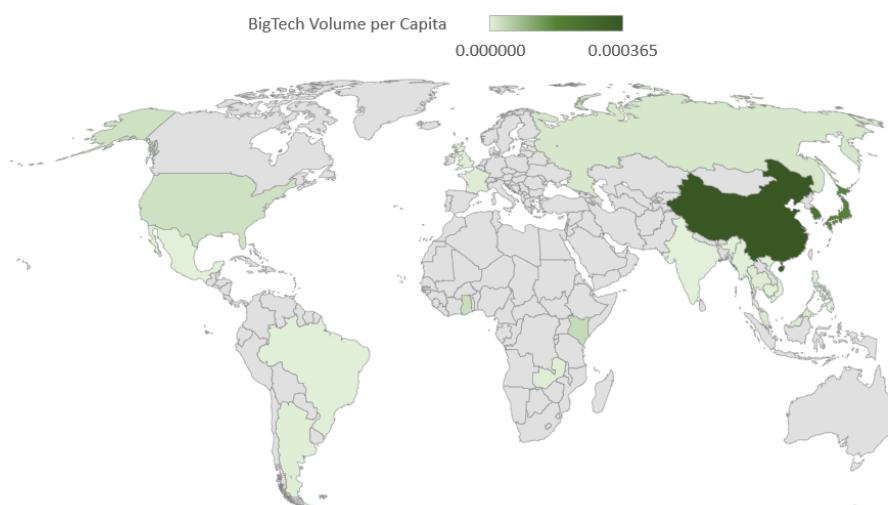


Source: World Bank

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## Provision of credit by BigTech firms in 2019

Figure 2

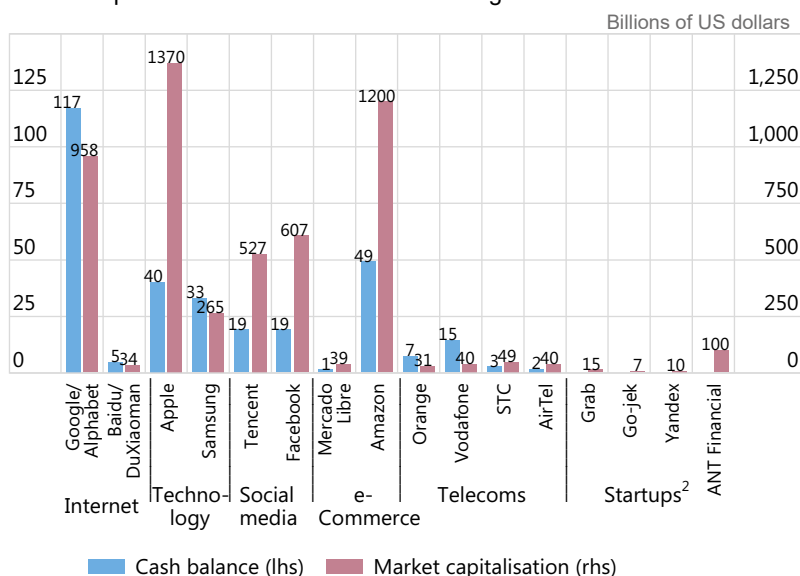


Source: Cornelli et al. (2020)

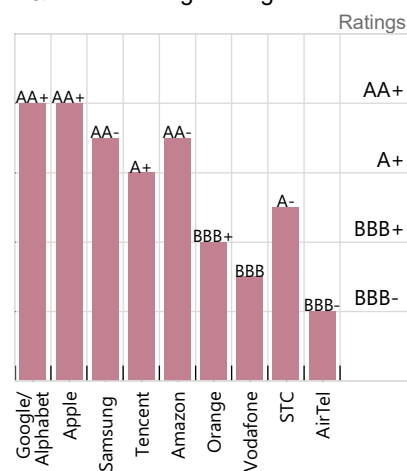
## BigTech firms' market capitalisation, cash and credit rating

Graph 2

Market capitalisation and cash balances of BigTech firms<sup>1</sup>



S&P credit ratings of BigTech firms



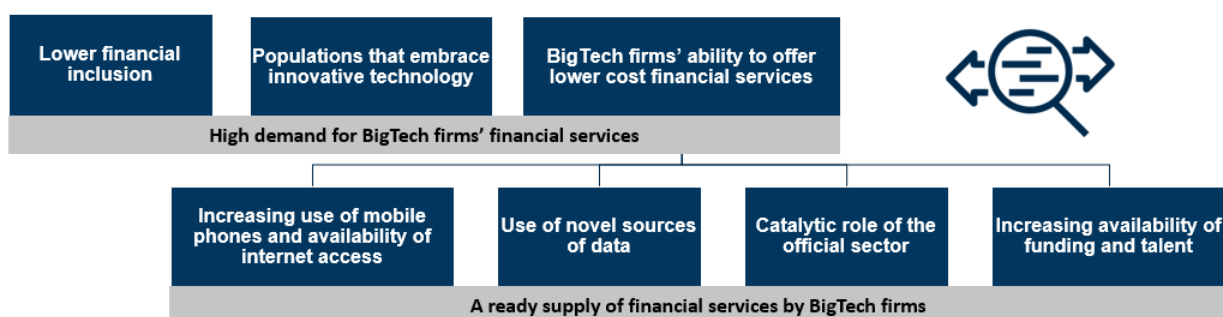
<sup>1</sup> Based on data from published financial statements. <sup>2</sup> Startups refers to firms that are not publically listed.  
Source: Company accounts and S&P Ratings

### 3. Drivers of BigTech activity in EMDEs

This section discusses the factors that have driven the recent growth in BigTech firms' activities in financial services in emerging markets. These are summarised in Figure 3.

A summary of factors that have driven the growth of BigTech firms' activities in financial services in EMDEs

Figure 3



#### 3.1. Demand side drivers

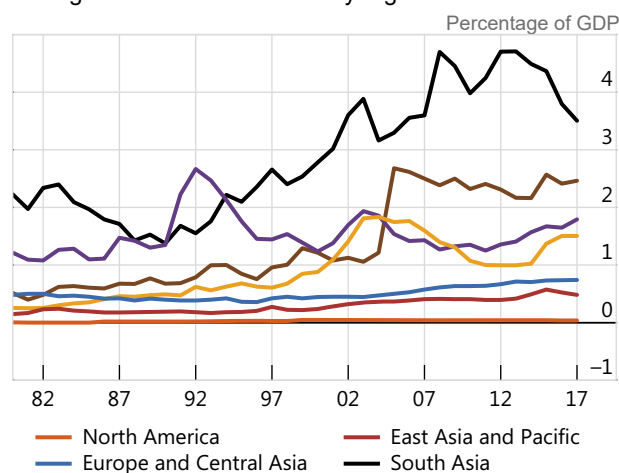
Low levels of financial inclusion in many EMDEs create a source of previously unmet demand for BigTech firms' financial services. In 2017, 1.7 billion people were unbanked worldwide, nearly

half of whom were in EMDEs.<sup>16</sup> The cost of operating bank branches outside of urban areas – particularly where electricity supplies and internet connectivity are unreliable – reduces consumers’ access to financial services.<sup>17, 18</sup> This can be further exacerbated by customers’ lack of documentation and/or credit history, which can prevent them obtaining financial services from incumbent financial institutions. This increases the attraction of financial services provided by BigTech firms. 75 per cent of survey respondents from non-high income EMDEs identified the relative development of their financial system to be an important factor that drove BigTech firms’ financial service activities (see Section 2.2 and Graph 4).<sup>19</sup>

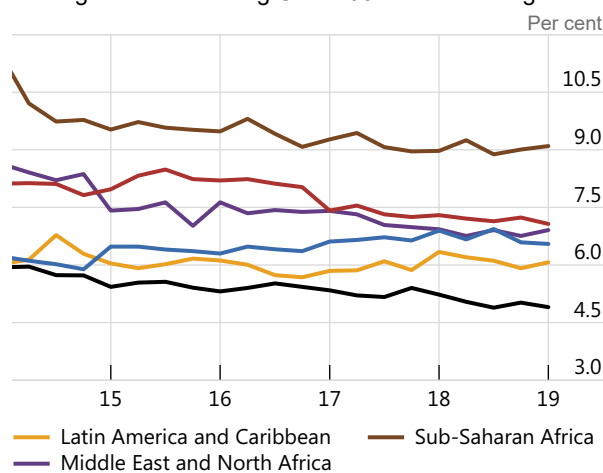
### Remittance flows and cost of remittances by region

Graph 3

Average remittances received by region



Average cost of sending USD 100 to different regions



Source: World Bank

High incoming remittances in many EMDEs also create strong demand for BigTech firms’ financial services. Many households in EMDEs depend on cross-border remittances from family members working abroad.<sup>20</sup> Although remittances are substantial compared to the size of local economies (Graph 3, LH panel), they remain expensive compared to those in AEs (Graph 3, RH panel). This is largely because of the costs associated with holding, storing and transferring cash, particularly in rural areas. By digitising payments, however, BigTech firms are able to offer lower cost cross-border remittances. BigTech firms in Kenya and Saudi Arabia reported that their remittance services constituted a substantial proportion of their business in these jurisdictions.

Younger populations in EMDEs may be more likely to embrace BigTech firms’ use of financial technology. EMDEs are home to 85% of the global population, 90% of whom are under the age

<sup>16</sup> See World Bank (2017).

<sup>17</sup> Compared to physical cash, commercial bank money provides more safety as a form of payment and also enables remote transactions. See E Feyen, J Frost and H Natarajan, (2020), *Digital money – implications for EMDEs*.

<sup>18</sup> See E Feyen, J Frost, H Natarajan and T Rice (2020), *What does digital money mean for EMDEs?*, in R Rau, R Wardrop and L Zingales (eds.), *The Handbook of Technological Finance*, London: Palgrave Macmillan.

<sup>19</sup> See IMF-World Bank (2019), *FinTech, the experience so far*, IMF Policy Paper No. 19/024. One prominent example is the rapid growth of a mobile money transfer system introduced by a telecom provider in Kenya in 2008, which now operates in multiple countries across East Africa, North Africa and South Asia.

<sup>20</sup> See D Ratha, S De, EJ Kim, S Plaza, G Seshan, and ND Yameogo (2019), *Data release: Remittances to low- and middle-income countries on track to reach \$551 billion in 2019 and \$597 billion by 2021*, World Bank People Move blog, October.

