

FinTech and Market Structure in the COVID-19 Pandemic

Implications for financial stability

21 March 2022



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Executive summary

The COVID-19 pandemic has accelerated the trend toward digitalisation of retail financial services. Comprehensive data on market shares of FinTechs, BigTechs and incumbent financial institutions in retail digital services are lacking, but proxies in the form of revenue and app downloads, and insights from market outreach suggest that BigTechs and larger FinTechs have further expanded their footprint in financial services. In some markets, concentration measures are high, but there is no evidence yet of a generalised increase.

The observations in this report broadly support the conclusions of previous FIN reports. BigTech and FinTech firms' expansion into financial services can bring benefits such as improved cost efficiencies and wider financial inclusion for previously underserved groups. BigTechs' financial activities in emerging market and developing economies (EMDEs) bring particular benefits in this regard. At the same time, there is potential for (rapid) market dominance. There could be negative financial stability implications from dependence on a limited number of BigTech and FinTech providers in some markets, the complexity and opacity of their partnership activities, and potential incentives for risk taking by incumbent financial institutions to preserve profitability. Consumer protection risks could arise from greater dependency on technology and potential data protection issues, e.g. the unauthorised use or the misuse of users' personal data. Cloud computing by third-party service providers not subject, in many cases, to financial regulation can introduce cost efficiencies and access to innovations in artificial intelligence (AI). But the limited number of providers of cloud services could magnify the impact of any operational vulnerability.

The growth of BigTechs in particular may give greater urgency to financial stability issues previously discussed, such as the potential for greater systemic importance of new players that may not be subject to financial regulation. This underscores the need to address data gaps that currently hamper the assessment of the financial risks and systemic importance of BigTechs. Such data gaps make it difficult for authorities to decide whether and how to include BigTechs in the regulatory perimeter.

Authorities have taken a range of policy actions during the pandemic that may impact market structure and the role of FinTechs, BigTechs and incumbent financial institutions. These actions relate to financial stability, competition, data privacy and governance issues. In parallel, there is international work on third-party dependencies of the financial sector, for instance in cloud computing. This highlights the importance of cooperation between regulatory and supervisory authorities, including those charged with overseeing the bank and non-bank sectors, and where relevant, with competition and data protection authorities.

1. Introduction

The COVID-19 pandemic raises the issue of whether past FSB findings¹ of the interaction between FinTech firms, large technology companies (“BigTechs”) and incumbent financial institutions continue to hold.² This report, which was prepared by a workstream of the FSB’s Financial Innovation Network (FIN), examines whether the pandemic changed the ways in which individuals and firms engage with innovative financial service providers and traditional financial incumbents. This includes analysing whether the market share of BigTechs and FinTechs in specific financial services (e.g. payments, credit, insurance, investment) changed materially compared to incumbent financial institutions during this time. Ultimately, the report draws implications from the pandemic about the evolution of market structure for financial stability.³

The workstream analysed recently published research and data.⁴ The workstream also held twelve outreach calls with a range of incumbent financial institutions, BigTechs, FinTechs and industry associations across a variety of geographical and financial sectors. The analysis centred primarily on retail financial services, which have been the main focus of both new entrants and incumbent financial institutions that have accelerated the pace of digitalisation.

The report first outlines trends in market structure, such as changes in (proxies of) market shares during the pandemic. The following section analyses some of the drivers, both in supply and demand, that may have accelerated digitalisation in certain sectors more than others. The report then discusses benefits from accelerated digitalisation of financial services during the pandemic, and whether those observed changes may be structural or revert back to pre-pandemic levels once conditions normalise. The report also considers the financial stability implications of this accelerated trend towards digitalisation, such as potential market dominance of certain players, and the related concerns around incumbent financial institutions that may be digital laggards. It then provides an overview of regulatory changes that may have an impact on market structure in some FSB jurisdictions during the pandemic and concludes with policy implications.

2. Trends in market structure during the pandemic

The COVID-19 pandemic has accelerated the adoption of innovative financial services. While the ability of digital innovation to improve market access, the range of product offerings, and convenience has been acknowledged for some time, pandemic-related responses and containment measures increased the importance of these factors in 2020-21. FinTech firms,

¹ For past work, see FSB (2019a), *FinTech and market structure in financial services: Market developments and potential financial stability implications*; FSB (2019b), *BigTech in finance: Market developments and potential financial stability implications*; FSB (2019c), *Third-party dependencies in cloud services: Considerations on financial stability implications*; and FSB (2020a), *BigTech firms in finance in emerging market and developing economies*.

² The FSB defines FinTech as “technology-enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on the provision of financial services.” FinTech firms is used here to describe firms whose business model focuses on these innovations. BigTech firms refers here to large technology companies that expand into the direct provision of financial services or of products very similar to financial products. For a full list of terms, see the glossary in Annex 1.

³ This report does not discuss the nature and scale of crypto-assets, which saw significant growth during the COVID-19 pandemic, extending the general trend toward digitalisation in new directions. See FSB (2022), *Assessment of Risks to Financial Stability from Crypto-assets*.

⁴ This includes publications by the Cambridge Centre for Alternative Finance (CCAF); World Bank and World Economic Forum (WEF) (2020), *The Global Covid-19 FinTech Market Rapid Assessment Study*, December; and CCAF and World Bank (2021), *The Global Covid-19 FinTech Regulatory Rapid Assessment Study*, February

BigTechs and incumbent financial institutions all faced an immediate need to adapt rapidly to a new business landscape.

COVID-19 hastened several trends already underway, including the use of digital payments and changes in the way retail customers and vendors buy and sell goods.⁵ Large swathes of economic activity became dependent on technology, lending an advantage to firms with established platforms, digital strategies, and deep customer bases.⁶

BigTech firms saw rapid revenue growth during the pandemic, as lockdowns drove consumers to seek dependable platforms for commerce and interaction, and online platforms became even more entrenched in daily life.⁷ The rapid shift to remote work and learning in 2020 highlighted the importance of cloud computing platforms, which saw strong growth despite the economic downturn.⁸ Available evidence suggests that BigTechs' financial service offerings, including certain aspects of the payments chain and credit, also saw robust growth in some jurisdictions.⁹ Use of digital wallets (offered primarily by BigTechs) grew from 6.5% of all e-commerce transactions in 2019 to 44.5% in 2020, indicating an increase in BigTech payments' market penetration in a broad range of jurisdictions.¹⁰ Additionally, consumers and businesses spent greater amounts on computers, mobile phones, and software to support remote working arrangements. Aided by these trends, the revenue of selected BigTech firms grew by 17% in 2020 relative to 2019, while market capitalisation grew by 57% over the same period (Graph 1). In some countries, such as China and India, where BigTechs were well positioned pre-pandemic, they continue to dominate mobile payment markets (Graph 2).

The pandemic has had an uneven impact on **FinTech firms** depending on the nature and source of their funding. Many FinTech firms rely on investor funding, which initially declined during the pandemic. As a result, it was the larger, more established FinTech firms that performed well, while smaller, less well capitalised firms, many of which are not yet profitable, struggled.¹¹ In 2021, it appears that venture capital (VC) funding for FinTechs rebounded, particularly in the crypto-asset and distributed ledger technology (DLT) space.¹² Moreover, partnerships with incumbent institutions are becoming more frequent and can act as a lifeline for some of these smaller firms. Furthermore, many FinTech firms worked with governments to deliver assistance

⁵ For instance, online retail sales ('e-commerce') increased sharply in many economies, reaching over a quarter of all retail sales in China and the UK. Card-not-present transactions, frequently used for remote transactions, saw similarly high growth. See Alfonso et al, *E-commerce in the pandemic and beyond*, BIS Bulletin no 36.

⁶ See The Economist (2020), "How the digital surge will reshape finance", 10 October; Deloitte (2020), "Realizing the digital promise: COVID-19 catalyzes and accelerates transformation in financial services", June.

⁷ For instance, one e-commerce platform noted the heavy reliance of customers on their ecosystem on a growing range of services during the pandemic, including financial services. One BigTech saw a 10-fold increase in mobile payment volumes during the pandemic.

⁸ One survey of 250 mid-sized companies around the world found that 82% had increased their use of cloud computing as a result of COVID-19. See Snow (2020), "How the 'new normal' is changing cloud use and strategy", 16 June.

⁹ On BigTech payment volumes in selected jurisdictions, see Croxson et al (2022), *Platform-based business models and financial inclusion*, BIS Working Paper, no 986, January. Moreover, estimates by BIS and CCAF economists show that BigTech credit volumes increased in 2020 in a range of major jurisdictions, including Argentina, Brazil, China, Japan, Kenya, Korea, Mexico and Russia. See Cornelli et al (2020), *Fintech and big tech credit: a new database*, BIS Working Paper no 887, September.

¹⁰ FIS WorldPay (2021), "Global Payment Report," 3 May. In China, digital wallets grew to 72% of e-commerce purchases in 2020. In the United States, they are estimated to have grown from 24% of e-commerce purchases in 2019 to 30% in 2020.

¹¹ See Deloitte Center for Financial Services (2020), "Beyond COVID-19: New Opportunities for fintech companies," June. One insurer noted the severe drop in revenues and venture capital funding for smaller InsurTech start-ups, which clients and investors judged to be less mature and hence riskier than more established players.

