Financial stability and investor protection

BigTech – implications for the financial sector

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Summary

Several large technology firms (BigTechs) now offer financial services, taking advantage of their vast customer networks, data analytics and brand recognition. However, the growth of BigTech financial services varies by region, reflecting differences in existing financial services provision and regulatory frameworks. Prospective benefits include greater household participation in capital markets, greater transparency and increased financial inclusion (although some individuals may be excluded). On the risk side, the high level of market concentration typically observed in BigTech may get carried into financial services, with potentially adverse impacts on consumer prices and financial stability. The cross-sectoral and global nature of the business strengthens the case for comprehensive cooperation among relevant regulators.

Introduction

BigTechs are large, established technology companies. They have different core businesses – such as social media platforms or search engines – which are non-financial in nature. BigTechs share the common characteristic that their core lines of business generate vast amounts of data and they have in-depth expertise to manage and analyse such data.

The financial services industry has recently seen BigTechs entering sectors previously the domain of incumbents. For example, several BigTechs already offer payments. In entering financial services provision, BigTechs interact with financial firms in different ways – including in some cases entering into partnerships – and continue to collect new data.

These major technology firms, such as Alibaba, Amazon and Apple, typically enjoy advantages such as strong financial positions, brand recognition and established global customer networks. In many cases, these companies can also use proprietary data generated through their other services, such as social media, to tailor their offerings to customer preferences. BigTechs therefore have the potential to gain a significant market share in various financial services in the coming years. However, given the vast amount of sensitive consumer information they handle and the scale of their existing operations (many of which are interconnected with financial markets) their entry into finance also poses distinct risks to markets and consumers.

This article first documents and analyses the entry of BigTechs into financial services, outlining key characteristics of the firms and their business models. It then discusses possible implications for the financial sector, highlighting risks and potential benefits.

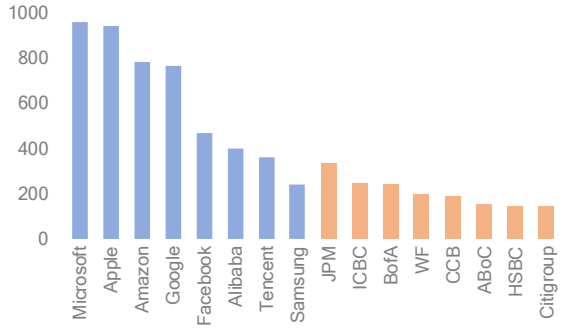
Market characteristics

Overview

BigTech firms have grown rapidly in recent years. The largest BigTechs have a significantly greater market capitalisation than the world's largest financial groups (RA.11).

[50] This article was authored by Patrick Armstrong, Sara Balitzky and Alexander Harris.

RA.11
Market capitalisation of largest BigTechs and banks
Several BigTechs are larger than any banks



Note: Market capitalisation, EUR bn, of eight largest techology complanies (blue bars) and eight largest banking groups (orange bars) globally as of 30 September 2019. Google=Alphabet Inc; JPM=JP Morgan; ICBC=Industrial and Commerical Bank of China; BofA=Bank of America,WF=Wells Fargo; CCB=China Construction Bank; ABoC=Agricultural Bank of China.
Sources: Refinitiv Eikon, ESMA.

RA.12
Financial services offered by selection of BigTechs
China-based BigTechs offer many services

Financial services	BigTechs offering, piloting or planning services as of 1Q19		
	China-based (*n* = 3)	US-based (*n* = 4)	Other (*n* = 3)
Payments	3	4	3
Credit	3	3	2
Current accounts	3	0	1
Asset management	2	0	2
Insurance	2	1	0

NB: Number of BigTech firms among selected sample in given country/region providing given financial services. China-based firms in sample: Alibaba, Baidu, Tencent. US-based: Amazon, Apple, Facebook, Google. Other: Mercado Libre, Samsung, Vodafone.
Source: Adapted from FSB (2019a).

However, despite this recent growth, financial services represent only 11% of revenues among a sample of the largest BigTechs (Gaunt, 2019).