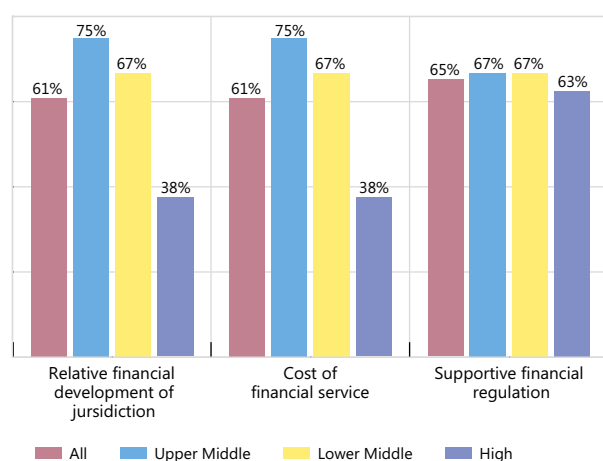
of 30.<sup>21</sup> Younger populations – particularly those familiar with using technology – may have higher demand for the possible convenience, speed and customisation of BigTech firms’ financial services. Some BigTech firms also benefit from considerable brand recognition and trust.<sup>22</sup> Together, these factors have allowed BigTech firms in some EMDEs to create novel customer offerings geared to a generation of tech-savvy customers. All survey respondents from lower-income EMDE jurisdictions identified the greater convenience of financial products as one of the largest benefits of BigTech firms’ activities within their jurisdiction.<sup>23</sup>

## Supply-side drivers of BigTech firms’ activities

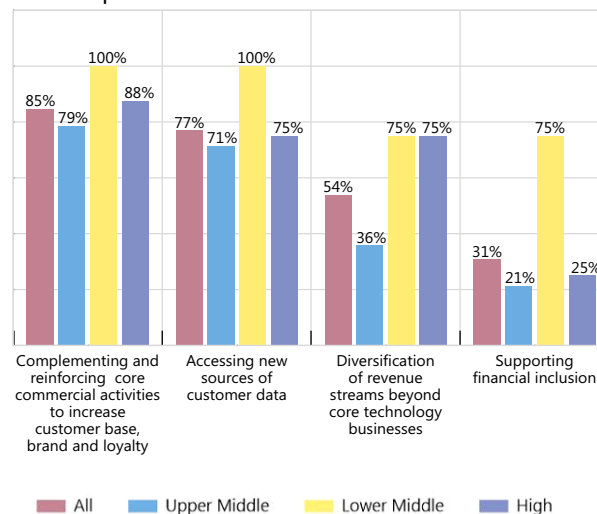
Proportion of survey respondents by jurisdictions’ income group<sup>1</sup>

Graph 4

Factors identified as driving BigTech firms’ financial service activities in EMDEs



Factors identified as ‘important motivations’ for BigTech firms’ to provide of financial services in EMDEs



<sup>1</sup> For details classification of survey respondents’ jurisdictions by income see World Bank (2020).

Source: FSB Survey

Customers in low-income countries may also be attracted to the lower cost of financial services provided by BigTech firms.<sup>24</sup> BigTech firms typically face much lower marginal costs of serving customers in EMDEs than traditional financial institutions.<sup>25</sup> Their use of technology reduces their fixed costs of offering financial services (for example, reducing, or even dispensing with, the need to build and maintain large branch networks in geographically remote areas).<sup>26</sup> This

<sup>21</sup> See PWC (2016), *Emerging Markets Driving the Payments Transformation*.

<sup>22</sup> Bain & Company and Research Now (2017) find in a survey that 91% of Indian, 86% of Chinese, and 60% of US consumers would consider financial products from technology firms they already use, and that this interest is even higher among younger consumers (ages 18-34). According to Accenture, customers are increasingly demanding a fully personalised offering from their financial providers. A Bain & Company global survey reports that 54% of global respondents trust at least one BigTech company more than banks in general. In the U.S., the trust level of tech firms is lower than average (46%), the trust of tech firms in countries like China, India and UAE exceeds 75%.

<sup>23</sup> The comparable figure is 60% for upper-middle or high-income countries; see Frost (2020), *Economic forces driving FinTech adoption across countries*.

<sup>24</sup> See EY (2019).

<sup>25</sup> Around two-thirds of adults in developing economies without access to financial services identify such upfront costs as barrier to having an account at an incumbent financial institution; *Ibid*.

<sup>26</sup> Indeed, some evidence suggests that – compared to traditional financial institutions - BigTech firms’ face much larger fixed costs (e.g. from operating their technology platforms), but much smaller marginal costs of serving new customers; see McKinsey (2018), *Mobile money in emerging markets: the business case for financial inclusion*.

means that financial services provided by BigTech firms do not generally carry as large costs for users – such as significant transaction or account maintenance fees – that are sometimes a feature of services provided by some incumbent financial institutions.<sup>27</sup> 75/67 per cent of survey respondents from upper/lower-middle income EMDEs identify the lower cost of financial services as an important factor that is likely to underpin the scale of BigTech financial activities, far greater than in high-income jurisdictions (see Graph 4, left-hand panel).

In some jurisdictions, BigTech firms are also able to make innovative use of technology in order to reduce the marginal costs of customer transactions. Quick Response (QR) code-based payments have, for example, gained popularity in China,<sup>28, 29</sup> as well as several other Asian and Latin American countries.<sup>30</sup> QR codes allow businesses to accept digital payments via customers' smart phones, without the need for merchants to purchase equipment such as payment terminals.

### 3.2. Supply side drivers

BigTech firms are also incentivised to enter financial services in order to complement and reinforce their core technology business.<sup>31</sup> Such incentives may be stronger in EMDEs, particularly where lower levels of financial inclusion mean that firms' offering of financial services can particularly benefit their core businesses. Such complementarities were the motivation most frequently listed by survey respondents in EMDEs for BigTech firms' provision of financial services (see Graph 4, RH panel). For example, a ride hailing service in Southeast Asia reported that it was motivated to enter financial services in order to offer loans to its prospective drivers, who otherwise lacked financing to purchase their own cars. Online retailers reported that they sought to increase sales on their online platforms by offering payment services and credit to merchants who otherwise lacked access to such financial services.

#### *Technological advancements*

Availability of mobile phones and internet access have increased rapidly in EMDEs in recent years and is likely to grow further. Sixty-seven per cent of the world's population now owns some type of mobile device. Mobile phone usage has grown rapidly, and increased by 14% between 2018 and 2020 (Graph 5, LH panel). Internet access is also increasing (Graph 5, RH chart).

This growth in technology creates particular opportunities for BigTech firms in EMDEs. BigTech firms are able to use such technology and the data it generates to offer financial services where traditional financial institutions might be unable to do so.<sup>32</sup> Whereas traditional financial

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<sup>27</sup> See Pazarbasioglu, C., Mora, A. G., Uttanchandani, M., Natarajan, H., Feyen, E and Saal, M (2020), *Digital Financial services*, World Bank Group, April.

<sup>28</sup> See [What is a QR code](#).

<sup>29</sup> See [China's Mobile Payments Phenomenon](#).

<sup>30</sup> For example, in Indonesia, the Bank of Indonesia imposed a standard QR code for all mobile payment providers (including big tech providers) as of January 1<sup>st</sup>, 2020. In Latin America, one BigTech offers QR codes in Argentina as well as do other providers in Colombia, Mexico and Brazil.

<sup>31</sup> See FSB (2019).

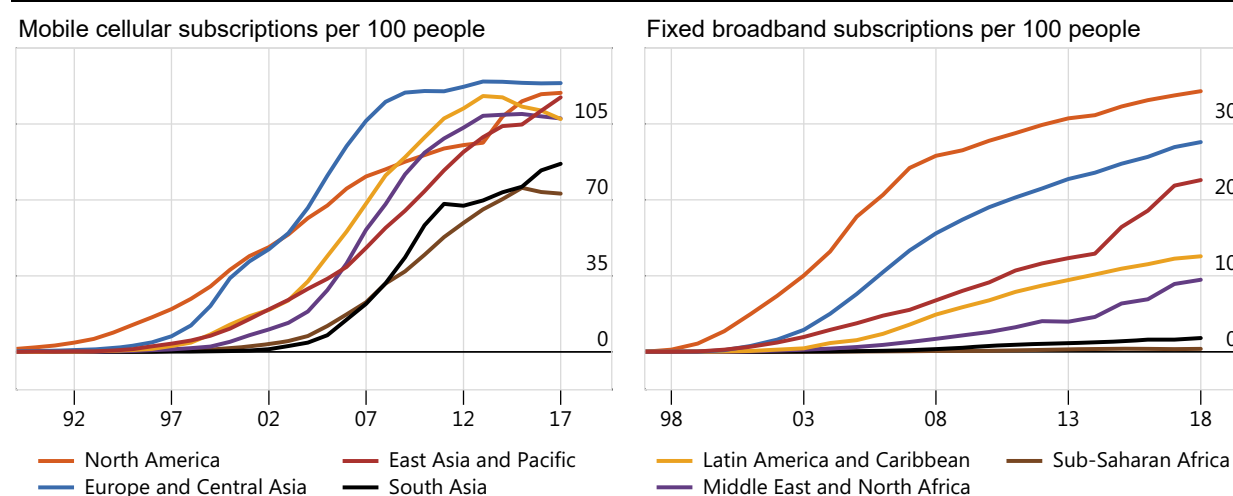
<sup>32</sup> For example, a survey in 2016 found that 70% of its on-platform business customers were interested in taking a loan, but less than a quarter had access to bank loans. See BIS (2019).

institutions may be hampered by limited data on customers' credit history,<sup>33</sup> BigTech firms can make lending decisions based on customer data from their core technology business. Advanced data analytics and management techniques allow firms to gather more data, analyse it more thoroughly, and use it to predict and monetise customer behaviour.<sup>34</sup> Customers' smartphones can provide particularly rich sources of data. For example, in China, BigTech firms use data from a potential borrowers' network of contacts, location and shopping behaviour to predict their credit worthiness. More basic mobile phone handsets can also be a source of useful customer data. In Kenya and Tanzania, for example, one telecom firm reported that it assesses customers' creditworthiness using data on the frequency with which they top-up their mobile phone credit.

## Mobile phone and fixed broadband internet access are rising worldwide

In population-weighted indices

Graph 5



Source: Feyen, Frost, Natarajan and Rice (2020); World Bank.

The scale and nature of competition for financial services in EMDEs may also incentivise entry by BigTech firms. BigTech firms' financial services have expanded to a greater degree in jurisdictions where financial infrastructure was at earlier stages of development. Seventy-three per cent of non-high income EMDE survey respondents identified the relative development of their financial system as an important factor in determining the scale of BigTech activities within their jurisdiction. Research also suggests that BigTech firms lend more in countries with less competitive banking sectors.<sup>35</sup>

### The role of the official sector

Regulations in some EMDEs create a more favourable environment in which BigTech firms can offer financial services. Seventy per cent of survey respondents thought that financial regulation in their jurisdiction was supportive of BigTech firms' financial services activities (Graph 4, LH

<sup>33</sup> For example, See World Bank Group (2018), *Improving Access to Finance for SMEs: Opportunities through Credit Reporting, Secured Lending and Insolvency Practices*, May. Only 33 per cent of jurisdictions within Sub-Saharan Africa report having at least one Credit Reporting Service Provider – including bureaus and registries that reports repayment histories from finance corporations and leasing companies.

<sup>34</sup> See BIS (2019), *The DNA of BigTechs*.