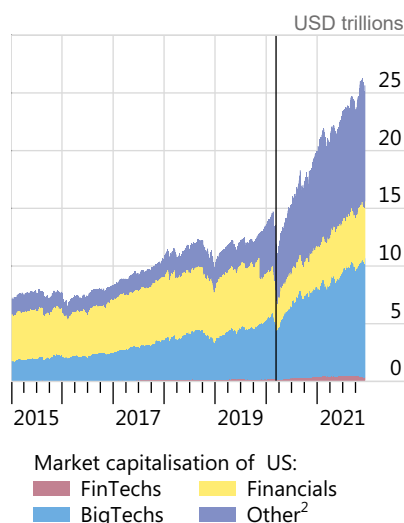
¹² See Cornelli et al (2021), *Funding for fintechs: patterns and drivers*, BIS Quarterly Review, September.

payments and credit.¹³ Small and micro merchants needed more assistance during the pandemic to adapt to the quickly changing environment, as many were not technologically developed with little experience with online platforms.¹⁴

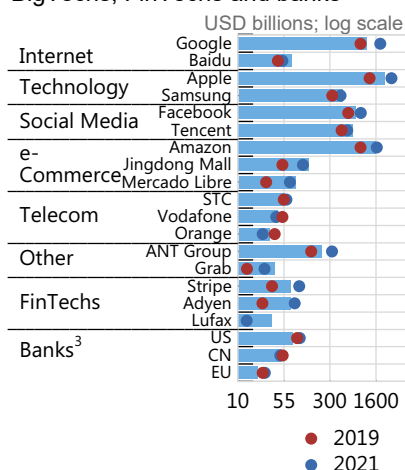
Performance of BigTechs, FinTech and incumbents during Covid-19

Graph 1

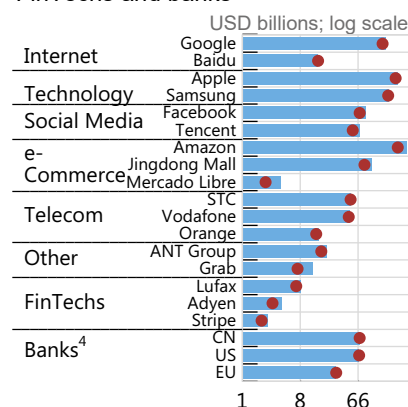
Shares in US equity markets¹



Market capitalisation of selected BigTechs, FinTechs and banks



Revenues of selected BigTechs, FinTechs and banks



¹ The vertical line denotes 11 March 2020, when the WHO characterised Covid-19 as a pandemic. ² Calculated as the market capitalisation of S&P 500 and Nasdaq minus the market capitalisation of FinTechs, BigTechs and financials. ³ Many FinTechs are not publicly listed. In these cases, data on market capitalisation and revenues are drawn from news sources. ⁴ Average market capitalisation of banks in the S&P 500 index, EuroStoxx Banks index and Shanghai Composite index. ⁵ Average revenue, weighted by market capitalisation, of banks in the S&P 500, EuroStoxx Banks index and Shanghai Composite index.

Sources: Bloomberg, Eikon, S&P Capital IQ; FSB calculations.

The degree to which incumbent financial institutions benefited from the pandemic depended on the degree to which they had embraced digitalisation previously. Some stakeholders noted that increased sources of revenue to FinTechs and BigTechs did not come exclusively at the expense of incumbents, but from a widening market for remote services. Those incumbent institutions which had put in place scalable digital infrastructure prior to the pandemic, in the form of cloud use, application programming interfaces (APIs) and data models, likely benefitted from the pandemic-related rush to digitalisation and remote activity. The revenues of publicly listed banks in the United States, EU and China were also unaffected by the increased role of technology companies, and were roughly constant between 2019 and 2020, though banks' market capitalisation fell by 13% over the same period (Graph 1). As of December 2021, the market capitalisation of incumbent banks had rebounded from its March 2020 lows, yet still lagged BigTechs and FinTechs. Indeed, while banks' market capitalisation had risen by 21% between year-end 2019 and December 2021, that of BigTechs had more than doubled.

Incumbent financial institutions' views on the competitive impact of BigTechs differed, including between jurisdictions. In terms of increased competition for core banking activities, some stakeholders argue that BigTechs have little appetite for low-margin bank services with attendant

¹³ For instance, several FinTech lenders had helped to distribute government lending schemes. See also Deloitte Center for Financial Services (2020), June.

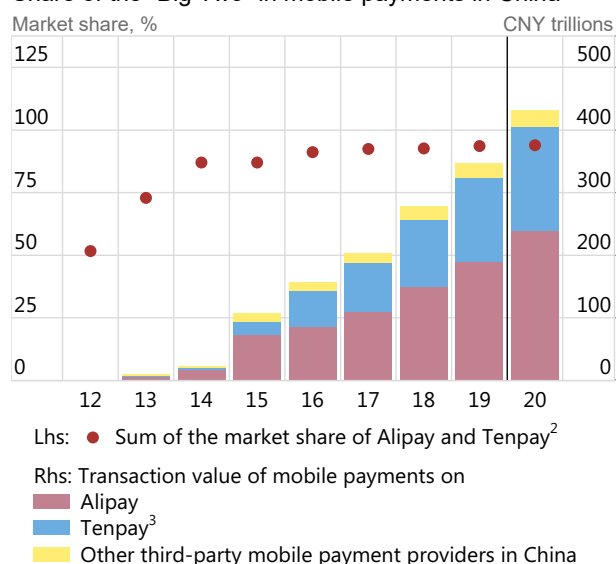
¹⁴ One digital challenger bank noted that servicing SMEs under a government lending programme became a mainstay of its business during the pandemic, growing from a virtually non-existent portfolio to being one of the largest players in SME lending in its core market. Meanwhile, international expansion plans were paused entirely during the pandemic.

costs in the form of compliance, risk, and regulatory affairs. It was posited that they may prefer partnerships with banks to provide higher-margin services that they would not be able to provide on their own. Statutory frameworks in certain jurisdictions also pose constraints on the entry of BigTech and FinTech firms into regulated banking businesses. Still, these stakeholders acknowledged that in some markets, BigTechs are already dominant players in payments, credit, and other services.¹⁵

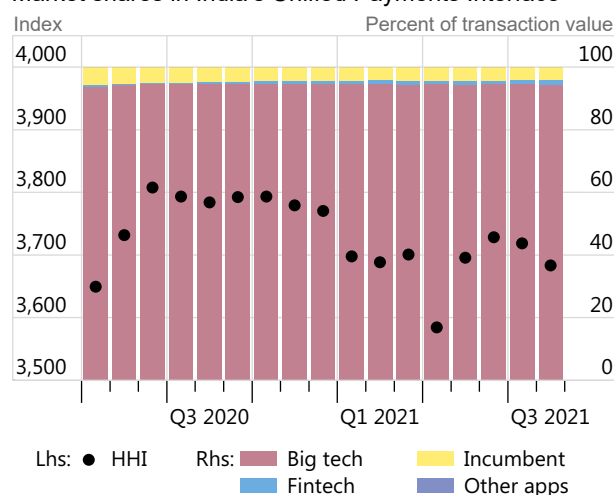
BigTechs dominate digital payments in China and India

Graph 2

Share of the “Big Two” in mobile payments in China¹



Market shares in India's Unified Payments Interface⁴



HHI = Herfindahl–Hirschman Index of market concentration.

¹ The vertical line denotes 11 March 2020, when the WHO characterised Covid-19 as a pandemic. ² Market shares for 2012 are estimated based on market evidence. ³ Tenpay includes WeChat Pay and QQ Wallet. ⁴ The BigTech apps comprise Google Pay, PhonePe, Paytm Payment Bank, Amazon Pay, Airtel Payments Bank Apps, MI Pay, Samsung Pay and WhatsApp Pay. These firms serve as third-party app providers offering front-end services in the Unified Payments Interface; the funds are held in bank accounts by bank payment service providers.

Sources: analysys.cn; Statista, Industries; NPCI; A Carsten, S Claessens, F Restoy and H S Shin (2021), “Regulating big techs in finance,” BIS Bulletin, no 45; FSB calculations.

Some stakeholders noted that they did not yet see a major role of BigTechs in small and medium-sized enterprise (SME) lending, as SME lending is dominated by banks and in certain instances, governments. Other stakeholders stated that the decision to include FinTechs in government lending schemes had benefited customers, who saw their support services delivered more efficiently. Stakeholders also said that many banks must improve the efficiency of anti-money laundering and combating the financing of terrorism (AML/CFT) processes, re-assess the remote authentication process, and consider changes in fee structures going forward, if they are to successfully compete with digital innovators.

The pandemic may have highlighted differences between the technological capabilities of large and small financial institutions. One stakeholder noted that smaller firms without the financial capacity to invest sufficiently in digital technologies may have difficulties growing or retaining their customer base.¹⁶ This is consistent with some market intelligence findings that less

¹⁵ See BIS (2019), *Big tech in finance: opportunities and risks*, June.

¹⁶ Challenger banks with pre-existing lending platforms gained during the pandemic, as they could take advantage of government sponsored lending platforms. Those that did not have a lending arm may have lost market share. See Checkout (2021), p. 36.

prepared incumbent financial institutions were seen to have lost market share.¹⁷ This kind of development could lead to a bifurcated financial sector where digitally modernised institutions grow their asset base, and digital laggards fall further behind. Weakness among digital laggards who perform critical functions, e.g. in lending or payments, could create operational vulnerabilities.¹⁸ Certain stakeholders noted that they anticipate a decline in the overall number of banks, as digital laggards are acquired.