The largest 10 BigTechs by market capitalisation now all offer payment services. Credit provision is also offered by many BigTechs, although their market share is still small.[51] Many of the largest BigTechs first entered financial services by providing payments. In some cases, BigTechs that had developed retail platforms (e.g. Alibaba, Amazon) had existing customer bases to which it was natural to offer retail payment services. Incumbents, in contrast, may in principle have scope to gather many customer data thanks to long-established client relationships, but may face a barrier in doing so from IT legacy issues. Among the financial activities offered by BigTechs at the time of writing, only asset management is in ESMA's remit. Asset management offerings by BigTechs are limited at present (RA.12).

The provision of other financial services, such as asset management and insurance, is less widespread among BigTechs. However, where BigTechs do offer such services, these can involve very large numbers of (potential) customers. The box below presents an asset management example: the Chinese Yu'e Bao ('leftover treasure') fund (RA.13). In 2017, it became the world's largest MMF, although it has seen large outflows since 1Q18. BigTechs that are active in the insurance sector typically use their platforms as distribution channels for third-party products, while simultaneously collecting customer data they can sell to insurers (BIS, 2019).

Some projects currently being developed or piloted aim to operate at a global scale. A prominent example is Facebook's planned Libra project, which aims to provide cross-border payments using its own 'coin' pegged to a basket of fiat currencies and government securities.[52]

[51] Lending by technology companies is 0.5% of total credit provision globally, rising to 3% in China. See Gaunt (2019).

[52] For more information on Libra, see ESMA (2019).

RA.13

Example of BigTech-provided asset management

Yu'e Bao became world's largest MMF in 2017

Ant Financial, an affiliate of Alibaba, created the Yu'e Bao money market fund in 2013. The fund makes use of surplus cash in customers' digital wallets. Users can buy MMF shares on a mobile platform integrated with their digital wallet, in very small denominations (RNB 0.01), which then earns a return. Furthermore, they can make payments directly from their MMF holdings or redeem MMF shares into their bank account on demand.

Yu'e Bao grew to over EUR 200bn in assets under management by 4Q17 and was briefly almost twice the size of the next largest MMF globally. However, from 1Q18 to 3Q19, the fund saw over EUR 100bn in outflows, at a time when Chinese financial authorities highlighted regulation of systemically important MMFs as an area for attention (Wildau and Jia, 2019). Concerns included the lack of macroprudential requirements applying to such MMFs and liquidity risks. Another issue was that online MMFs, in benefiting from an interest rate spread between their bank deposits and fund assets, were pushing up funding costs for commercial banks.

In June 2018, the authorities announced several regulatory measures, including restricting online MMF share sales to commercial banks or licensed sale agents, restricting T + 0 redemption of MMFs to qualifying commercial banks and introducing caps on such redemptions, and prohibiting non-bank payment institutions from selling MMFs.

Yu'e Bao has been able to offer higher returns than many established MMFs operating in countries with much lower prevailing interest rates than China. In addition, Yu'e Bao is reportedly able to offer competitive returns within the Chinese market thanks to its negotiating power derived from the size of the fund.

Sources: Bloomberg News, Financial Stability Board, ESMA.

Data- and network-driven business model

FinTech (financial technology) business models have been facilitated by the wider digitalisation of the financial sector. This equally applies to the business model of BigTechs in finance. Digitalisation gives firms digital proximity to clients, disrupting the advantage that incumbent firms previously enjoyed from physical proximity to clients through established branch networks.[53]

In addition, certain features of the existing online business of BigTechs facilitate their entry into finance. BigTechs moving into finance arrive from varied parts of the digital services sector. For example, Amazon and Alibaba have their origins in e-commerce, whereas Tencent and Facebook originated as social media platforms, and Google and Baidu started as search engines. However, a shared characteristic of these BigTechs is access to client data. Such data form the basis of the firms' core business models (which may involve targeted advertising, for example, or personalised features in a user platform). The ability to make use of such data through advanced technology is integral to their business, unlike that of incumbent financial institutions.