<sup>35</sup> See J. Frost, L. Gambacorta, W. Huang and H. Shin (2019), *BigTech and the changing structure of financial intermediation*, BIS Working Paper No 779, April.

panel). Governments in a number of EMDEs, particularly in Sub-Saharan Africa, have proactively introduced financial services such as e-money into their regulatory frameworks. This has allowed BigTech firms to offer financial services where this would previously have been prohibited by regulation.<sup>36</sup> Regulations concerning e-wallets are also reported to have enabled BigTech firms' activities, in that they have allowed BigTech firms to offer certain financial services under a proportionate regulatory framework (see Section 5).<sup>37</sup>

At the same time, the entry of BigTech firms into financial services in some jurisdictions could be driven by variation in regulation. When BigTech firms originally entered finance, they sometimes did so outside the traditional regulatory perimeter. In some cases, new regulatory frameworks<sup>38</sup> were created to cover the specific financial activities undertaken by BigTech firms. Some FinTech firms also report that the regulatory environments they needed to navigate when expanding internationally differed in terms of coverage, complexity and rigor. To the extent that larger and better-resourced BigTech firms are able to navigate these regulatory set-ups better than small FinTech firms, this could support their expansion in financial services, but could also have implications for market structure and competition.<sup>39</sup>

Governments in some EMDE jurisdictions have also provided incentives and infrastructure to support the growth of BigTech firms' financial services activities:

- Some EMDE governments have developed faster payment systems that catalyse the growth of some BigTech firms' activities in financial service.<sup>40</sup> India's Unified Payments Interface (UPI), for example, facilitates instant real-time payment on a 24/7 basis.<sup>41</sup> It is also highly interoperable, meaning that BigTech firms can build interfaces that allow users to make payments from within BigTech firms' technology platforms.<sup>42</sup> Similar systems operate (or are under development) in other EMDEs such as Brazil (PIX), Mexico (SPEI), Turkey (FAST), and Russia (FPS), and in around 45 countries worldwide.<sup>43</sup>
- Digital identity technologies can also support BigTech firms' activities by streamlining know-your-customer (KYC) and due diligence requirements. One prominent example is Aadhaar, the biometric ID launched by the Indian government in 2009 that has since been issued to more than 99% of country's population.<sup>44</sup> This facilitates ID verification for many online and offline financial services. A total of 8 billion KYC requests have been

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<sup>36</sup> See IMF-World Bank Bali FinTech Agenda (2019), *The experience so far*.

<sup>37</sup> See Debt Capital Markets (2017), *Mexico's FinTech Law Initiative*.

<sup>38</sup> See, for example, GSMA (2014), *Kenya's regulatory framework for e-money*, August.

<sup>39</sup> See Navaretti, G. Barba, G. Calzolari, J.M. Mansilla-Fernandez and A. Pozzolo (2017), *FinTech and Banks: Friends or Foes?*, European Economy: Banks, Regulation, and the Real Sector, December.

<sup>40</sup> See M Bech, Y Shimizu and P Wong (2017), *The quest for speed in payments*, BIS Quarterly Review, March.

<sup>41</sup> For more on the Indian experience, including the so-called India Stack, see D D'Silva, Z Filkova, F Packer and S Tiwari (2019), *The design of digital financial infrastructure: lessons from India*, BIS Paper No 106.

<sup>42</sup> See Gupta (2018), *New RBI norms put mobile wallets on par with payments banks*.

<sup>43</sup> See Feyen et al (2020), *Digital money – implications for EMDEs*.

<sup>44</sup> See Bank of England (2020), *Open Data for SME Finance*, March.



received by online banks in India since 2012, and the cost of verification via Aadhaar is reported to be substantially lower than via traditional identity checks.<sup>45</sup>

- Open banking initiatives also contribute to greater competition in financial services by allowing customers to consent to their data being shared between banks and third party-firms through secure application programming interfaces (APIs). In Asia, countries such as India and China are taking steps in adopting open banking. In 2018 Mexico modified its legal framework to allow for open banking API and Brazil issued an open banking strategy in 2019.
- Innovation facilitators, including regulatory sandboxes, have also been reported as enabling BigTech activities in financial services.<sup>46</sup>

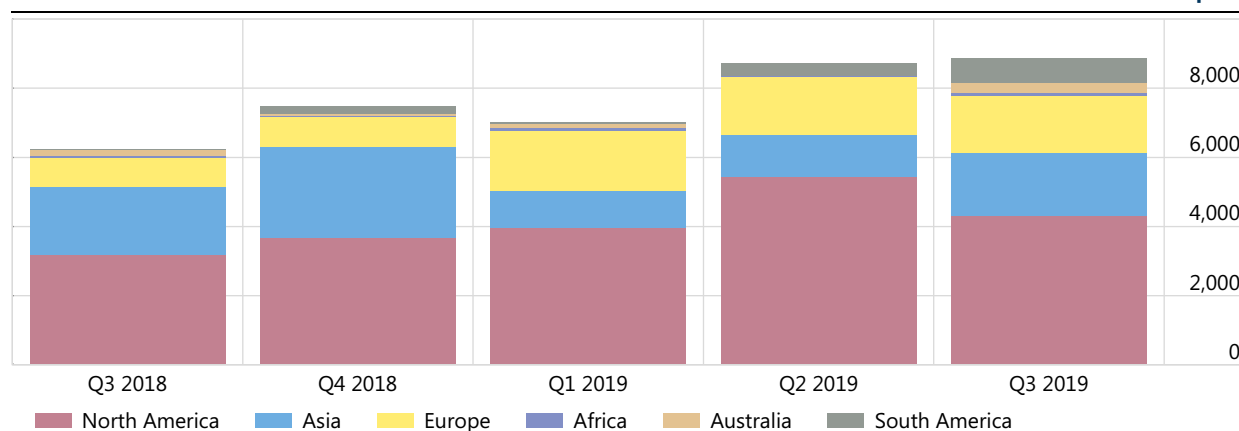
### The availability of funding and talent

The increasing availability of venture capital in EMDEs may also facilitate BigTech firms' activities. Venture capital and private equity funding have traditionally been concentrated in certain markets, particularly those in AEs. The accessibility of such funding has started to widen, however, with increasing amounts of capital available in South America, South and Southeast Asia and Africa (Graph 6). A number of BigTech firms are now also headquartered in EMDEs, including India, Indonesia and Argentina.

#### Venture-capital backed FinTech funding

Millions of US dollars

Graph 6



Source: CB Insights (2019).

<sup>45</sup> See V. Hariharan, (2016): *A leapfrog moment for Indian banking*, Indian Software Product Industry Roundtable – iSPIRT.

<sup>46</sup> Several BigTech firms as well as regulators noted that the existence of a Regulatory Sandbox facilitated expansion of BigTech activities into new EMDE markets.

## Box B: Possible effects of COVID-19 on BigTech firms' activities

This box examines how the COVID-19 pandemic – along with the associated containment measures by governments – might change the demand for, and nature of, financial services supplied by BigTech firms. In some jurisdictions, COVID-19 has accelerated longer-term trends towards digital financial services and ecommerce that were already established. It has changed demand for BigTech firms' services, including requests from the official sector for applications and technology solutions aimed at monitoring and controlling the pandemic, as well as offering socially distanced financial services. These developments might increase existing – and bring about new – benefits and risks to the financial system. These effects are generally common to both advanced and emerging economies, although there are features which may make them more pronounced in some EMDEs.

### Changes in demand for BigTech firms' financial services during the COVID-19 pandemic

COVID-19 might accelerate the adoption of digital payments and e-money. Concerns have arisen that physical cash may enable the transmission of COVID-19, particularly in jurisdictions where consumers are more reliant on banknotes for daily transactions.<sup>47</sup> Regardless of whether such concerns are well founded,<sup>48</sup> they could influence payment behaviour. In particular, it may accelerate the existing trend towards digital payments,<sup>49</sup> particularly those that do not require the merchant and consumer to be in close proximity. This might include those payment services that are provided by BigTech firms (e.g. through digital wallets).

The pandemic may also increase the adoption of other financial services provided by BigTech firms. This may be due to consumers' inability to visit physical branches of financial institutions, due to social distancing measures. For example a subsidiary of a Chinese BigTech firm, recently launched a suite of online insurance products aimed at protecting potential victims of the virus.<sup>50</sup> Appetite for financial services based on novel technology and data processing techniques may also increase. For example, a so-called Chinese 'mutual aid' platform is piloting the use of blockchain data verification to fast track payments, avoiding face-to-face transactions.<sup>51</sup> The effect of increased digitalisation driven by COVID-19 may also accelerate demand for BigTech firms' core technology businesses, such as e-commerce, home entertainment and home delivery services that reduce face-to-face contact.<sup>52</sup> This may, in time increase demand for BigTech firms' financial services that are complimentary to their core technology businesses and that require – and/or catalyse use of – digital payments (see Section 2).

The effect of Covid-19 on demand for remittances to EMDEs – including those provided via BigTech firms – is as yet uncertain. Some evidence suggests that remittances have declined in the early months of 2020, due to reduced foreign travel, rising unemployment, and a reduction in activity by migrant workers from some EMDEs.<sup>53</sup> That said, there could be a role for digital platforms in ensuring remittances can take place despite social distancing measures and the closure of physical branches of

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<sup>47</sup> See R. Auer, G. Cornelli, and J. Frost (2020), *Covid-19, cash and the future of payments*, BIS Bulletin No. 3.

<sup>48</sup> One central bank has, for example, noted that the risks of handling a polymer bank note are no greater than those associated with touching any other surface. See Bank of England (2020).

<sup>49</sup> See Central Banking Weekly (2020), *Will cash survive Covid-19?*, March.

<sup>50</sup> See PR Newswire (2020), *WeSure launches novel coronavirus pneumonia insurance covering 15 million people against outbreak of Covid-19*, February.

<sup>51</sup> Mutual aid is a collective claims-sharing mechanism where users pool funds for pay-outs in the case of specific pre-defined events (such as illness), similar to insurance products. Mutual aid has grown rapidly in China in the past two years. See South China Morning Post (2020), *Insurance service providers rely on blockchain to fast track claims pay out amid corona virus outbreak*, February.

<sup>52</sup> See S. Crets (2020), *How the Coronavirus is affecting online retails*, Digital Commerce 360, and T. Spangler (2020), *Coronavirus Spread Benefits Netflix*.

<sup>53</sup> See The Daily Start (2020), *Remittance was cruising; COVID-19 Popped up and Made it swerve*, March.

remittance providers. In particular, BigTech firms may see greater demand for mobile money and digital wallets as a method for both sending and receiving remittances.