Most stakeholders believe that certain pandemic-induced trends will endure after the pandemic ends. In particular, they note that the pandemic had accelerated trends like the use of remote and digital payments and the ways consumers interact with businesses. Stakeholders also expected (in the medium term) increased cross-border payments, e.g. for e-commerce.¹⁹ Several believe the shift to online financial services, payments, and e-commerce to be structural and do not expect much reversion after the pandemic. However, there are some stakeholders who believe that part of the pandemic-induced changes in client behaviour is transitory, as human-to-human interactions would eventually see some rebound following the easing of COVID restrictions, with face-to-face business such as restaurants and travel resuming.

As consumer business shifts online, the embedded financial component is also shifting. Demand for 24/7 customer support and less human interaction, along with the need to integrate banking offerings onto a platform service, could all pose challenges to incumbent financial institutions. Payment networks and banks also indicated a cultural shift towards more data and technology-driven business models, as users familiarise themselves with digital transactions. Consumer demand for data visualisation and smart-processed data insights is rising, thereby accelerating use of digital banking. FinTech firms suggest that bank customers may be more aware of other options beyond traditional bank services, including for SME loans. Rising use of contactless payments and electronic payments could also change many businesses' reliance on cash.

The pandemic may have contributed to greater market concentration in some segments, but this is not the case across the board. Comprehensive data on market shares are scarce, but some proxies can shed light on concentration. One such proxy is the monthly downloads of retail payment apps offered by BigTechs, FinTechs and incumbent financial institutions. With data on the shares of each of the top apps in overall payment app downloads, we can compute a Herfindahl-Hirschman Index (HHI), which measures market concentration. In advanced economies (AEs), the HHI of payment app downloads had been falling prior to the pandemic, but it rose slightly in 2020 and 2021, on the back of greater downloads of BigTech apps (Graph 3, left-hand panel). The HHI is structurally higher in EMDEs, where BigTechs have a larger market share, but it dropped in 2021 (right-hand panel). Country-specific indicators show that this proxy of concentration in broader retail finance apps varies widely across countries, and that it is not rising universally.

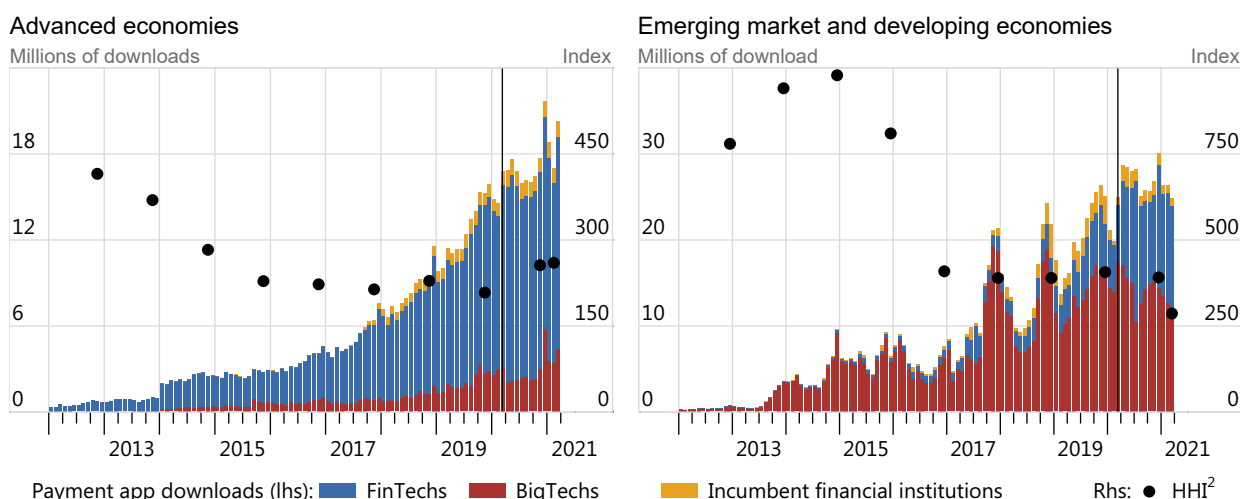
¹⁷ Checkout (2021), *The new state of retail*, p. 6.

¹⁸ Some stakeholders have noted that incumbent firms have large legacy systems in place, and struggle to innovate and modernise as a result. This may contribute to the decline of incumbent firms, particularly smaller ones that lack the capital to modernise.

¹⁹ See McKinsey (2020), *The 2020 McKinsey Global Payments Report* p 7; Checkout (2021), p 5 and 10.

Downloads of the payment apps of FinTechs, BigTechs and incumbents¹

Graph 3



HHI = Herfindahl–Hirschman Index of market concentration. The vertical line denotes 11 March 2020, when the WHO characterised Covid-19 as a pandemic.

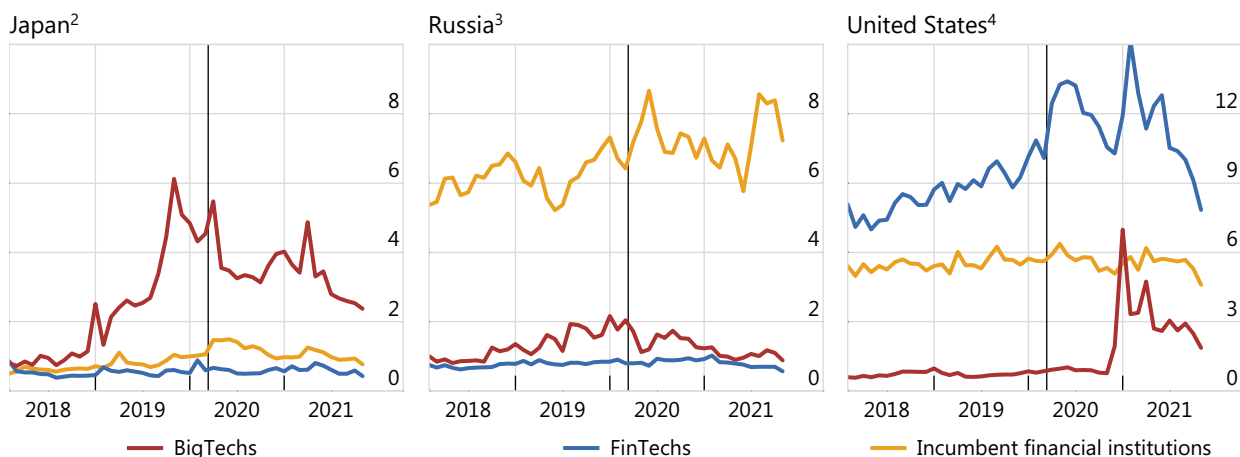
¹ Downloads of all payment apps among the top 50 finance apps as classified by Sensor Tower. “FinTech” refers to apps by new entrants specialised in financial technology; “BigTech” refers to apps by large technology companies whose primary activity is digital services, rather than financial services, and “incumbent financial institutions” refers to apps from commercial banks, insurers, card networks and other financial institutions. ² Yearly average; calculated on the top 50 finance apps as classified by Sensor Tower.

Sources: Sensor Tower; Croxson et al (2022).

Adoption of broader finance apps differs by country¹

Downloads per month, in millions

Graph 4



¹ For each country, downloads refer to the top finance apps on the Apple app store and Google Play. The vertical line denotes 11 March 2020, when the WHO characterised Covid-19 as a pandemic. ² Apps comprise au Jibun Bank App, au PAY, d Card App, d-barai, Google Pay, iSPEED, LINE Pay, PayPay, PayPay Bank, Rakuten Bank, Rakuten Card, Rakuten Edy and Rakuten Pay (BigTechs); bitFlyer, CODE, Kakeibo!, Kantan Okozukai-cho, Monelyze, Money Forward ME, Money Note, Moneytree, Okanereco, PayPal, Receipti, Vandle Card and Zaim (FinTechs); and Japan Post Bank Direct Balance Inquiry App, Japan Post Bank Passbook App, Mitsubishi UFJ NICOS, Mizuho Bank: Mizuho Direct App, Mobile Agent, MUFG Bank, MyJCB, Password Card, Resona Group App, Saison Portal, SBI Securities Stocks App, Sumitomo Mitsui Banking Corporation App and Sumitomo Mitsui Card: Vpass App (incumbent financial institutions). ³ Apps comprise Google Pay and Yandex (BigTechs); PayPal and Qiwi Wallet (FinTechs); and Alfa-Bank, DomClick, FinamTrade, Home credit bank, Halva, Libertex, Money Transfer, MTC Money, Post Bank, Sberbank Online, SberThank you, Tinkoff Bank, Tinkoff Investing and VTB Online (incumbent financial institutions). ⁴ Apps comprise Google Pay (BigTech); Acorns, Cash App, Credit Karma, PayPal, Robinhood, Square and Venmo (FinTechs); BofA, Capital One, Chase, Citi, Discover, Geico, Progressive, Trulia, Wells Fargo, Western Union and Zelle (incumbent financial institutions).

Sources: Sensor Tower; FSB calculations.

Adoption of finance apps differs across countries; for instance, BigTechs have seen rising adoption in Japan (Graph 4, left-hand panel), while incumbent financial institutions dominate in Russia (centre panel). FinTech apps dominate in the United States, with further adoption during the pandemic (right-hand panel). Still, further data are needed to adequately assess market concentration, both across all retail financial applications and in specific markets.