BigTechs leverage the data from their customer networks and infrastructure in different ways. BigTechs may provide financial services in partnership with incumbents: selling data or offering critical input such as data analysis or cloud services. Alternatively, a BigTech may offer its own range of financial services to clients directly (Pacheco, 2019).

Under either approach, BigTechs' key advantage lies in customer data. Data from a range of sources, often available in real time, allow better targeting of clients and a more nuanced understanding of individual client needs and preferences.[54] Such possibilities arise at a time of shifting consumer behaviour and changing consumer expectations, which are increasingly centred around tailor-made products (Pollari and Raisbeck, 2017).

In short, personalisation is a disruptive consumer behaviour trend that BigTechs use to their advantage (Gimpel and Rau, 2018). In contrast, most incumbent financial institutions begin with some form of traditional financial relationship and have only lately begun to leverage soft information (e.g. consumer preferences elicited from client data) to cater to demand more effectively and strengthen the client relationship. Even if a BigTech engages in partnerships with financial sector incumbents, it will remain the point of contact for consumers, which may allow

[53] The phenomenon of digital proximity is explored by Tanda and Schena (2019).

[54] According to Pollari and Raisbeck (2017), consumers want financial institutions that respond quickly to their needs and offer tailor-made products. This demand has led to greater personalisation of financial services.

it to expand its customer base. On the other hand, incumbents have the advantage of established distribution networks and sector-specific expertise (Adrian and Mancini-Griffoli, 2019).

Comparison with FinTech firms

Unlike many FinTech firms,[55] which enter the market for innovative financial services as start-ups, BigTechs enter the market with distinct advantages such as having a strong financial position, access to low-cost capital, an established global user base and the technological expertise and data to tailor their offerings to customer preferences. They therefore have the potential to rapidly gain a large market share in various financial services.

The business operations of FinTech firms, on the other hand, tend to be restricted to those few areas of banking (e.g. product distribution) that retain a high return on equity in an era of low bank profitability generally. FinTech firms do not enjoy the same level of access to detailed soft information (e.g. on customer preferences or habits) as BigTechs and possess little brand recognition (De la Mano and Padilla, 2018).

FinTechs may partner with banks and other incumbent firms to overcome some of these disadvantages. However, even in doing so they lack the global reach and customer network effects that BigTechs enjoy. On the other hand, FinTech firms share some advantages with BigTechs over incumbent financial institutions, such as being unconstrained by legacy IT systems for providing relevant services. Another possibility is that FinTechs may look to partner with BigTechs to provide scale for innovative new services.

Geographical breakdown

The largest BigTechs are mostly headquartered outside the EU, predominantly in China or the United States (RA.12). The reasons the EU lacks such firms and the economic implications of the disparity are the subject of much debate. Detailed analysis of the issue is beyond the scope of this article, but possible explanatory factors include differences in systems of government, corporate law, availability of venture capital and societal attitudes towards new technology.[56]

The provision of financial services by BigTechs varies considerably across regions, and in two respects. First, consumers in some regions tend to use BigTech-provided financial services more than do consumers in other regions.[57] Second, BigTech firms headquartered in China differ from their US-based counterparts in which services they offer and how.

Customer trends by region

BigTech firms provide far more payment services (predominantly to retail customers) in China than in the EU and the United States. In the United States, while some BigTechs are major providers of various forms of e-commerce, alternative transport and housing modes, they are significantly less involved in financial services. Generally, BigTechs have expanded rapidly in emerging economies in regions such as South-East Asia, East Africa and Latin America (BIS, 2019).

One reason for these differences is likely to be the existence of widespread bank-based retail payment infrastructures in the EU and the United States to a greater degree than in China or in many emerging economies. Digital payment use is rapidly growing in China, representing an opportunity for BigTechs to gain market share among significant numbers of new users of online financial services (RA.14). In contrast, in the EU and the United States existing financial services infrastructures are more developed. A vast majority of adults have used digital payments for years, starting before the recent entry of BigTechs into the market.