### **Collaboration with governments**

BigTech firms may have a role to play in facilitating payments as part of government stimulus packages in response to COVID-19. Some governments have increased government-to-person (G2P) payments in the wake of the pandemic. Those in some EMDEs are particularly far reaching: in Argentina, Pakistan and Peru, these measures covered one third of the population at end-Q1 2020. In the Philippines, more than 70 per cent of households are due to receive emergency transfers.<sup>54</sup> Electronic payment systems – including those provided by BigTech firms – are also playing a role in facilitating government payouts. Many are linked to forms of digital ID that help check potential recipients' eligibility for payments. In Chile, accounts linked to national IDs – Cuenta Rut – will allow payments directly into bank accounts.<sup>55</sup>

Governments may also partner with some BigTech firms in order to monitor the spread – and subsequent containment – of the virus. In some EMDEs, financial services data has provided a proxy of users' adherence to social distancing measures. Some BigTech firms may subsequently also use their large customer bases to play a role in supporting the medical response to the virus.<sup>56</sup> If successful, this may increase their brand recognition and customer base, and eventually increase demand for their financial services. But this could also pose novel questions around data privacy, fair use, ethics and ownership.

### **Benefits and risks**

BigTech firms' provision and distribution of financial services might increase consumer welfare. BigTechs could help the recovery from the economic impact of the pandemic by both enabling the provision of digital financial products that improve inclusion, reduce transaction costs and support entrepreneurship as well as supporting the distribution of government transfers aimed at reducing the possible economic impacts of the pandemic.

The growth in digital payments may reduce costs and frictions associated with the use of cash. Growth in other related core services offered by BigTech firms (e.g. food delivery, and others that rely on 'gig workers'), may improve economic prospects for small business, during the ensuing economic downturn. The increased use of financial and other services by BigTech firms, may also help foster greater levels of financial inclusion. It may also accelerate incentives for incumbent financial institutions to embrace innovation.<sup>57</sup> In some EMDE jurisdictions, banks have been relatively slower to extend emergency credit, compared to BigTechs.<sup>58</sup>

At the same time, these developments may pose risks. Increased use of electronic payments – and reduced acceptance of cash – could be detrimental for those consumers reliant on cash or at risk of digital exclusion.<sup>59</sup> This might be a particular concern for those in more remote areas of some EMDEs (e.g. without access to mobile networks or internet), that have previously been highly reliant on cash (see Section 2). Risks concerning consumer protection may also increase, particularly for more

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<sup>54</sup> See World Bank (2020), *Responding to crisis with digital payments for social protection: short-term measures with long-term benefits*.

<sup>55</sup> See M. Rutkowski, A.G. Mora, G.L. Bull, B. Guermazi and C. Grown (2020), *Responding to crisis with digital payments for social protection: Short-term measures with long-term benefits*, World Bank.

<sup>56</sup> See Techcrunch (2020), *Alphabet's Verily Launches its California Covid-19 test screening site in a limited pilot*.

<sup>57</sup> See Forbes (2020), *Impatience is a virtue: how the on-demand economy is making mobile consumer impatient*.

<sup>58</sup> See D. Arner, J. Barberis, J. Waler, R. Buckley, A. Dahdal and D. Zetsche (2020), *Digital Finance and the COVID-19 crisis*.

<sup>59</sup> There are already reports in one major G20 capital of difficulties in paying in cash. See Hearing (2020), *Cardless in the coronavirus crisis*, Financial Times, March.

vulnerable or less tech-savvy consumers. There is also some evidence that fraud, cyber threats and malicious acts have increased in parallel with the Covid-19 pandemic in some jurisdictions.<sup>60</sup>

Finally, the increased demand for BigTech firms' services – and the associated growth in their customer base – may further heighten concerns around firms' market dominance, data privacy, implications for competition, and systemic importance.<sup>61</sup>

## 4. Benefits and risks of BigTech firms' activities in EMDEs

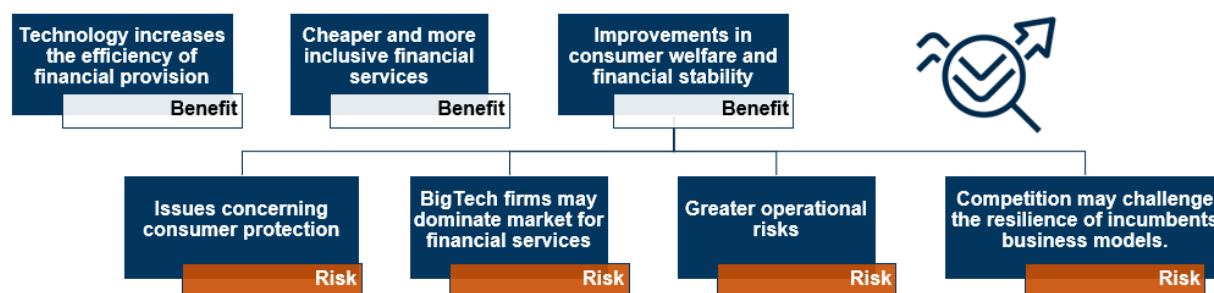
Differences in the nature and scale of BigTech activities in EMDEs compared to AEs give rise to specific benefits and risks.<sup>62</sup> By serving populations in EMDEs that would otherwise not have access to financial services, BigTech firms can improve financial inclusion. They can also support financial stability by bringing customers into the formal financial system. BigTech firms' competition with incumbent financial institutions might also catalyse wider innovation. This in turn could lead to improvements in the effectiveness and efficiency of the financial services marketplace, which could also support financial stability.

At the same time, the entrance of BigTech into finance could also lead to greater competition with incumbent firms, with implications for incumbents' viability and soundness. Risks concerning consumer protection may also be greater in EMDEs, particularly where customers have lower levels of financial literacy. Where BigTech firms' are the principal or even sole providers of financial services to some customers, this may also heighten risks connected to their scale and effects on market structure and competition.

The sections that follow explore these issues in more detail. A summary is given in Figure 4.

**A summary of benefits and risks of BigTech firms' activities in EMDEs**

Figure 4



<sup>60</sup> See Singapore Ministry of Health (2020), *Updates on Covid-19 Local Situation*.

<sup>61</sup> For a recent discussion of these issues, focusing on advanced economies. See S. Kamepalli, R. Rajan and L. Zingales, *Kill Zone*, University of Chicago Working Paper, 2020.

<sup>62</sup> The broader nature of the benefits and risks associated with BigTech firms' financial activities are discussed at length in FSB (2019). This section focuses on the benefits and risks associated with BigTech firms' financial activities that are specific to EMDEs.

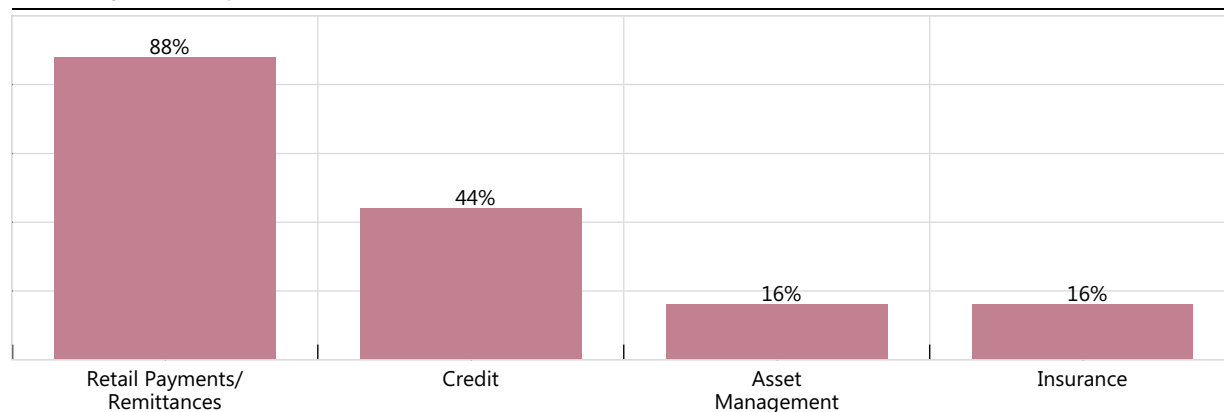
## 4.1. Benefits of BigTech firms' activities in financial services in EMDEs

BigTech firms' activities in financial services are having – and could continue to have – material benefits for both financial inclusion and consumer welfare. These are particularly prominent in EMDEs, where large segments might otherwise lack access to financial services. Customers served by BigTech firms might also gain access to the formal financial system. This allows them to benefit from certain protections, such as consumer protection regulation and deposit insurance, which may improve the resilience of, and confidence in, financial services which in turn promotes financial stability.

### BigTech Financial Service Offerings (in either partnership or competition models)

Percentage of survey respondents

Graph 7



Source: FSB Survey

BigTech firms in EMDEs may also increase the efficiency with which financial services are provided. Their use of technology means they are – in places – able to offer products that might be cheaper, more convenient and better tailored to users' needs. It also allows BigTech firms to fill gaps in financial infrastructure, enabling incumbent financial institutions to reach their customers more efficiently. This may particularly generate efficiencies in EMDEs, given lower levels of financial inclusion and consumers' greater sensitivity to the cost of financial services (see Section 3). BigTech firms' ability to provide financial services to otherwise underserved customers may improve consumer welfare, as well as the efficiency of capital allocation, as more customers are able to access financial products, a development that could also, in the longer term, support financial stability and improve economic outcomes.

BigTech firms' activities in EMDEs may also give rise to particularly strong efficiencies due to their scalability across different product lines. Whereas the bulk of BigTech activity in financial services in AEs typically focusses on payments (see Section 2),<sup>63</sup> the lower penetration of financial services by traditional financial institutions in EMDEs means that BigTech firms can offer a wider range of financial products (Graph 7).<sup>64</sup> This may also enhance the efficiency with which financial services are provided. For example, an individual receiving payments in electronic form might be able to also receive other tailored financial products (e.g. a savings account) to which they didn't previously have access.

<sup>63</sup> BigTechs offer payment services within roughly 88 per cent of survey respondents' jurisdictions.

<sup>64</sup> See BIS (2019), *BigTech and the changing structure of financial intermediation*.