3. Drivers of digitalisation in finance during the pandemic

The COVID-19 pandemic changed retail behaviour as remote work, e-commerce and digital payments greatly increased. That led businesses to expand their digital activities and consumers to rely increasingly on online channels to handle their day-to-day activities. As businesses invest in their online channels and people increase their digital activities, these changes may become structural in the longer term. This section divides factors behind changes in the digitalisation of financial services during the pandemic into supply-side and demand-side drivers.

3.1. Supply-side drivers

On the supply side, public policies and the digital maturity of institutions contributed to changes in the provision of digital financial services during COVID-19. In many cases, these led to differential performance among different financial service providers, especially during the peak of the pandemic. The supply-side drivers are:

- **COVID-19 support measures.** Support measures that facilitated digital transformation can be divided into two main categories: (i) broader fiscal and monetary initiatives to support the economy (including SMEs) and banks, and (ii) direct interventions to promote digital technologies.²⁰ Among the former, several support measures aimed to maintain the ability of banks to provide funds to the real economy.²¹ Financial intermediaries processed a larger-than-usual number of loan applications, boosted by the introduction of a broad programme of public guarantees across a number of jurisdictions. Among the latter, some actions were taken in both AEs and EMDEs to encourage digital payments in order to limit physical contacts.²² Graph 5 reports example of new limits for contactless transactions implemented in selected European countries in the months following the outbreak of the COVID-19 pandemic.
- **Institutions' existing digital infrastructure.** New players and certain incumbent financial institutions that were digitally pre-positioned and had in place a digital infrastructure, were able to readily meet client needs and to continue operations, largely

²⁰ See Annex 3 for an extensive list of measures taken as a response to the COVID-19 outbreak.

²¹ IMF (2020), *Digital Financial Services and the Pandemic: Opportunities and Risks for Emerging and Developing Economies*.

²² Uganda has cut mobile money transfer fees, while Egypt, Liberia and Myanmar have increased transaction size limits. Authorities in Bangladesh, Cameroon, the Democratic Republic of Congo, Ghana, Kenya, Mozambique, Pakistan, Rwanda, Senegal, and Zambia have taken both sets of measures. In other economies, Ireland and UK increased the contactless card limit, Portugal prohibited banks from charging fixed fees per operation, on payments by card. Also, no minimum amount will be required on the cards' payment in Portugal and Mexico. Turkey raised the minimum limit for first-time credit cardholders until December 2020. Saudi Arabia raised E-Wallet top-up Monthly Ceiling Limit (see Annex 3). In Europe, with its *Statement on consumer and payment issues in light of COVID19*, of 25 March 2020, the European Banking Authority (EBA) encouraged Payment Services Providers (PSPs) that have set a lower threshold to raise the limits for contactless transactions without strong customer authentication (SCA) to the maximum allowed under the EU law (€50).

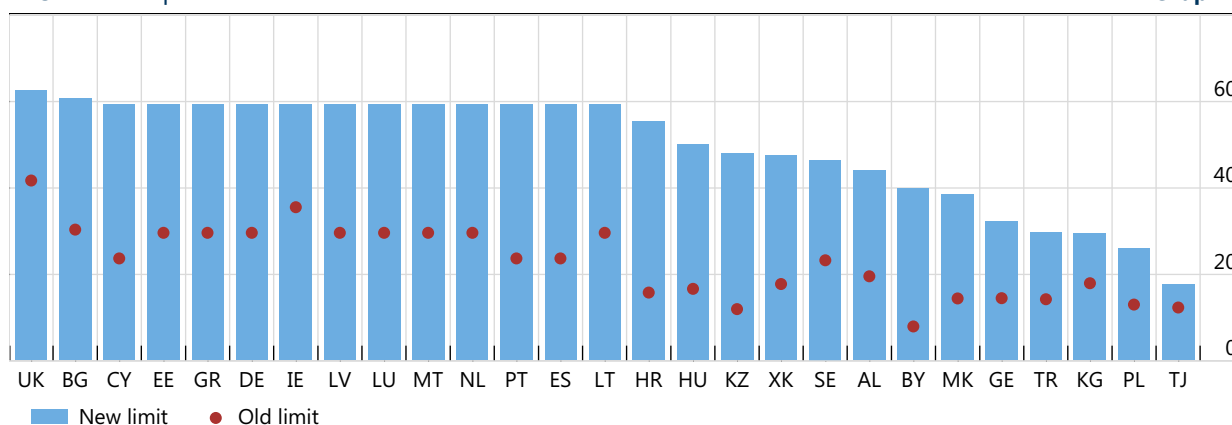
uninterrupted. Similarly, firms that had remote work policies in place pre-pandemic saw a smoother transition. In contrast, for many companies, with more traditional business models or lower digital infrastructure, the move to remote working was not straightforward.²³

- **Regulatory environment for FinTechs and BigTechs.** In some instances, there may be fewer financial regulatory obligations for FinTechs and BigTechs than for banks²⁴ – in part because of the type of services, or segmentation in the financial services supply chain. This may have provided new entrants with greater flexibility for growth. Also, some incumbent financial institutions faced prudential restrictions during the pandemic, such as limitations on stock buybacks and dividend distributions, that BigTechs and FinTechs did not. Conversely, many incumbent financial institutions were able to benefit from central bank liquidity support. (See Section 5 for a discussion of policy measures that may have had an impact on the market structure and the role of FinTechs, BigTechs and incumbent financial institutions). Authorities' evaluation of the nature and adequacy of financial services regulation on BigTechs, for example, remains in its early stages.²⁵

Changes to contactless transaction limits¹

In US dollar equivalents

Graph 5



¹ Changes in the maximum payment size allowed for contactless payment methods prior and post Covid-19.

Sources: Mastercard Inc.; FSB calculations.

- **Robust business lines.** Some FinTech banks had in place a lending business pre-pandemic and were positioned to participate in government benefit distribution schemes. In the process, they quickly grew their loan books.
- **Wide client network.** Prior to the pandemic, most BigTechs and certain FinTechs had a large client network. Meanwhile, those incumbent financial institutions that had rolled

²³ See BAI et al (2021) *Digital Resilience: How Work-From-Home Feasibility Affects Firm Performance*. Results indicate that firms with higher digital resilience, as measured through a pre-pandemic work from home (WFH) index, performed significantly better in general, and in non-essential industries in particular, where WFH feasibility was necessary to continue operation. The ability to use digital technologies to work remotely also mattered more in non-high-tech industries than in high-tech ones. Lastly, they found evidence that firms with lower pre-pandemic WFH feasibility attempted to catch up to their more resilient competitors via greater software investment. This is consistent with a complementarity between digital technologies and WFH practices.

²⁴ See Stulz (2019), *FinTech, BigTech, and the Future of Banks*, *Journal of Applied Corporate Finance*, vol 31, no 4, pp 86–97.

²⁵ For research insights, see BIS (2019) and de la Mano and Padilla (2019), *Big Tech Banking*, *Journal of Competition Law & Economics*, vol 14, no 4, pp 494–526. These sources note that BigTechs have a wider customer base, access to unique information, broader ranging business lines and cross-selling opportunities.

out digital services within their client network pre-pandemic were in the strongest position to maintain and grow business operations during the crisis.²⁶

3.2. Demand-side drivers

In adapting to pandemic mitigation actions, most firms and households changed their demand for financial services. Key drivers on the demand side included the following.

- **Payment habits.** There has been a clear demand shift towards digital and contactless payments.²⁷ For instance, in the IMPACT survey conducted across Eurozone by the ECB in July 2020,²⁸ 40% of respondents said that since the outbreak they were using contactless payment cards more often, and a comparable percentage said they used cash less often.²⁹ This reduction in cash use would appear to be lasting. Of those who said that they had paid less in cash during the pandemic, 87% said that they would continue to do so when the coronavirus crisis is over.
- **Reduced physical mobility.** Both anecdotal and more formal evidence suggest that digital banking increased during the pandemic because of a sharp decline in customer willingness or ability to visit bank branches.³⁰ It is unclear whether this trend will persist post-COVID-19.
- **Search for convenience.** Financial institutions and technology companies highlight that customer ‘search for convenience’ is strongly driving the trend toward platformisation across all sectors, including finance.³¹ This trend has been accelerated by the COVID-19 crisis as customers have sought to access products and services online as opposed to attending physical premises.
- **Additional household savings.** Due to COVID-19 lockdown, where spending was curtailed, some (particularly higher-income) households saw a substantial increase in bank deposits.³² As for investments, increased savings combined with a low interest

²⁶ Bai et al (2021) also find that “larger firms (including “digital superstars”) tend to be more IT-intensive (e.g. Amazon, Microsoft, Apple, IBM, Google, and Facebook to name a few) and are more likely to be in the high pre-pandemic WFH group. They therefore suffered significantly less than smaller firms.” (page 14)

²⁷ See BIS (2021), *Covid-19 accelerated the digitalisation of payments*, December.

²⁸ See ECB (2020), *Study on the payment attitudes of consumers in the euro area (SPACE)*, pp 23-24. December.

²⁹ Similar results can be found in several national studies from European countries, e.g. Jonker et al (2020), *Pandemic payment patterns*, DNB Working Paper no 701; Sintonen et al (2021), *COVID-19 pandemic causing permanent change in payment habits*, Bank of Finland *bulletin* no 2; Ardizzi et al (2020), *A Game Changer in Payment Habits: Evidence from Daily Data During a Pandemic*, Bank of Italy *Occasional Paper* no 591; and Kraenzlin et al (2020), *COVID-19 and regional shifts in Swiss retail payments*, *Swiss Journal of Economics and Statistics* 156.1.