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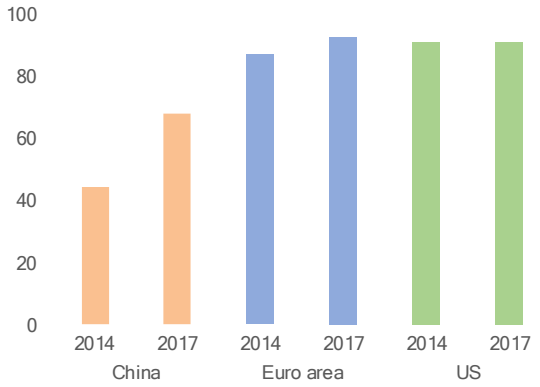
[55] The definition of FinTech is closely related to that of TechFin, a term introduced by Alibaba chairman Jack Ma. 'TechFin' refers to the harnessing of technology to offer redefined and more inclusive financial services. See King (2019).

[56] Cowell (2019) posits that relevant tax rules, bankruptcy law, start-up funding and the depth of corporate bond markets in the United States may have contributed to the trend, though she notes the European origins of key technologies such as the world wide web. For further discussion of the relationship between technological growth and governmental and societal factors see for example Beattie (2019), Caliskan (2015) and Renda (2019).

[57] This could reflect differences in the level of digitalisation, i.e. in terms of available connectivity tools, human digital skills and the use of the internet (European Commission, Digital Economy and Society Index, 2018).

RA.14
Trends in use of digital payments by region
Digital payments use rapidly growing in China



Note: Respondents aged 15+ who have made or received digital payments in the past year, by region, %.
Sources: World Bank Global Findex Database 2017, ESMA.

Other drivers of the use of BigTech financial services, discussed in more detail below, include the regulatory landscape, brand recognition, and linguistic and demographic factors. Compared with China, the EU and the United States have more developed and rigid regulatory structures, and populations that may be less willing to migrate to BigTech financial services.

Regional differences between BigTechs

China-based BigTechs tend to offer a greater range of financial services using infrastructure and networks developed separately from incumbent financial institutions. In contrast, US-based BigTechs tend to offer fewer services, and do so by using the networks and infrastructure of existing financial institutions (sometimes working in partnership with the latter).

While most BigTech firms offer payments, other financial services such as insurance and money market funds are predominantly provided by China-based BigTechs.

Drivers and barriers

A range of different factors may be involved in the growth of BigTech financial services to date and their future development, on both the demand side and the supply side.

Demand-side factors

Demand for BigTech financial services is supported by strong BigTech brand recognition and customer engagement. The brand value of the 10 largest BigTechs in 2019, for example, exceeded EUR 1.2tn, with several BigTechs each serving over a billion users (WPP, 2019).

Brand recognition can support **trust** among customers that underpins financial services. The financial crisis saw a significant decline in the level of public trust in financial institutions.[58] Consequently, BigTechs and FinTech firms more generally no longer face a 'trust barrier' when offering new products and services to consumers willing to look for alternatives.

The decline in trust served both to delay the recovery of financial incumbents and to reduce their resiliency to new sources of competition, as clients have moved their business elsewhere (Osli and Paulson, 2009). However, significant concerns around privacy and illicit use of personal customer data by some BigTechs have emerged in recent years (PwC, 2019).

Geographical differences in adoption may be associated with differences in **culture** and approaches to household finances. Cultural factors may interact with institutional features such as tax and pensions systems to determine demand for BigTech services. For example, in the United States, where public pension provision is more restricted than in many EU Member States, household participation rates in investment funds are higher, despite comparable median household wealth. US households also hold a greater share of their wealth (21%) in investment funds than their EU counterparts (13%). EU households hold more of their wealth in bank deposits (RA.15).

[58] For example, survey evidence suggests that trust in banks among respondents from the general public aged 34-64 fell from 43% to 27% in France and from 34% to 17% in Germany between 2007 and 2010 (Edelman, 2010).