Incumbent financial institutions in EMDEs might benefit from their interaction with BigTech firms. The nature of these benefits will vary depending on the nature of the interaction between BigTech firms and incumbent institutions (Graph 8) and the commercial and competitive dynamics of the particular market. Where BigTech firms compete directly, this could provide a further incentive for incumbents to innovate, possibly increasing the overall effectiveness and efficiency of financial services provision with positive implications for financial stability. Some evidence is emerging that such positive competitive dynamics might be particularly prevalent in some EMDEs where the traditional banking sector is already well established.<sup>65</sup>

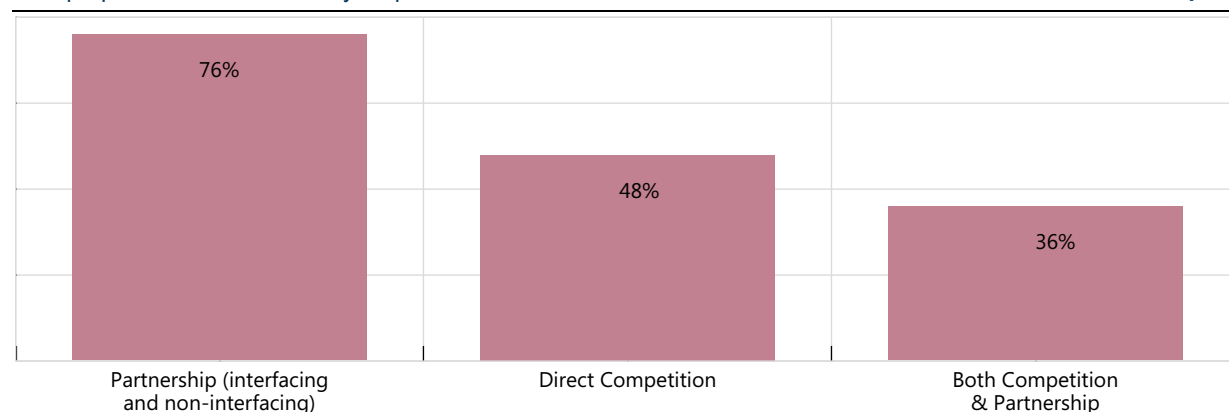
Such positive effects of competition might also arise where BigTech firms partner with incumbent financial institutions. Where, for example, BigTech firms provide new end-user interfaces for incumbent institutions' services, this might lead to the displacement of traditional customer relationships. This, in turn, might cause traditional financial institutions to compete more proactively in order to obtain and retain a greater share of customers.

BigTech firms might also support the development of EMDEs' financial infrastructure and in doing so, reduce operational risks in those financial systems. BigTech firms' use of technology might help strengthen core financial infrastructure, particularly in EMDE jurisdictions where this is less well developed. This might have positive implications for financial stability. Partnerships with BigTech firms might improve the resilience of financial firms' operations, for example via the use of BigTech firms' cloud computing or data analysis tools. Some BigTech firms have also invested in providing innovative technological solutions to overcome local infrastructure challenges. Some firms have, for example, developed off-line payment functionalities that allow digital payments to be initiated when the internet is unavailable.<sup>66</sup> This can improve financial system resilience and inclusion.

### Modes of interaction between BigTech firms and incumbent financial institutions

As a proportion of EMDE survey respondents

Graph 8



Source: FSB Survey

<sup>65</sup> See H. Foy (2015), *Poland's mBank Thrives on Disruption*, Financial Times.

<sup>66</sup> See *SpeedTest* and Adyen (2020), *Offline Payments*.

## 4.2. Potential risks

### *Issues arising from competition with incumbent financial institutions*

The rapid entry of BigTech firms into financial services – along with the increase in competition – might however have disruptive effects on incumbent financial institutions. This theme was explored at length, across all jurisdictions, in FSB (2019). Some of the effects of this increased competition on financial stability might be positive, spurring innovation on the part of incumbent institutions (see above). At the same time, they may also have implications for incumbent institutions' safety, soundness and risk-taking. Whilst it is not the role of authorities to protect financial institutions from competition, regulators and supervisors could continue to pay close attention to the viability of incumbents' business models and the prudence of their response to the commercial and competitive challenges BigTech firms may pose.

The extent to which the competitive challenge of BigTech firms could pose a threat to the viability of business models of incumbent financial institutions is unclear. Some evidence suggests that BigTech firms' activities in EMDEs might create significant competition in the provision of deposit-like products, with implications for the cost and stability of bank funding. Sixty-seven per cent of survey respondents in jurisdictions where BigTech firms competed in the market for financial services identified this activity as posing a moderate to large threat to financial stability (Graph 9). Incumbent banks in China, for example, responded to the increased use of digital wallets offered by BigTech firms for payments by increasing the interest rates offered on deposits, in order to incentivise customers to return.<sup>67</sup> This resulted in a substantial increase in incumbent institutions' cost of funding.<sup>68</sup> A sustained increase in the mobility of customer deposits could also reduce the stability of bank funding.<sup>69</sup>

That said, some evidence suggests that where BigTech firms compete with incumbent institutions, they target different customer segments to those served by incumbent institutions. This may reduce the possible impacts on incumbents' resilience. Some BigTech firms report that the majority of customers serviced by their financial services businesses in EMDEs are those that have previously – and still currently – do not have access to services provided by traditional financial institutions.<sup>70</sup>

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<sup>67</sup> See “Chinese money market fund becomes world's biggest”. *Financial Times*, 26 April 2017.

<sup>68</sup> See FSB (2019a), *FinTech and market structure in finance: market developments and potential financial stability implications*.

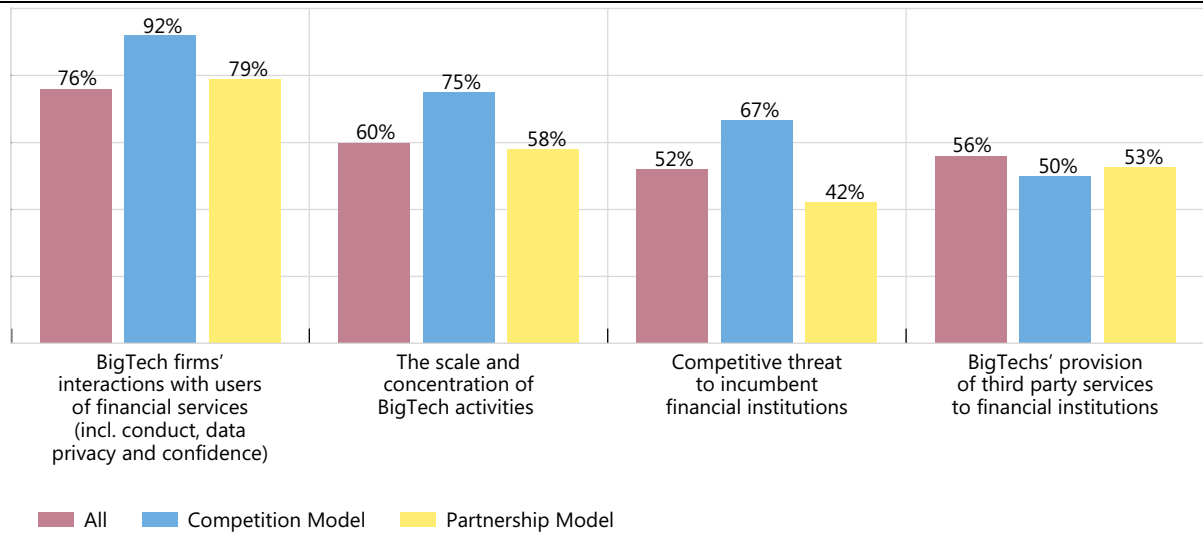
<sup>69</sup> Chinese authorities have recently adopted new rules designed to reduce risks associated with the use of stored payment products for Chinese money market funds. For example, the People's Bank of China has required Chinese mobile payment providers to deposit funds in the accounts designated by the central bank. Other Chinese BigTech firms are also required to obtain certain licenses and to meet capital requirements.

<sup>70</sup> See OECD (2020), *Innovation and Competition in financial markets*.

## Risks to financial stability identified by survey respondents associated with BigTech firms' provision of financial services

Risks rated moderate/large as a percentage of survey respondents

Graph 9



Source: FSB Survey

### Consumer protection

Risks concerning consumer protection may be larger in the case of BigTech firms' activities in EMDEs than in AEs. This may partly be due to issues around customers' financial literacy. Nearly 3.5 billion adults globally, the majority of whom reside in EMDEs, lack, by one measure, basic financial knowledge (see Figure 5). In some EMDEs, weaker consumer protection and oversight frameworks may mean consumers are more vulnerable to being provided with financial services that are unsuited to their needs and risk profiles.<sup>71</sup> BigTech firms' use of alternative credit scoring data has led to some customers being offered credit on a larger scale and faster than was the case with traditional financial institutions. Whilst this can generate positive economic outcomes by expanding access to formal credit, several regulators reported that it may cause customers to make suboptimal financial decisions (e.g. becoming overly indebted), particularly in EMDEs with relatively weak consumer protection regimes.<sup>72</sup> Survey respondents also noted the potential for these dynamics to reduce consumer confidence in the financial sector more broadly.<sup>73</sup>

<sup>71</sup> According to the World Bank Group *Global Financial Inclusion and Consumer Protection Survey 2017*, roughly 36% of low-income jurisdictions include consumer protection provisions within other financial sector laws (i.e. banking law), as opposed to 85% of high income jurisdictions. A legal framework for financial consumer protection does not exist in roughly 18% of low-income jurisdictions, as opposed to 0% of upper-middle and high income jurisdictions.

<sup>72</sup> For an example relating to Sub Saharan Africa, see Barres (2018), *Are FinTechs in Africa Over-Indebting their Customers?*

<sup>73</sup> This is often due to lower capability levels in EMDEs which may make it difficult for consumers to differentiate between regulated and unregulated financial services and providers.

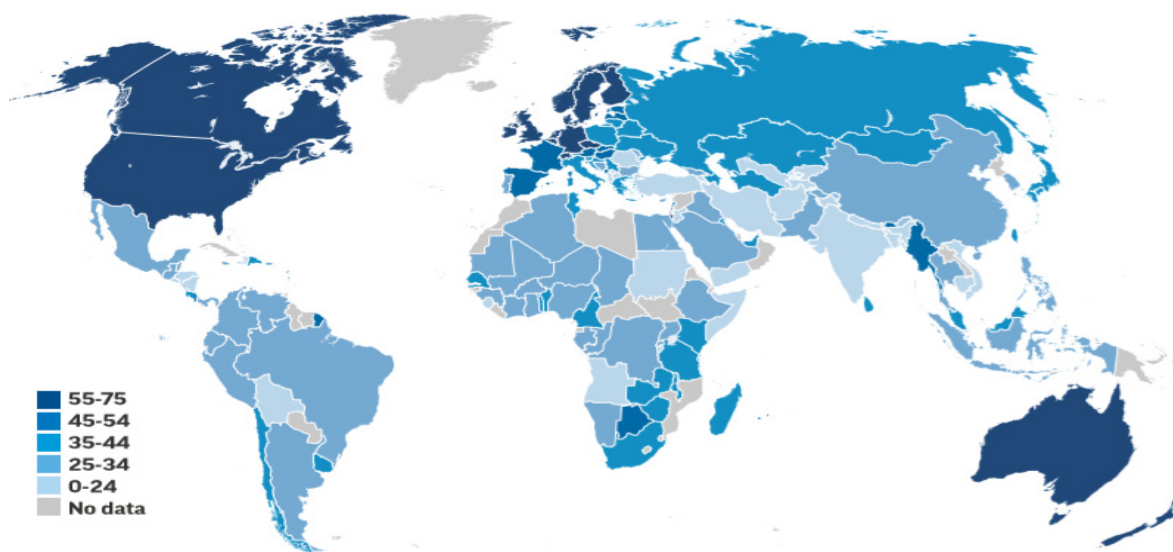


## Global variation in financial literacy

Percentage of adults who are financially literate

Figure 5

per cent



Source: S&P Global Finlit Survey (2015).