³⁰ For anecdotal evidence, see Wells Fargo (2020), *“Wells Fargo Stories: Digital banking soars in the Covid Pandemic,”* May; The Economist (2020), *“How the digital surge will reshape finance,”* October. For formal analysis, see Branzoli et al (2021), *The role of banks’ technology adoption in credit markets during the pandemic*, September, mimeo; and Kwan et al (2021), *Stress testing banks’ digital capabilities: Evidence from the covid-19 pandemic*, March, mimeo.

³¹ For a European perspective on the trend towards platformisation and the regulatory and supervisory implications, see the EBA (2021) *Report on the use of digital platforms in the EU’s banking and payments sector*, September.

³² For evidence from the EU, see ECB (2020), *COVID-19 and the increase in household savings: precautionary or forced?* *Economic Bulletin* Issue 6/2020. For evidence from the Netherlands, see DNB (2021), *Households expect not to spend the vast majority of savings accumulated during the pandemic period on consumption*, 26 August. For evidence from OECD countries, see Christensen et al (2020), *The increase in bank deposits during the COVID-19 crisis: Possible drivers and implications*, OECD Economics Department, December.

rate environment, may have also encouraged retail investors to invest in equities,³³ and in riskier crypto-assets.³⁴ For example, in France, the number of retail purchases of equities in the SBF120 index increased fourfold in March 2020, and overall volumes tripled.³⁵ New retail clients accounted for up to 20% of the amount invested in equities. Data on transactions in the Belgian market showed a similar overall trend.³⁶ There, a breakdown by age group revealed that those aged 18-35 saw the greatest increase in trading activity, accounting for around 10 times as many purchases of shares in the BEL 20 index as in a comparable period pre-pandemic. In the United States, existing retail investors increased trading activity, while the number of new investors rose significantly.³⁷ Other jurisdictions experienced similar trends.³⁸

4. Benefits and risks of changes in market structure

4.1. Potential benefits

As previously underscored in FSB work on FinTech, innovative uses of digital technology can lead to more efficient and lower-cost delivery of financial services.³⁹ This is partly because they reduce the cost of providing financial services, for instance by replacing paper-based, labour-intensive methods with automated processes, and by reducing the need for physical infrastructure.⁴⁰ Moreover, technology may make markets more contestable by facilitating the entry and exit of firms. An example is internet banking, which has reduced fixed costs for some bank products and rendered the market for time deposits more contestable.⁴¹ Greater contestability of markets can foster competition and lower costs for consumers. Yet it also may incentivise incumbent financial institutions to prioritise market share through sales rather than operating profit.⁴² Also, owing to increased rates of digitalisation, many financial service activities now take place remotely, allowing for operational continuity through disruptive events, like the COVID-19 pandemic. Deployment of BigTech services, such as cloud computing, can include benefits such as cost reductions, flexibility, scalability, and standardisation, as well as improvements in security and operational resilience.

³³ For instance, in Russia, 5.6 million new clients started investing in the stock market in 2020. For more on the rising influence of retail investors, see BIS (2021), *Quarterly review, International Banking and Financial Markets developments*, March.

³⁴ According to *The 2021 Geography of Cryptocurrency Report* by Chainalysis (October 2021), at the end of Q2 2021, total global adoption of crypto assets rose from 2.5 (based on their summed-up country index scores) to 24, suggesting that global adoption has grown by over 2300% since Q3 2019 and over 881% in the last year.

³⁵ AMF (2020), *Retail investor behaviour during the COVID-19 crisis*, April.

³⁶ FSMA (2020), *Belgians trade up to five times as many shares during the coronavirus crisis*, May. For an extended set of findings, see Priem (2020), "The impact of the COVID-19 confinement on the financial behaviour of individual investors."

³⁷ S&P Global Market Intelligence (2021), "US FinTech Market Report," February.

³⁸ Consob (2020), *Report of financial investment of Italian households*.

³⁹ For an extensive discussion, see FSB (2017), *Financial Stability Implications from FinTech: Supervisory and Regulatory Issues that Merit Authorities' Attention*, June; FSB (2019a), BIS (2019) and Feyen et al (2021).

⁴⁰ See Feyen et al (2021), *FinTech and the digital transformation of financial services: implications for market structure and public policy*, BIS Paper, no 117.

⁴¹ See Corvoisier and Gropp (2009), "Contestability, Technology and Banking," ZEW Discussion Paper 09-007; Gropp and Kok (2017), "Competition and contestability in bank retail markets," in Bikker and Spierdijk (eds.), *Handbook of Competition in Banking and Finance*, chapter 17, pp. 365-382, Edward Elgar Publishing; and Verdier and Mariotto (2015), "Innovation and Competition in Retail Banking," *Communications & Strategies*, pp.129-145.

⁴² See Baumol et al (1982), *Contestable markets and the theory of industry structure*, Rochester and New York: Saunders College Publishing/Harcourt Brace Jovanovich.

Contestability can also contribute to financial stability when competitive incentives support stable business models of financial institutions and influence the overall efficiency gains in the financial system and the real economy.⁴³ But financial innovation can foster financial stability in other ways too, as increasing diversity and choice in the financial services may reduce vulnerabilities and support stability in times of negative shocks. Financial innovation can also benefit inclusion by improving access to financial services. Even those living remotely from bank branches can now access financial services via mobile devices and computers. The absence of physical presence often results in lower costs to the provider, which may be passed on to the consumer; digital innovation can lower these fixed costs.⁴⁴

Another area where innovations can provide benefits is cross-border payments and remittance transfer systems.⁴⁵ Legacy cross-border payment systems tend to be cumbersome, costly, and slow. New business models, such as innovative payment rails and digital identities, may allow for less expensive and more efficient cross border payments.⁴⁶

4.2. Potential risks

With innovative market developments come risks, particularly where changes are swift and – in the case of BigTechs – operate cross-border via existing networks. Where new entrants fall outside of the regulatory perimeter, it can be difficult to assess risks, including threats to resilience and financial stability. This is particularly visible in a scenario of new entrants disrupting incumbent financial service providers, leading to disintermediation, with implications for supervision and regulation and – potentially – financial stability.⁴⁷ The greater reliance on technology through digitalisation may also create new vulnerabilities, e.g. exposure to cyber incidents. This can be the result of a malicious activity (e.g. cyberattacks, fraud or phishing) or operational problems (e.g. computer system failure). In any case, they have the potential to cause disruptions in the provision of financial and payment services. This section focuses on potential vulnerabilities caused by changes in market structure that may have financial stability implications.

Digitalisation of many financial service providers has resulted in additional complexity and opacity, which is a regulatory challenge. Many incumbent firms collaborate with FinTechs and BigTechs to accelerate their digital presence. For instance, new digital banking licenses in Hong Kong are often granted to groups of technology firms and incumbent banks in partnership. Similar partnerships are emerging in other jurisdictions. There are further examples where incumbents are collaborating with FinTech lending platforms. These kinds of often complex corporate structures can make it difficult for supervisors and regulators to gauge potential risks. It may be even more challenging to gain transparency when BigTechs are performing services, outside their primary domicile. It is also unclear if regulatory arbitrage may play a role in some of these BigTech and FinTech corporate structures and co-operations.

⁴³ FSB (2017).

⁴⁴ See Philippon (2020), *On FinTech and Financial Inclusion*, BIS Working Paper No. 841.

⁴⁵ See IMF and World Bank (2018), *Bali FinTech Agenda*, October.

⁴⁶ See Ehrentraud et al (2021), *FinTech and payments: regulating digital payment services and e-money*, FSI Insights, no 33, July.

⁴⁷ See BCBS (2018), supervisors, February.

A related concern is that competition from BigTech and FinTech entrants may create incentives for incumbent financial institutions to increase risk-taking. For instance, as existing business models come under pressure, incumbent banks and insurers could engage in riskier lending or investment activities to preserve market share and profits.⁴⁸ Whilst it is not the role of regulators and supervisors to protect incumbent financial institutions from competition, they 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 and FinTech firms may pose.⁴⁹

Meanwhile, the financial stability risks from BigTechs and FinTechs may become increasingly relevant. From a regulatory and supervisory perspective, the risks associated with the complexity and opacity of BigTechs' activities in some jurisdictions are more difficult to assess when such firms operate outside the regulatory perimeter.⁵⁰ BigTechs typically have platform-based business models which enable them to operate globally and access a global retail client base, challenging national regulators. Like FinTechs, BigTechs often only participate in one segment of the financial services value chain that can place them outside of regulatory reporting and financial supervision. This relationship may place limitations on the ability of supervisors to collect data, manage risks and – if needed – to respond. Even in the case of outsourcing and third-party arrangements, there are challenges and issues relating to the ability of financial institutions to negotiate and exercise appropriate access, audit, and information rights, both for the institutions themselves and for their supervisory and resolution authorities.⁵¹ As of now, regulators and supervisors can only estimate the scale of BigTech and FinTech activities in finance.⁵²

Systemic risk can also arise from the increasing interconnectedness of BigTechs and FinTechs with other market participants such as financial market infrastructures (FMIs), if consequent risks and relationships are not well understood and managed.⁵³ Payment systems and investment services developed and operated by BigTechs and FinTechs could have increasing exposures and potentially contagion effects to FMIs and other participants in the financial ecosystem. Again, a regulator may be challenged to fully understand the risk profile of a BigTech when it operates outside its primary jurisdiction.