RA.15
Household asset allocation in EU and United States
Less fund investment in EU than in US

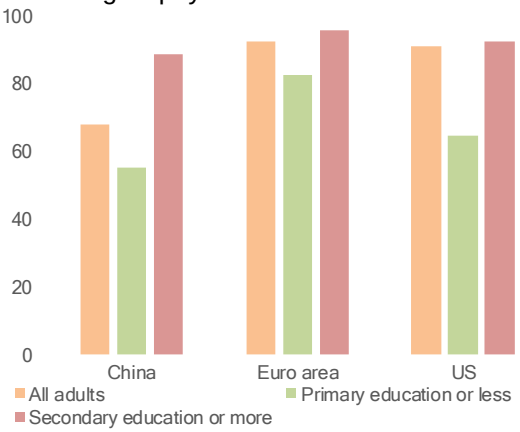
Note: Share of household wealth by selected asset classes and region, %. 'Investment funds'=regulated investment funds.
Sources: Investment Company Institute, ESMA

Differences of this kind are likely to affect demand to support future BigTech offerings of asset management services, although it may not yet be clear in which direction. On one hand, the larger market size in the United States, in terms of participant numbers, may support such demand. On the other hand, BigTechs may instead be able to win new market share in the EU by making investment funds available to retail customers who previously did not participate. In other words, it is possible that existing cultural factors can be overcome or even present an opportunity for BigTechs in providing financial services.

Cultural and societal factors also interact with **existing technological infrastructure and commercial networks** to determine demand for BigTech financial services. The widespread use of BigTechs for financial services in China, for instance, may be associated with the prevalence of e-commerce in the country, the limited availability of other means of electronic payment and high rates of mobile phone ownership in the country. In the EU, in contrast financial services and products such as investment funds continue to be provided in large part via bank-based distribution networks. However, BigTechs lack the established network of financial activities and services that incumbents have built over the years. They must therefore connect with a larger customer base to exploit network externalities (BIS, 2019).[59]

Another related factor is **demographics**. Evidence suggests that younger individuals use online and mobile banking services more frequently than older individuals (World Bank, 2017). The EU has a relatively high median age (43 years, in 2018, compared with a worldwide median age of 30), suggesting that demand for technologically innovative financial services may be lower than in other regions globally.[60] In general, an older population is less willing to incur the switching costs from traditional means of payment, savings and investment to more digital modes (De la Mano and Padilla, 2018).[61] Finally, more educated consumers are more likely to be users of digital financial services such as payments than those with lower education levels (RA.16).

RA.16
Use of digital payments by region and education level
Use of digital payments linked to education



Note: Respondents aged 15+ who have made or received digital payments in the past year, by region and education level, %.
Sources: World Bank Global Findex Database 2017, ESMA.

Supply-side factors

Thanks to their vast size, BigTechs benefit from **economies of scale** in offering financial services. The fact that Yu'e Bao (Box RA.13) has been able to negotiate advantageous interest rates with its counterparties is one example.

[59] For further evidence on the role of social factors and individual attitudes as drivers of the propensity to use digital financial services, see for example Caratelli et al. (2019).

[60] Sources: CIA World Factbook (2019) and Eurostat (2019).

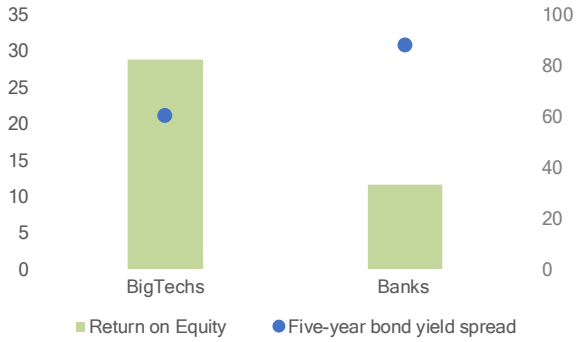
[61] However, this does not necessarily imply that young adults are the most likely demographic group to use digital financial services in all cases. Lener et al. (2019) present data suggesting that, in Italy, the group most likely to use digitalised financial advice in middle-aged, high-earner-not-rich-yet (HENRY) investors.