Consumer protection issues may also arise from BigTech firms' use of customer data, particularly where such data is proprietary and acquired from BigTech firms' non-financial business lines. Ownership of such data, and the rights of consumers concerning its use, may be unclear in some jurisdictions. Some EMDEs may lack the stricter regulation of the use of customer data that is present in some AEs. There have also been some high-profile examples of BigTech firms in some EMDEs failing to ensure due protection of customer data.<sup>74</sup> Given the younger demographic, consumers in EMDEs might be more willing to surrender personal data in return for the services offered by BigTech firms.<sup>75</sup> Seventy-six per cent of survey respondents cited BigTech firms' interactions with users of financial services, and associated conduct of business and data privacy considerations as having the potential to pose a moderate to large risk to financial stability within their jurisdictions (Graph 9).

### *Issues arising from scale and competition*

BigTech firms may have a greater tendency to dominate the market for certain financial services in EMDEs. BigTech firms' activities in EMDEs are already far more significant as a proportion of overall financial services than those in AEs.<sup>76</sup> BigTech firms' ability to serve those who are underserved by traditional financial institutions may leave BigTech firms as the principal or even sole provider of financial services to large parts of the population. In Kenya, for example, one BigTech firm is the market leader in mobile money transfer services with over 25 million users, representing more than half of Kenya's population.<sup>77</sup>

<sup>74</sup> For example, in 2018, a Chinese BigTech firm shared information on some of its clients with a credit scoring system without the express consent of customers.

<sup>75</sup> See Liang Chenyu (2018), *Are Chinese People 'Less Sensitive' About Privacy?*

<sup>76</sup> See J Frost (2020), *The economic forces driving FinTech adoption across countries*, BIS Working Papers No 838, February.

<sup>77</sup> See the Communications Authority of Kenya (CA) report, 2018.

BigTech firms scale in some EMDEs may have been reinforced by their development of ‘closed-loop’ systems, which limit market contestability and competition. Such closed loop systems offer a range of products within a single online environment. These allow BigTech firms to retain transactions within their own single online environment, strengthening their profitability and reducing competition. Such dynamics might also be strengthened by BigTech firms’ pricing strategies. Some firms offer ‘asymmetric pricing strategies’ for financial services, whereby customers can move funds into the closed-loop systems for free, but face a charge if they make withdrawals.

BigTech firms control over certain technology infrastructure could also reduce competition from smaller FinTech firms and incumbent financial institutions. In some EMDEs, for example, there is evidence that BigTech firms’ have used their control of telecommunications infrastructure to increase the cost of provision of mobile money by other, small, firms that offer financial services.<sup>78</sup> Where BigTech firms also provide platforms that act as intermediaries between financial firms and their customers, they might also exercise control over which services are offered to consumers. This, along with the effects describe above, may also reduce consumer welfare.

Given the scale and scope of BigTech financial services activities in some EMDEs, disruption to their services could have substantial implications for financial stability. The failure of a BigTech firm with systemic financial services operations, or interruption in the service it provides, could have substantial spill-overs both for the domestic economy it serves, and for others in the region. The source of such risks – particularly those relating to legal or operational issues – could also originate in a different jurisdiction to that affected by such issues. Seventy-five per cent of survey respondents in jurisdictions where BigTech firms operate in competition with incumbents identified the scale and concentration of BigTech activities as having the potential to pose a moderate to large threat to financial stability within their jurisdiction (Graph 9).

### *Regulatory and supervisory challenges*

The scale and sophistication of BigTech firms might present a challenge to regulators and supervisors in EMDEs. Regulators in EMDEs might lack the resources or capacity to supervise the scale and technological sophistication of BigTech firms’ activities.<sup>79, 80</sup> For example, one mobile money provider in sub-Saharan Africa reported that it had a single head office, but a network of 40,000 merchants responsible for registering users and taking care of KYC requirements. This could raise a range of supervisory challenges, particularly if regulators are slow to embrace new technologies such as SupTech/RegTech. The size of BigTech firms – combined, in some cases with their public profile and high level of customer goodwill – could also mean that BigTech firms perceive themselves as having some bargaining power in negotiations with regulators, and may be less inclined to comply with regulation or supervisory

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<sup>78</sup> See Consultative Group to Assist the Poor (CGAP), *Promoting Competition in Mobile Payments: The role of USSD*.

<sup>79</sup> For instance, according to the World Bank and CCAF (2019), *Regulating Alternative Finance: Results from a Global Regulator Survey*, only 19 per cent of medium and low income jurisdictions actively regulated FinTech activities and 10 per cent regulate initial coin offering activities, as compared to 67 and 42 per cent of high income jurisdictions respectively.

<sup>80</sup> Biondo, I and Menegron A (2019), *The regulation of Banks in Emerging Markets*. Some industry studies also reference the lack of consistency and earlier stage of development of regulation and supervision in some EMDEs, see for example EY (2019).

requests.<sup>81</sup> EMDEs may also face challenges in seeking to ensure that legal and technological risks arising from firms' operations in other jurisdictions do not pose legal or technological risks that threaten the continuity of firms' operations in their jurisdictions. BigTech firms operating across multiple EMDE jurisdictions could increase the risk of gaps in supervisory oversight. In order to ensure effective monitoring of BigTech financial services activities there is an increased need for efficient cooperation between regulators across jurisdictions. In order for regulators to ensure that new risks are regulated in the same way, there may be a need for new frameworks and standards to be devised.

### *Operational Resilience*

BigTech firms' operations in EMDEs might be more vulnerable to operational risks. This might arise where BigTech firms are reliant on telecommunications infrastructure, particularly that which may be weaker than in AEs. This might also heighten risks associated with data security. Standards of operational resilience in EMDEs – particularly in relation to recovery and response capabilities – may also be less mature, and less heavily reinforced by standards-setting bodies and national authorities.<sup>82</sup>

BigTech firms operating in EMDEs may be more vulnerable to cyber-security incidents. 84 per cent of survey respondents identified vulnerability to cyber incidents as posing a moderate to large risk to financial stability within their jurisdiction. The infrastructure used by BigTech in EMDEs might be less resilient than the payments and financial market infrastructures used in AEs (see above). Where BigTech firms have applied innovations to address shortcomings associated with infrastructure, these may also introduce new risks. For example, new modes of digital payment such as QR codes can be exploited to misdirect funds. Weakness in SIM card replacement process could be exploited to circumvent authentication protections.<sup>83, 84</sup>

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<sup>81</sup> See Liu, N (2019) *Alibaba and Tencent Refuse to Hand Loans Data to Beijing*, Financial Times, September 18, 2019, and Laura He, *China amazed as Alibaba fights publicly with regulator*, MarketWatch, Jan. 29, 2015

<sup>82</sup> Examples include the G7 efforts to produce the Fundamental Elements of cybersecurity as well as publications by FSB targeted at enhancing cybersecurity standards and recently work by the BCBS on operational resilience.

<sup>83</sup> See Google Payments Whitepaper on *Real-Time Payments Systems & Third-Party Access*.

<sup>84</sup> See a [solution](#) to generate dynamic and time-limited QR codes.

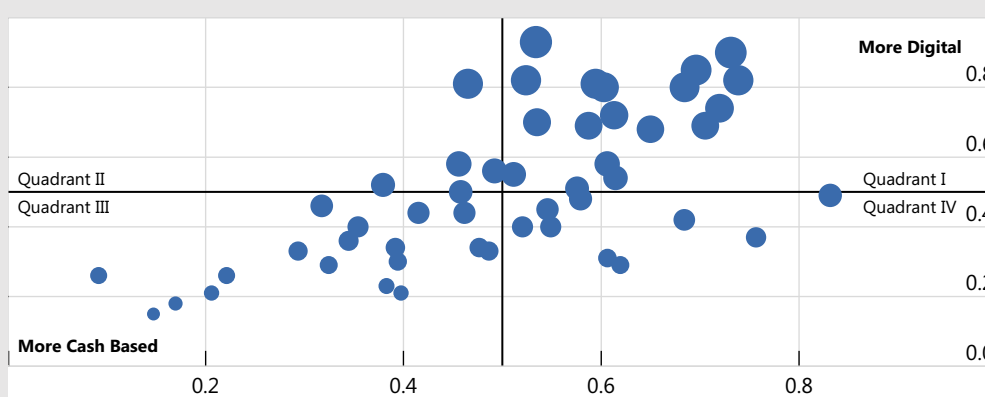
### Box C: A comparison of the drivers of – and risks associated with – BigTech firms’ provision of financial services in EMDEs

This box compares the drivers of BigTech firms’ financial services across countries along with some of the associated risks. Figure 6 compares three indicators as proxies for BigTech drivers in EMDEs across 50 EMDE jurisdictions:

- Financial inclusion (y-axis), which is proxied by the percentage of adults with transaction accounts at a regulated financial institution;<sup>85</sup>
- The strength and availability of financial and digital infrastructures (x-axis);<sup>86</sup>
- The strength of the legal and regulatory environment for non-bank and e-money issuance (which corresponds to the size of the bubbles).<sup>87</sup>

**Drivers of BigTech firms’ provision of Financial Services in EMDEs**

**Figure 6**



Source: World Bank Group.

A comparison of countries across these dimensions yields insights into the different drivers of BigTech firms’ financial services activities:

- Countries in *Quadrant I (top right)* are those EMDEs with greater financial inclusion and stronger infrastructure. Countries in this quadrant may be those in which BigTech firms have expanded – or might in future expand – their financial services beyond payments (e.g. credit and insurance). Official-sector policies might help catalyse this.
- Countries in *Quadrant II (top left)* are those with greater financial inclusion but weaker digital infrastructure. This quadrant is thinly populated. BigTech firms are not yet typically major players in financial services in these jurisdictions.
- Countries in *Quadrant III (bottom left)* are those where digital financial services are not yet widely adopted and where infrastructure is weaker. These countries may face high levels of

<sup>85</sup> Source: Global Findex 2017.

<sup>86</sup> Strength and availability of financial infrastructure is proxied by an index of mobile connectivity, development of information technology, and the interoperability and quality of retail payment systems. Composite rankings based on (i) GSMA Mobile Connectivity Index; (ii) ITU ICT Development Index; (iii) WBG GPSS Interoperability Index; (iv) WBG GPSS Quality of Retail Payment Systems; and (v) WBG ID4D Database. Bubble Size: The bubble size represents a composite score based on (i) WBG GPSS Neutrality and Proportionality.