Another potential vulnerability that is especially relevant to BigTech is concentration risk. For example, just four BigTechs provide nearly two thirds of global cloud services, an accelerating service for the financial sector. Cloud services may introduce access to new applications, facilitate the use of AI and machine learning, and potentially allow for cost efficiencies and some benefits to resilience. However, this concentration raises questions regarding the possible vulnerabilities that may arise from operational failures, insolvency, or cyber-attacks from a limited number of providers. Moreover, there may be unexpected forms of interconnectedness and

⁴⁸ See Brits et al (2021), *Changing Landscape, Changing Supervision: Developments in the Relationship between BigTechs and Financial Institutions*, DNB, November.

⁴⁹ FSB (2020a).

⁵⁰ For a discussion of this issue from an EU perspective, see further the EBA (2021) report referred to in footnote 31. The report sets out recommended actions to improve financial sector supervisors' visibility over dependencies on digital platforms and measures to improve monitoring of new forms of interconnection and concentration risk.

⁵¹ FSB (2020b), *Regulatory and Supervisory Issues Relating to Outsourcing and Third-Party Relationships*, November.

⁵² See Cornelli et al (2020) for estimates, and caveats about the lack of transparency on some BigTech firms in particular.

⁵³ See Harasim (2021), *FinTechs, BigTechs and Banks—When Cooperation and When Competition?*, Journal of Risk and Financial Management (December).

uniformity from the widespread use of new data sources and deep learning.⁵⁴ The FSB is analysing regulatory and supervisory issues associated with financial institutions' reliance third-party providers.⁵⁵

Data gaps remain an important matter of concern. Depending on the business model, BigTech and FinTech activities may not be captured by jurisdictions' existing reporting requirements in payments, credit, insurance, and wealth management.⁵⁶ In general, data on the size and characteristics of BigTech and FinTech activities are lacking in official central bank and regulatory statistics.⁵⁷ These data gaps can hamper the assessment of the financial risks or potential systemic importance that new entrants may introduce. This leads to a "Catch 22" situation, where risks and systemic importance are key considerations to decide whether to modify the regulatory perimeter or conduct more intensive surveillance, but where the information to assess those risks and systemic importance are only available for institutions falling within the regulatory perimeter.

Jurisdictions generally have various regulatory authorities and frameworks in place relating to BigTechs and FinTechs. Across many jurisdictions, regulation appears primarily dependent on specific activities conducted by firms. In the United States, there is no single licensing or regulatory agency with oversight of all BigTechs and FinTechs at the state or federal levels. Rather, different regulators have authority at different levels for BigTech and FinTech activities. The United Kingdom (UK) also does not maintain any specific laws or regulations differentiating between BigTechs and FinTechs. The Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA) serve as the UK's financial regulators, and all firms and individuals in the UK must be authorised by the FCA to carry out regulated financial services activities and offer credit to consumers. Separate authorities – in particular, the Competition and Markets Authority (CMA) and Information Commissioner's Office (ICO) – are responsible for competition and data protection regulation of FinTech and BigTech firms, though in practice authorities work closely together. The UK government has also recently consulted on the collaboration between regulators for their proposed digital competition regime, noting the roles of the CMA, ICO and FCA on BigTech issues. The same is true in the EU, where legislative initiatives are also underway to regulate the activities of critical ICT service providers (e.g. cloud service providers) and gatekeeper platforms.⁵⁸ In China, regulatory authorities have implemented new requirements to enhance the regulation of large non-financial companies that have significant interest in financial services.⁵⁹

In addition to the complexity of regulatory frameworks mentioned above, there is a risk of potential regulatory gaps as FinTechs' and BigTechs' financial service product offerings expand rapidly.⁶⁰ In this light, a number of jurisdictions have already taken actions on the scope of

⁵⁴ See Gensler and Bailey (2020), *Deep Learning and Financial Stability*, November 1.

⁵⁵ See FSB (2020b).

⁵⁶ In Germany, for instance, robo-advisors are licensed under the Trade, Commerce and Industry Regulation Act (*Gewerbeordnung*) and are thus not subject to supervisory reporting requirements. This is also true for FinTechs that provide software solutions.

⁵⁷ IFC (2020), *Towards monitoring financial innovation in central bank statistics*, IFC Report No. 12.

⁵⁸ The legislative proposals for the *Digital Operational Resilience Act (DORA)* and the *Digital Services and Digital Markets Acts (DSA and DMA)*. For a brief summary see Text Box 3 of the EBA (2021) report referred to in footnote 31.

⁵⁹ See Carstens et al (2021): *Regulating Big Techs in Finance*, *BIS Bulletin*, No 45.

⁶⁰ See Crisanto et al (2021), *Big tech regulation: what is going on?* September 29.

regulation. Mexico has a Fintech Law that regulates debt, capital, and royalty crowdfunding as governed by the Comisión Nacional Bancaria y de Valores (CNBV).⁶¹ Yet this law does not cover major BigTech firms active in lending or other areas. In Brazil, the Brazilian Central Bank, National Monetary Council (Conselho Monetário Nacional) (CMN), and Brazilian Securities Commission (CVM) regulate the Brazilian financial system where companies providing regulated services must request permission to operate in Brazil or enter into partnerships with regulated entities.⁶² In many countries in Africa, laws and regulations primarily pertain to traditional banking services, and do not address many innovative products and services. However, countries such as Nigeria, Ghana and Kenya are introducing new legislation to regulate FinTech products and services.

4.3. Assessment of changes since the pandemic

The changes during the pandemic broadly confirm earlier FSB analysis on FinTech and market structure.⁶³ Yet the speed of changes during the pandemic may add additional urgency to some financial stability implications, in particular around the potential for the systemic importance of BigTechs. As shown above, particularly BigTechs, larger FinTechs and incumbent financial institutions that were agile and able to invest in digital technologies seem to have gained market share in retail financial services. Incumbent financial institutions that were unable to keep up with these developments and provide their customers with the online services they demanded seem to have lost market share. While available proxies do not yet show a broad-based increase in market concentration, BigTechs do tend to dominate specific markets (e.g. cloud services, mobile payments in some EMDEs). As such, there are concerns that an operational incident could lead to serious risks to domestic financial systems. It is important that authorities use available data to assess such risks for their own jurisdictions.

The continuation of these trends after the pandemic could lead to more far-reaching structural changes in the financial sector. Three potential scenarios stand out for their financial stability effects:

- (i) more FinTechs entering financial services, taking over market share in niche services where incumbent financial institutions are less able to innovate and meet customer demands;
- (ii) potentially fewer large incumbents through consolidation driven by lower margins and the need to invest more in technology; and
- (iii) greater BigTech entry or partnership with incumbents.

The implications of these scenarios would differ. Since FinTechs typically do not offer the full range of banking and payments services but only a part of the value chain, scenario (i) is likely to lead to a more diversified market structure but (potentially) to a larger share of financial activities taking place outside of the current regulatory perimeter. Scenarios (ii) and (iii),

⁶¹ See International Comparative Legal Guide (ICLG) (2021a), "[ICLG - Mexico](#)," accessed 1 September.

⁶² See ICLG (2021b), "[ICLG - Brazil](#)," accessed 1 September.

⁶³ See FSB (2019) and FSB (2020a; 2020b).

meanwhile, may lead to more incumbents and BigTechs becoming so large or dominant that their failure could have a severe impact on economic activity (too-big-to-fail). In all cases, a greater amount of online business is likely to structurally increase vulnerabilities to cyber incidents.⁶⁴ These changes may thus quickly have relevance for regulatory policies and some jurisdictions are already taking forward actions to consider the implications for the regulatory and supervisory perimeter.⁶⁵

5. Regulatory changes during the pandemic

Since the COVID-19 pandemic, authorities took a number of policy measures that may have an impact on market structure and the role of FinTechs, BigTechs and incumbent financial institutions. Some measures (e.g. government lending programmes, changes in contactless payment limits, new security standards or guidelines due to the increasing digitalisation of financial services and the consequent higher reliability on technology) were taken in response to the pandemic, while others (e.g. new regulatory and anti-trust proposals for BigTechs) were related to BigTechs' activities and not to the pandemic. Also, in the EU, United States and China, legislators have debated various potential new provisions affecting for BigTechs.⁶⁶ This section provides a brief overview of recent changes in prudential and conduct regulation in some FSB jurisdictions relating, but not limited, to BigTechs and cloud services. Annex 2 gives more details on monetary and fiscal support measures that may impact market structure.

In the EU, the European Commission has set an action plan to both unlock the benefits and address the risks brought by digital finance and market structure changes.⁶⁷ While predating COVID-19, these measures are particularly relevant in light of the accelerated digitalisation of financial services spurred by the pandemic. This includes the recent proposal for the Digital Operational Resilience Regulation (DORA).⁶⁸ DORA proposes a new oversight framework for those digital and communications technology (ICT) service providers that are critical to the financial sector. The framework aims to monitor and address concentration risk and systemic risk that may arise from critical third-party provision of ICT services, e.g. cloud services. Moreover, in February 2021, the European Commission published a call for advice to the European Supervisory Authorities (ESAs) regarding digital finance and related issues. It calls on the three ESAs to provide advice on the regulation and supervision of more fragmented or non-integrated value chains, platforms and bundling of services, and risks of groups combining different activities (so called “mixed activity groups”).⁶⁹

In the United States, the Federal Reserve Board, the Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC) took a number of emergency actions in response to the economic disruption caused by the spread of COVID-19, including issuing regulations to facilitate use of the Federal Reserve's emergency lending facilities and

⁶⁴ Moreover, there are indications that the financial sector was hit more than other sectors during the pandemic. See Aldasoro et al (2021), *Covid-19 and cyber risk in the financial sector*, BIS Bulletin no 37.