<sup>87</sup> This is proxied by a World Bank index that measures the strength of legal provisions concerning fair and competitive practices and e-money, regulation that allows non-bank payment service models and agent-based models, and whether non-banks are permitted to engage in a range of payment services-related activities.

financial exclusion, less mobile and internet connectivity, and fewer innovative payment services.<sup>88</sup> These factors might act as barriers to BigTech firms' provision of financial services. That said, these jurisdictions may also present opportunities for BigTech firms to meet unmet demand for financial services and bridge gaps in infrastructure. Certain official-sector policies might support such developments. These might include policies to foster the penetration of mobile phones and internet connectivity and those to enable the issuance of e-money by non-banks. Enhanced regulation – including the development of streamlined customer due diligence frameworks and the strengthening of other core prudential and supervisory frameworks – might also help further enable BigTech firms' provision of financial services.<sup>89</sup>

- Countries in *Quadrant IV (bottom right)* are those with stronger financial and digital infrastructure, but also lower access to banks accounts. Depending on the legal and regulatory environment, BigTech firms' may be able to increase penetration and usage of financial services in these jurisdictions.

Figure 7 compares three indicators of risks to financial stability associated with BigTech firms' expansion into financial services across 65 EMDE jurisdictions. These are:

- The proportion of adults that have borrowed from financial institutions (y-axis);<sup>90</sup>
- The robustness of each jurisdictions' credit-related legal framework and probability of banking system default (x-axis);<sup>91</sup>
- The ease with which potential borrowers can access credit. Those highlighted in yellow and are those where one (or more) BigTech firms provide credit.<sup>92</sup>

Quadrant I (upper right) and Quadrant IV (lower right) contains countries with varying levels of formal borrowers and where BigTech's entry into credit services may have lower systemic risks to financial stability. Most of these jurisdictions have robust collateral and bankruptcy laws in place to protect the rights of borrowers and lenders as well as lower probability of banking system default. Some jurisdictions may have also introduced regulatory frameworks to ensure greater cybersecurity, consumer protection, data privacy and data governance, which are all critical to building resilience and mitigating risks.

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<sup>88</sup> IMF (2019), *FinTech: The Experience so Far*.

<sup>89</sup> Results from FSB FIN EMDE BigTech survey, March 2020.

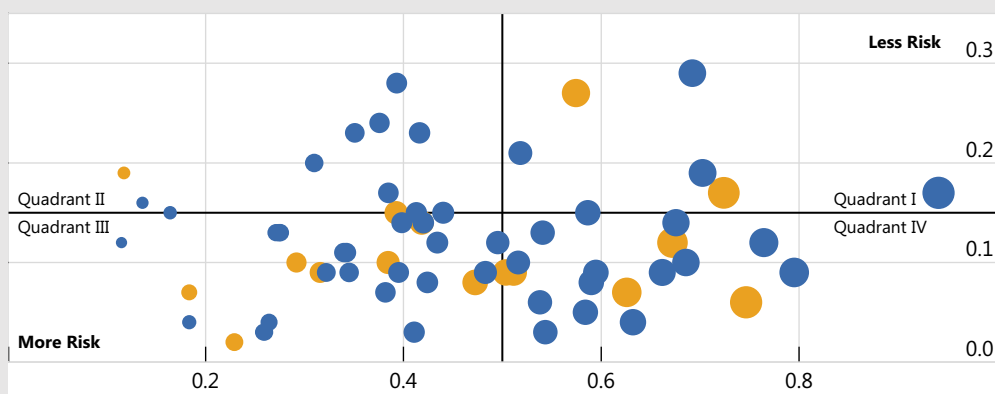
<sup>90</sup> Y-Axis: Source: Global Findex 2017.

<sup>91</sup> This corresponds to an index which covers risk management (including oversight and leveraging regulatory / supervisory technologies), neutrality and proportionality, the existence of deposit insurance, safeguarding customer e-money funds, disclosure requirements, dispute resolution, and simplified due diligence. See World Bank, *Doing Business 2020* global rankings.

<sup>92</sup> This is proxied by estimates of the size and penetration of BigTech credit provision across countries. See *BIS BigTech Credit Database*.

**A comparison of selected risks to financial stability arising from BigTech firms' extension of credit in 65 EMDE jurisdictions**

**Figure 7**



Source: World Bank Group and Bank for International Settlements.

- Quadrant (II) and Quadrant III (bottom left) contain countries where risks from BigTech firms' financial service activities may be greater. These countries face varying levels of formal borrowing but legal frameworks that protect borrowers and lenders are more nascent and the country may have higher probabilities of banking system default. Credit services provided by BigTech firms may therefore pose larger risks to financial stability. Risks to consumer protection may be more substantial in countries where BigTechs already offer credit (see yellow highlights). Nascent legal and regulatory regimes pose more challenges for policymakers when trying to protect consumers from over-indebtedness or default as compared to EMDEs in other quadrants.

In all markets, strong overarching standards of prudential regulation and supervision are essential for any regulatory framework, including in relation to BigTech firms. In addition, EMDE authorities should continue to build capabilities to supervise and monitor BigTechs' activities to remain vigilant to market disruptions. This is discussed further in Section 5.

## 5. Policy Implications

The entry of BigTech firms into financial services could have a number of implications for official-sector policy. Many such issues are discussed within FSB (2019). This section, however, focuses on policy implications that are more pertinent to BigTech firms' activities in EMDEs. It also draws out potential areas in which policymakers in AEs might draw on the experience of those in EMDEs.

The experience of EMDEs demonstrates the positive role that regulation and official-sector policy can play in catalysing innovation in financial services. Governments in some EMDE jurisdictions have driven the development of payments infrastructure and digital identity. In doing so they facilitated the growth of financial technology, including that employed by BigTech firms (also see discussion in Section 3). Other EMDE financial authorities (e.g. Argentina, Poland, Saudi Arabia, Russia, and Thailand) have developed dedicated units (e.g. innovation hubs, sandboxes etc.) through which to develop policy to support innovation. Roughly, 50 per cent of survey respondents mentioned using dedicated 'innovation facilitators' to assist new entrants in financial services. Around 25 per cent of respondents had convened roundtables, or undertaken

other forms of outreach, in order to liaise with BigTech firms. These official-sector actions may contain valuable lessons for policymakers in AEs.<sup>93</sup>

Implications for policy may differ depending on BigTech firms' mode of interaction with incumbent institutions. Where BigTech firms partner with incumbents, policymakers should be mindful of the new interlinkages this might create with existing financial institutions. Regulators and supervisors might also wish to ensure that parties to such arrangements put in place clear delineations of responsibility and liability between financial institutions and BigTech firms, as well as assessing potential concentration and operational risks. Whilst it is not the role of authorities to protect financial institutions from competition, where BigTechs compete directly with incumbents, financial sector regulators and supervisors could continue to monitor the nature of the commercial response by incumbent financial institutions' and the implications for their risk profile, viability and resilience.

The potential for BigTechs to achieve scale rapidly in financial services, and to operate across borders, highlight the importance of international cooperation and efficient communication between authorities. Policymakers have taken – and may continue to take – different approaches to developing, applying, and where necessary adapting – their regulatory frameworks, in order to ensure the proper regulation of BigTech firms' provision of financial services. Relevant authorities should continue to be vigilant to developments and their implications for financial stability. This could include strengthening domestic cooperation between banking, securities and insurance supervisors, as well as international cooperation – including that via the FSB.<sup>94</sup> As well as helping mitigate risks, international cooperation can support safe innovation and durable and open financial markets. For example, some BigTech firms reported that they thought policy issues concerning cross-border payments and remittances would greatly benefit from consensus between regulators internationally, in order to improve interoperability between platforms. Financial authorities could also collaborate with competition authorities in order to ensure fair competition between incumbent firms and new entrants.

Where financial services activities are undertaken by new types of actors, such as BigTech firms, the principle of 'same risk-same regulation' should apply. It may also be necessary to update regulatory frameworks to ensure all activities are subject to appropriate regulation and supervision and take into account new barriers to competition that might be introduced. While financial intermediation by non-bank firms is not a new phenomenon, it has – in the past – principally been undertaken by businesses whose principle focus was on financial services, and that were already subject to some form of financial regulation. Where financial services are provided by BigTech firms, who may have their core businesses outside of financial services, it is essential that those activities are appropriately regulated and supervised, operating under a principle of 'same risk – same regulation'. In addition, where BigTechs may have new forms of linkages and dependencies with technology vendors or affiliated companies, or where they offer a range of financial services activities in a single platform, these activities should be subject to 'end to end' supervision and regulation. This may necessitate a change to the perimeter of regulation and could highlight the possibilities of alternative approaches, such as more activity-

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<sup>93</sup> See Pazarbasioglu et al (2020).

<sup>94</sup> In recent years, spaces for global international cooperation aimed at reaping the benefits of FinTech have emerged, such as the [Global Financial Innovation Network \(GFIN\)](#). The [CEMLA Forum of FinTech Experts](#) is another example at global level. Other EMDEs have signed [bilateral Memoranda of Understanding](#).

based approaches to regulation, in order to ensure appropriate and consistent coverage of activities that have implications for financial stability. Policymakers might also want to consider whether additional steps to permit access to public financial infrastructure, such as public payments infrastructure or central bank services might serve to promote resilience and foster competition.

Financial authorities in some EMDEs have developed activity-based regulation tailored to the types of financial services introduced by BigTech firms. Some jurisdictions in Sub-Saharan Africa,<sup>95</sup> for example, have developed specialised regulatory frameworks and licences for e-money institutions.<sup>96</sup> These generally include prudential and business conduct requirements, such as risk management and transparency rules. Other EMDEs have developed specialized ‘Stored Value Facility’ (SVF) regulation for those BigTech firms that provided forms of e-money in which users store substantial funds (such as those to which BigTech firms are subject in China). Other jurisdictions have adopted a ‘mixed’ or ‘hybrid’ regulatory framework that combines elements of both activity and entity-based approaches.<sup>97</sup>

Some financial authorities in EMDEs have also taken steps to tailor their regulatory approach to the relative size of BigTech firms’ activities in financial services. In Paraguay, for example, regulation mandates a FinTech firm to open a bank account whenever a certain threshold of mobile money outstanding – managed by a Mobile Network Operator – is surpassed.<sup>98</sup> Some survey respondents in EMDE jurisdictions also mention conducting assessments on the adequacy of their regulatory frameworks in terms of the size of financial services offered by a BigTech firm. Regulatory frameworks should also remain flexible to adapt to changing business models and activities. BigTech firms’ activities in financial services in EMDEs generally began with a relatively narrow focus – such as payments – but rapidly expand to new offerings, such as lending or investment products.

In addition to these general considerations, the following policy areas could present additional risks to financial stability within an EMDE context.

### *Data governance*

The ability of BigTech firms to leverage customer data could raise questions concerning the role of financial authorities in data protection, collaborations with other national authorities (e.g. if there are authorities with specific mandates for data rights) and how to support innovation whilst also promoting financial stability. Policies on data are often economy-wide rather than specific to the financial sector, but are particularly relevant to financial institutions and authorities given the importance of cross-border data flows for risk management practices, operational resilience, and financial innovation. Relevant data governance issues include those concerning (i) clarity of data rights; (ii) safeguards to protect data confidentiality, availability and integrity, while encouraging appropriate regulatory information-sharing; (iii) privacy considerations; (iv) risk

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<sup>95</sup> See IMF Bali FinTech Agenda (2019), *The experience so far*.