⁶⁵ See, for example, the European Commission's February 2021 Call for Advice on digital finance, which mandates the European Supervisory Authorities to consider the role of BigTechs in the EU financial sector and to report by the end of January 2022.

⁶⁶ See Carstens et al (2021).

⁶⁷ European Commission (EC) (2020), *Digital finance package*, 24 September.

⁶⁸ EC (2021), *Digital finance package: Council reaches agreement on MiCA and DORA*, 24 November.

⁶⁹ In response to the European Commission's call for advice, a *Joint Report was published by the ESAs in February 2022*.

making temporary, targeted changes to its prudential standards and modifying compliance deadlines to smooth market functioning.⁷⁰ On 9 July 2021, President Biden issued an executive order that aims to promote competition across markets in the U.S. economy.⁷¹ Among other things, the order encourages regulatory agencies such as the Federal Trade Commission to adopt new rules and policies regarding data collection and unfair competition on internet marketplaces.⁷²

In China, certain large platform -based FinTechs and BigTechs had regulatory examinations over the past year. All of the platforms were alerted to concerns as to their financial and business models, which suggested they were in need of restructuring. Rectification measures were also required, which covered various aspects of the business such as the need to apply for financial services licenses before starting businesses and to include all their financial activities under the realm of financial supervision. Payment service providers were required to disconnect linkages between payment instruments and other financial products. Others were required to apply to transform themselves into a financial holding firm. In late 2020, the China Banking and Insurance Regulatory Commission (CBIRC) released and asked for public comments on interim measures and provisions for online small loan business, which imposed tighter scrutiny of licensing, higher capital requirements and improved consumer protection measures.⁷³ In January 2021, a draft regulation on non-bank payment institutions was released, where one of the measures strengthened the anti-monopoly supervision of payment services provided by non-bank institutions to maintain fair competition in the payment service market. China has several anti-trust actions in process that seek to restore efficient market competition in the public interest.⁷⁴

A number of other jurisdictions are taking notable actions impacting BigTechs. For instance, the Brazilian central bank suspended the license for WhatsApp Pay in June 2020, citing concerns about market competition.⁷⁵ The country has moved ahead with a fast payment system, Pix, designed to create a competitive level playing field across payment service providers. In India, the National Payments Corporation of India (NPCI) introduced rules barring any single provider from processing more than 30% of all transactions in the country in a three-month period.⁷⁶ In April of 2021, the Central Bank of the Republic of Argentina (BCRA) published a collection of guidelines for the proper response and recovery when cyber-incidents occur.⁷⁷ The guidelines were directed not only to local financial institutions but also to payment service providers (PSPs) that offer payment accounts and financial market infrastructures (although other FinTech and BigTech firms were left out). The initiative included the recommendations made by the FSB

⁷⁰ See Financial Stability Oversight Council (FSOC) (2020), "[2020 Annual Report](#)," December, Section 4.3.1.

⁷¹ See Kendall and Tracy (2021), "[Biden Targets Big Business in Sweeping Executive Order to Spur Competition](#)," *WSJ*, July.

⁷² The White House (2021), "[Executive Order on Promoting Competition in the American Economy](#)," 9 July.

⁷³ CBIRC and People's Bank of China (PBC) (2021), "[网络小额贷款业务管理暂行办法 \(征求意见稿\)](#)" ("Interim Measures for the Administration of Online Small Loans (Draft for Solicitation of Comments)"), 3 November.

⁷⁴ For example, certain BigTechs have been accused of using economies of scale and market power to put local food retailers at a disadvantage.

⁷⁵ See Mari (2020), "Brazil suspends WhatsApp payments amid fears over market competition," *ZDNet*, June.

⁷⁶ See Chowdhury and Thayil (2021), "[NPCI's volume cap circular: will limits on UPI transaction volumes impact India's fintech sector?](#)" *The Economic Times*, 10 May.

⁷⁷ Communication "A" 7266.

about effective response and recovery practices before cyber-incidents.⁷⁸ Finally, the BCRA published rules, recommendations and guidelines on cybersecurity.⁷⁹

Meanwhile, related policy measures such as data localisation and changes to data privacy regulation, while often broader than financial services, frequently have a large impact on BigTechs, FinTechs, and financial institutions with data-intensive business models.

6. Conclusion

The COVID-19 pandemic has had a significant impact on market structure in retail financial services. While many changes described in this report are still underway, and data are becoming available with a time lag, the evidence presented here suggests that trends toward digitalisation of financial services have accelerated and that at least some changes may persist.

Comprehensive data on market shares in retail financial services are scarce. However, available proxies and insights from market participants suggest that BigTechs in particular have further expanded their footprint in financial services. Larger FinTechs and incumbent financial institutions have also benefited, as they have been able to use their investments in digital technologies and their large client bases to further build out market shares. Smaller FinTechs and digital laggards appear to have benefited to a lesser degree and may struggle to compete going forward. The trend toward greater use of digital financial services may bring many benefits for efficiency and financial inclusion, and for the diversity of the financial sector. But a greater market share of larger players could lead to greater concentration in some markets.

The implications of these developments for financial stability are broadly in line with earlier FSB analysis of market structure and BigTechs in finance. As before, there are certain issues around the potential systemic importance of BigTechs and larger FinTechs, the complexity and opacity of partnership activities, and the incentives for risk-taking by incumbent financial institutions impacted by these developments to preserve profitability. The acceleration of the trends previously identified – such as greater market share by new entrants and a greater use of a partnership model between incumbents, FinTechs and BigTechs – suggests that these financial stability implications may be increasing.

In several jurisdictions, authorities have taken regulatory actions during the pandemic that may impact market structure. In particular, many authorities are enacting specific entity-based rules on BigTechs that tackle issues of financial stability, competition and data governance. In parallel, there is international work on third-party dependencies of the financial sector.⁸⁰ This highlights the importance of cooperation between regulatory and supervisory authorities, including those charged with overseeing the bank and non-bank sectors, and where relevant, with competition and data protection authorities. This may be particularly important for policy measures on BigTechs providing financial services.

⁷⁸ See FSB (2020), *Effective Practices for Cyber Incident Response and Recovery*, 19 October.

⁷⁹ See BCRA (2021), *Ciberseguridad*.

⁸⁰ See FSB (2020), *Regulatory and Supervisory Issues Relating to Outsourcing and Third-Party Relationships: Discussion paper*, November; Bains et al (2022), *BigTech in Financial Services: Regulatory Approaches and Architecture*, IMF Staff Note, January.

Annex 1: Glossary

This glossary includes a number of terms used in this report. Where available, definitions are aligned with previous reports of the FSB, standard-setting bodies and other international groups.

Application programming interface (API): a set of rules and specifications followed by software programmes to communicate with each other, and an interface between different software programmes that facilitates their interaction.

BigTech or BigTech firms: large technology companies that expand into the direct provision of financial services or of products very similar to financial products.

Cloud computing: an innovation in computing that allows for the use of an online network ('cloud') of hosting processors so as to increase the scale and flexibility of computing capacity.

Concentration: the degree to which an industry's total output is produced by a small number of firms.

Contestability: the possibility for new companies to enter a market and create competition to the incumbents.

Distributed ledger technology (DLT): a means of saving information on a distributed ledger, i.e., a repeated digital copy of data at multiple locations, as in blockchain.

FinTech: technology-enabled innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on the provision of financial services.

FinTech credit: credit activity facilitated by electronic platforms whereby borrowers are matched directly with lenders.

Market structure: the interrelation of companies in a market that impacts their behaviour.

Robo-advisors: Applications that combine digital interfaces and algorithms, and can also include machine learning, in order to provide services ranging from automated financial recommendations to contract brokering to portfolio management to their clients.

Annex 2: Selected policy measures affecting market structure

During the COVID-19 pandemic, many authorities took policy measures that could affect market structure going forward. This annex provides a brief overview of selected measures.

In the EU, fiscal authorities announced a range of measures, including fiscal stimulus, loan guarantees and tax holidays. Central banks provided support to banks by injecting liquidity and supported markets by announcing large-scale purchases of corporate and government bonds, resulting in a sizeable increase of their balance sheets. At the EU systemic level, the ESRB provides an overview of policy measures by member states in response to the COVID-19 pandemic, which include debt moratoria, public guarantee schemes and other measures of a fiscal nature.⁸¹ The ECB's EUR 1,850bn pandemic emergency purchase programme (PEPP), which complements the asset purchase programmes in place since 2014, aims to lower borrowing costs and increase lending in the euro area.⁸² The EU has also set up a EUR 800bn fund, NextGenerationEU, with a view to support the recovery from the pandemic and the transition to a greener and more digital economy.⁸³

In the United States, the federal government implemented multiple measures to address the impact of the pandemic, totalling in the trillions of dollars.⁸⁴ The largest, the Coronavirus Aid, Relief, and Economic Security (CARES) Act, was signed into law on March 27, 2020, which authorised approximately \$2.6 trn in funding to address COVID-19 and to support the economy, households, businesses, and other entities.⁸⁵ The Federal Reserve lowered the federal funds target range to near zero and substantially increased purchases of US Treasury bonds and agency mortgage-backed securities to ease liquidity pressures. The Federal Reserve launched a series of facilities to provide liquidity to primary dealers, depository institutions, money market funds and foreign central banks. These credit and lending facilities were developed with the goal of supporting the flow of credit to households and businesses and relieving strains in longer-term debt markets through the pandemic.