<sup>96</sup> These include, for instance, Afghanistan, Brazil, El Salvador, Ghana, Indonesia, Kenya, Malawi, Mexico, Myanmar, Namibia, Nigeria, Pakistan, Paraguay, Peru, the Philippines, Rwanda, Tanzania, and Uganda. Some advanced economies include Australia, Hong Kong, Singapore, and members of the European Union.

<sup>97</sup> See F. Restoy (2019), *Regulating FinTech*, October.

<sup>98</sup> See GSMA (2015), *Regulacion y Politicas para el Dinero Movil en Paraguay*, September.



management; and (v) the ethical use of data. In many jurisdictions, there will be specific authorities with mandates for data governance and protection, and in those instances, it would be beneficial for financial authorities to review and where appropriate codify the nature of their interactions.

Robust and transparent data governance frameworks that permit the flow of data across borders could help provide clarity regarding the use of customer data, ensure data protection and enhance consumer confidence. In recent years, several EMDEs have introduced restrictions on the flow of data across borders (e.g. China, India, Nigeria and Vietnam). These restrictions vary across jurisdictions, but generally capture some of the functions in which BigTech firms engage, such as cloud storage and/or data processing.<sup>99</sup> This could result in financial fragmentation and possible threats to operational resilience (e.g., where data flow interrupted), and impede use of financial innovation to foster economic growth. Data frameworks can help define rights of consumers and promote safe and premised access to data. In addition, data portability and interoperability could reinforce the resilience of infrastructure and support confidence in the transmission and storage of data, including that across borders.

Some jurisdictions have also introduced regulatory frameworks – such as Open Banking initiatives – through which banks are obliged to share relevant data with new entrants, including BigTech firms. These include regulatory approaches such as those in Mexico and Brazil that are relatively prescriptive, and require institutions to register with particular regulatory or supervisory authorities.<sup>100, 101</sup> Other approaches, such as those in Singapore and Hong Kong issue guidance and API frameworks, standards and technical specifications that encourage players to participate in Open Banking and share information amongst recognised participants.<sup>102, 103</sup> However, such initiatives could raise questions around whether – and the degree to which – authorities could consider the potential to promote the mobility of data between the various actors that are involved in the provision of financial services (see FSB 2019). Doing so could encourage competition, particularly in EMDEs where financial service penetration is generally lower, and BigTech firms engage with incumbents as competitors rather than through partnership or platform models.

### *Operational risk management*

Policymakers in EMDEs may want to consider operational risk considerations relating to BigTech financial activities in their jurisdiction, particularly where there are specific dependencies on telecoms networks or third party technology suppliers. Many of the operational policy implications raised by BigTech firms in EMDEs are similar to those in AEs (e.g. that concerning firms' reliance on third-party vendors for cloud computing). However, there are some specific considerations relating to operational resilience in EMDEs, where business models are more heavily dependent on local telecommunications and underlying infrastructure. In these

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<sup>99</sup> See GSMA (2019), *State of the Industry Report on Mobile Money*.

<sup>100</sup> Through the FinTech law, although implementation is not still in place.

<sup>101</sup> See Banco Central do Brasil (2019), *Brazilian Open Banking Model – first steps*.

<sup>102</sup> For an ample coverage of API frameworks and Open banking initiatives. See BCBS (2019) *Report on open banking and application programming interfaces*.

<sup>103</sup> See HKMA (2018) *Open API Framework for the Hong Kong Banking Sector*, July.

instances, enhancing the level of development and sophistication of cross-sectoral collaborations on operational resilience could play a more important role.<sup>104</sup>

### *Consumer protection*

Adequate consumer protection regimes are an important contributing factor for financial stability. One important consumer protection issue concerns the safeguarding of customer funds, particularly in EMDEs where large numbers of consumers hold funds with BigTech firms. New regulatory frameworks aimed at some of the financial service activities carried out by BigTech firms (e.g. the provision of e-money; see above) might ensure that BigTech firms are subject to segregation and ring-fencing requirements, to avoid putting customer funds at risk should a BigTech financial service provider fail.<sup>105</sup> This could be particularly important where balances held in digital wallets are not covered by deposit insurance schemes. Legal protections and supervisory practices (including those leveraging technology) could also be strengthened in order to protect customer funds in the case of bankruptcy of deposit-taking institutions.<sup>106</sup>

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<sup>104</sup> For example, see NIST (2019), *Cybersecurity Framework – success story: Japanese cross-sector forum*, February.

<sup>105</sup> See J.C. Izaguirre, D. Dias and M. Kerse (2019), *Deposit Insurance Treatment of E-Money*, Technical Note, October.

<sup>106</sup> See Bank for International Settlements (2020), *Payment aspects of financial inclusion in the fintech era*, April.

## Annex: Details of survey questions

### The activities of BigTech firms in financial services in your jurisdiction

1. Please complete the table overleaf, providing information on BigTech firms are active in financial services in your jurisdiction. In the relevant columns of the table please indicate:
  - These firms' principal/core business (e.g. social media, ride hailing)<sup>107</sup>
  - The financial services they provide. Where possible please include any data you have on the volume of each of these activities (e.g. number/value of payment transactions, volume of credit extended) - both absolute amounts (where applicable) and those with respect to a relevant denominator as indicated in the table.
  - The type of interaction with existing/incumbent financial firms, in line with the typology discussed in Section 3 of FSB (2019) 'BigTech in finance, market developments and potential financial stability implications'; i.e.
    - (i) Direct competition (e.g. BigTech firm directly competes with the offering of incumbent financial institutions); or
    - (ii) (non-interfacing) Partnership (e.g. BigTech firm partners with financial institutions in offering financial services for example by providing technology services and infrastructure to financial institutions); or
    - (iii) Interfacing (where BigTech firms serve as intermediaries between financial institutions and their customers).
2. Are there any specific examples of BigTech activities in your jurisdiction that you would suggest as useful to highlight in the FSB follow-up report? If so, please provide this information below.
3. Where BigTech firms partner with financial institutions in your jurisdiction, where possible please also include details of the type/size of financial institution with which the BigTech firm(s) partners (e.g. large commercial bank, mid-small size commercial bank, other types of deposit-taking institutions, non-bank financial services companies).

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<sup>107</sup> BigTech firms are large companies with established technology platforms but whose principal business is not financial services, e.g. (but not exclusively) in internet search, ride hailing, telecoms, internet search, social media.

## Possible factors that account for differences in the scale of these activities across jurisdictions

4. Briefly describe the main factors that account for the relative scale and areas of focus of BigTech firms in your jurisdiction.
5. To what extent is the relative financial development of your jurisdiction of importance in determining the relative scale of BigTech firms' activities in financial services in your jurisdiction?
6. To what extent is the cost of financial services provided by financial institutions in your jurisdiction of importance in determining the relative scale of BigTech firms' activities in financial services in your jurisdiction?
7. Is financial regulation in your jurisdiction supportive or constraining of BigTech firms' activities in financial services?
  - (i) If you answered 'supportive' or 'constraining' to the last question, what do you believe to be the strength of this effect compared to other jurisdictions?
8. What other factors not mentioned above constrain and/or support BigTech firms' activities in financial services in your jurisdiction (i.e. level of digitalisation, ease of access to financial services)? How important do you believe these to be?

## Motivation for BigTech firms' activities in financial services in your jurisdiction

9. Considering BigTech firms as a whole, to what extent would you rate the following as motivations for BigTech firms' provision of financial **services** in your jurisdiction:
  - (i) Diversification of revenue streams beyond their core technology businesses.
  - (ii) Supporting financial inclusion.
  - (iii) Accessing new sources of customer data.
  - (iv) Complementing and reinforcing their core commercial activities to increase their customer base, brand and loyalty.
  - (v) Please give any further details (including of other motivations for BigTech firms' provision of financial services in your jurisdiction besides those listed above).

## Benefits of BigTech firms' activities in financial services and their effect on financial inclusion

10. To what extent would you rate the following as benefits of the provision of financial services by BigTech firms in your jurisdiction?

- (i) Reduction in the cost of financial services compared to those provided by traditional/incumbent financial institutions.
  - (ii) Greater access to, and convenience of financial products (e.g. via new technologies or technology platforms such as smart phones) for the population as a whole.
  - (iii) Greater access in particular for individuals that previously had little access to financial products (thus supporting financial inclusion).
  - (iv) Greater access to financial products for small and medium-sized enterprises.
  - (v) Greater tailoring of financial products to end-users' needs.
  - (vi) Improving transparency in financial services (i.e. enabling risk to be more accurately priced).
  - (vii) Supporting competition and diversification in the financial system.
  - (viii) Improving efficiency of operations and contributing to overall efficiency gains in the financial system and/or real economy.
11. Which financial services activity has benefitted the most from the entry of BigTechs in your jurisdiction?
- (i) If 'Other', please specify:

## Potential risks associated with BigTech firms' activities

12. How would you rate the following risks to financial stability posed by BigTech firms' activities in financial services in your jurisdiction?
- (i) Issues arising from the scale and concentration of BigTech activities.
  - (ii) Issues arising from BigTech provision of credit.
  - (iii) Issues arising from competitive threat to incumbent financial institutions, and implications for those businesses' profitability and resilience.
  - (iv) Issues arising from BigTech firms' interactions with users of financial services, and associated conduct of business, data privacy and confidence considerations.
  - (v) Issues arising from the level of governance and operational resilience of by BigTechs, were vulnerabilities to potentially lead to disruption in provision of financial services.
  - (vi) Issues arising from BigTechs' provision of third party services (e.g. cloud, artificial intelligence) to financial institutions.
  - (vii) Issues arising from the vulnerability to cyber incidents.

(viii) Please provide further explanation behind your assessment of the above (or other) risks associated with BigTech firms' activities in your jurisdiction.

## Interaction with the official sector

13. Are there any official-sector/government initiatives that have supported BigTech firms' activities in your jurisdiction (e.g. *UPI in India, CoDi in Mexico, Open Banking initiatives, innovation hubs / accelerators /regulatory sandboxes*)? Please briefly describe any key initiatives (technological, infrastructural or otherwise).
14. Has your institution undertaken any outreach with BigTech firms that provide financial services in your jurisdiction? If so please briefly describe these.
15. How would you characterise your regulatory approach to BigTech firms' activities in financial services?
16. If 'Other' please provide further details.

## Regulatory, supervisory and policy responses

17. Please briefly describe any regulatory, supervisory and other policy responses that you, or another financial regulatory agency within your jurisdiction, has undertaken – or is shortly due to undertake – in relation to the activities of BigTech firms in financial services. This could take the form of specific legal and/or policy frameworks, guidance, guidelines or recommendations for example.
18. To what extent do regulators in your jurisdiction believe they have been able to regulate BigTech firms' activities in financial services and positively harness their benefits?