Interestingly, FinTechs were active participants in some of the government lending programs, such as the Paycheck Protection Program. The Small Business Administration (SBA) reported that FinTechs processed 1.4 million PPP loans totalling \$27.9 billion throughout 2020-2021. Reports published by the SBA on the PPP also highlighted that non-bank lenders reached smaller businesses and businesses in low- and middle-income areas with a higher proportion of their loans than most other types of lenders, including banks, credit unions, and community financial institutions.⁸⁶

⁸¹ ESRB (2021), [Policy measures in response to the COVID-19 pandemic \(europa.eu\)](https://www.esrb.europa.eu/en/policy-measures-in-response-to-the-covid-19-pandemic).

⁸² [Our response to the coronavirus pandemic \(europa.eu\)](https://www.esrb.europa.eu/en/policy-measures-in-response-to-the-covid-19-pandemic).

⁸³ [NextGenerationEU](https://www.nextgenerationeu.eu/).

⁸⁴ <https://home.kpmg/xx/en/home/insights/2020/04/united-states-of-america-government-and-institution-measures-in-response-to-covid.html>; <https://datalab.usaspending.gov/federal-covid-funding/#section-budget>; <https://www.pgpf.org/blog/2021/03/heres-everything-congress-has-done-to-respond-to-the-coronavirus-so-far>; (As of March of 2021, six major bills were enacted to help manage the pandemic and mitigate the economic burden on families and businesses with a total cost of approximately costing about \$5.3 trillion).

⁸⁵ FSOC Annual Report 2020.

⁸⁶ https://www.sba.gov/sites/default/files/2021-09/PPP_Report%20-%202020-08-10-508.pdf.

Table 1 provides a selected overview of specific regulatory measures in other jurisdictions that could affect market structure going forward.

Table 1: Examples of support measures that may have impacted market structure in the pandemic

Jurisdiction	Measure (Description)	Objective/motivation
Argentina	Since February 2020, the current interest rate limit for credit card financing (nominal annual rate of 43%) applies to financing of up to ARS 200,000 per account. In case of higher amounts, the limit established in the Credit Card Law will be applied to the excess amount.	To ensure that the financial system can provide support to both companies and households, in a context of gradual reduction of sanitary restrictions at the local level.
China	The PBC raised the payment ceiling of the Bulk Electronic Payment System (BEPS) during the Chinese Spring Festival in 2020 to ensure the smooth flow of all kinds of funds and satisfy needs of relative parties. In addition, two monetary policy instruments were announced as the following: • Use of CNY 400billion of a special re-lending quota to purchase 40% of inclusive loans to small and micro businesses, issued by local banks. • Allowing small and micro businesses to apply for deferring their inclusive loan repayments, maturing by end-2020 to 31 March 2021, with penalty payment exempted.	Raising the ceiling of BEPS was mainly to satisfy the demand of high-value fund transfer during the period of pandemic control and prevention. Whereas the other monetary policy instruments were introduced to directly channel funds into the real economy, hence, strengthen the support to SMEs.
Indonesia	Payment system policies: Reduced fund transfer charges (SKNBI) for banks and customers is extended until 30 June 2021. Reduced fund transfer charges (RTGS) for banks and customers, effective on 1 December 2021.	To support government measures, provide more efficient and cheap non-cash transactions, improve sustainability of MSMEs through digitalisation and mitigate the spread of COVID-19 by promoting a less -cash society.
Ireland	Stamp duty on cards deferred.	Encourage the use of contactless payment cards over cash.
Jordan	Promote the use of cardless payments	Enabling customers to implement deposits and cash withdrawals from electronic wallets through the ATMs of the most widespread banks in the Kingdom without the need to use an electronic payment card.
Kenya	CBK on 16 March 2020 announced a set of measures to facilitate increased use of mobile money transactions instead of cash, including:	To reduce the risk of transmission of COVID-19 by handling banknotes. This will

Jurisdiction	Measure (Description)	Objective/motivation
	• No charge for mobile money transactions up to KSh1,000/-. • The transaction limit for mobile money is increased to KSh150,000/-. • The mobile money wallet limit is increased to KSh300,000/-. PSPs and commercial banks will eliminate charges for transfers between mobile money wallets and bank accounts.	also reduce the use of cash in the economy over the medium term.
Mexico	Temporary exemptions to credit cards minimum payment. Banco de México outlined temporary exemptions on the cards obligations that will be in force from April to July 2020. In general terms, the exemptions allow financial entities not to collect the minimum payment from credit card holders until January 2021.	To smooth the effects of a permanent shock to consumers' spending due to the corona virus pandemic .
Pakistan	The State Bank of Pakistan (SBP) has waived all charges associated with fund transfers through online banking channels.	To promote digital banking during the COVID-19 crisis.
Portugal	Prohibition of banks to charge fixed fees, per operation, on payments by card. Also, no minimum amount will be required in order to pay by card.	Encourage the use of banking cards as a means of payment.
Saudi Arabia	SAMA announces raising the e-wallet top-up monthly ceiling limit to SAR 20,000.	This is based on SAMA's supervisory and regulatory role and is in line with the goal of boosting the digital payment transactions, in accordance with the prudential procedures taken to prevent the spread of the corona virus (COVID-19). This should contribute to the hygiene of the users of the digital payments and smoothen their payment transactions via e-wallets applications.
Thailand	The BOT has been encouraging fund transfers and payments via electronic means such as PromptPay and QR payment through its official social media channels since 22 March 2020.	To minimise contact in the process of making fund transfers and payments. Also, the e-payment usage plays a major role to facilitate the continuity of financial and payment activities during the lockdown period.
Thailand	The BOT has issued a circular to provide the relaxation on reporting requirements for e-payment service providers during the current emergency situation.	To ensure that the financial and payment systems can operate continuously as well as to relieve the burden of e-payment service providers in compiling

Jurisdiction	Measure (Description)	Objective/motivation
		and submitting reports during this difficult time.
Turkey	Minimum limit for first time credit card holders raised from TL 1300 to TL 2000 until December 2020. Regulation related to customers who fail to pay minimum credit card amount 3 times in a year will be barred from cash withdrawal and those who fail to pay minimum amount 3 times in a row will be barred from any type of transaction along with cash withdrawal is made optional for banks.	To reduce the negative impacts of the COVID-19 pandemic on the financing conditions of households and real sector.
UK	The FCA has increased the single and cumulative transaction thresholds for contactless payments from £45 up to £100 and from £130 to £300 respectively.	Since the limit for contactless card payments was raised to £45 at the start of the pandemic, people are increasingly making use of contactless payments. It's important that payments regulation keeps pace with consumer and merchant expectations.
Ukraine	NBU abolished tariffs for banks on using NBU-operated System of Electronic Payments for the period of quarantine.	Decreasing the cost of cashless payments in order to promote them.

Annex 3: List of contributors to the report

Workstream co-leads	Changchun Mu Director General, Digital Currency Institute People's Bank of China
	Jon Frost Senior Economist, Innovation and the Digital Economy Bank for International Settlements
Argentina	Agustín Alifracó Senior Assistant, Financial Development Central Bank of Argentina
China	Lyu Yuan Director, Innovation Division of Digital Currency Institute People's Bank of China
France	Alexandre Prudhommeau Digital Currency Expert Banque de France
Germany	Melanie Wulff Deputy Head of Section, Regulation in the Shadow Banking System and Regulatory Arbitrage Deutsche Bundesbank
Hong Kong	Muyang Wu Manager, Financial Stability Surveillance Division Hong Kong Monetary Authority
Italy	Alberto Di Iorio Statistician Bank of Italy
	Edoardo Rainone Statistician Bank of Italy
	Pasquale Munafo Senior Officer, International Relations Office Consob
Japan	Moe Kadowaki Official, International Affairs Office Financial Services Agency

Mexico	Mariel Irina Guerra Lomas Deputy Manager of Transfer Services and New Technologies Bank of Mexico
Saudi Arabia	Ghaida Alshalan Head of Financial Stability Analysis Section Saudi Central Bank
UK	Jeremy Leake Senior Manager, Business Models & Banking Products Team, Financial Stability Strategy and Risk Bank of England
US	Mike Carlson Deputy Director, Office of International Financial Markets U.S. Department of the Treasury
	Beth Caviness Officer, Markets Group Federal Reserve Bank of New York
	Beth Knickerbocker Chief Innovation Office Office of the Comptroller of the Currency
	Irina Leonova Senior Policy Analyst Division of Risk Management Federal Deposit Insurance Corporation
	Jason Mahoney Special Counsel Commodity Futures Trading Commission
	Lily Chu Special Counsel Commodity Futures Trading Commission
IMF	Chris Wilson Senior Financial Sector Expert Monetary and Capital Markets Department
IAIS	Farzana Badat Senior Policy Advisor

ESMA

Anne Chone

Senior Risk Analysis Officer, Innovation and Products

FSB Secretariat

Patrick Armstrong

Member of the Secretariat

Cornelius Nicolay, Giulio Cornelli, Kazuki Ueda and Murphy Pan (BIS) provided support to the preparation of this report with data and graphs.