Combined with global customer networks, these economies of scale mean BigTechs are well placed to move into ancillary product offerings. Although margins on financial services products are often lower than those in BigTechs' original core business areas, the opportunity to expand into new business lines and to create in turn a multiservice platform remains a compelling business proposition.

BigTechs also have an incentive to supply financial services due to complementarity with their **technological expertise** and **proprietary data**. BigTechs have abundant infrastructure and staff to build mobile and online apps and platforms that integrate different financial services. Personal data provided by clients or gathered from online services, and transaction data on online marketplaces and other platforms, are valuable resources to use as inputs to machine learning or other big data algorithms[62] Furthermore, BigTechs have relevant experience of integrating new services into their platforms into their core platforms (Adrian and Mancini-Griffoli, 2019).

Many BigTechs have a strong financial position compared with incumbent financial services providers, with a high return on equity at a time when banks face low profitability (RA.17).[63] Relatedly, many of the largest BigTechs have access to low-cost funding. That said, some rapidly expanding technology firms are reliant on early-stage funding and/or are yet to become profitable.

RA.17
Profitability and funding costs of BigTechs and banks
BigTechs are profitable and enjoy cheap funding



Note: Arithmetic averages of return on equity as of 30 September 2019, %, and spread of relevant five-year (5Y) corporate bonds over 5Y US treasuries, Jan-Sept 2019 average, in bps, for selected BigTechs and banks. Return on equity for the eight largest BigTechs and banks by market cap. 5Y bond yield spread for Apple and Alphabet (Google) in case of BigTechs and for largest 5 US banking groups by market capitalisation as of 30 September 2019 in case of banks.
Sources: Refinitiv Eikon, ESMA.

Finally, **regulation** may variously encourage, impede or change the way in which BigTech financial services develop. In China, for example, the growth of Yu'e Bao from 2013 to 2017 took place in the absence of applicable macroprudential regulation, whereas subsequent increased regulatory attention, including new measures announced in June 2018, has been associated with very large (but steady) outflows.

Following the financial crisis, regulators of incumbent financial institutions introduced new capital requirements and regulations to avoid a repeat of certain factors that are thought to have given rise to the crisis. The new requirements forced incumbents to raise fresh capital and carry out major IT spending to meet the newly implemented regulations. BigTechs, on the other hand, remained largely outside the regulatory sphere and were able to enter certain parts of the financial services sector without needing to meet the capital and regulatory requirements of the incumbent institutions.

In addition to applicable financial regulation, data protection regulation can also be an important supply side factor. The EU General Data Protection Regulation (GDPR)[64] covers the

[62] An example of the power of such data is the '3-1-0' model for credit provision by Ant Financial. The model envisages that a prospective borrower should be able to complete a credit application in 3 minutes and that the algorithm should be able to issue a decision on the loan in 1 second, with zero human input to the decision.

[63] In EU-headquartered banking groups, profitability is typically even lower than in the United States. See for example de Guindos (2019).

[64] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).

processing of personal data relating to individuals in the EU. It includes safeguards to protect personal data and the rights of individuals regarding their data. Stronger protections around personal data may affect data-driven provision of financial services. The GDPR has changed the way in which data are collected and processed in the EU and elsewhere, given its extraterritorial requirements (European Commission, 2019).

At the same time, other legislation may promote the entry of BigTech into EU financial services markets. A key example is the second EU Payment Services Directive (PSD2),[65] which promotes innovative mobile and internet payment services. The entry into force of the directive in 2018 was followed by a large increase in the number of BigTechs with licensed payment subsidiaries in the EU.

PSD2 is designed to enhance competition among incumbents and allow for the entry of new financial market participants. One way it does this is by facilitating 'open banking', i.e. enabling third party service providers, with the consent of individuals, to gain access to transaction data from their bank accounts principally through application programming interfaces. Open banking is intended to allow the public to more easily compare competitive offerings and switch accounts. Although the EU was the first to develop an open banking framework, other jurisdictions have since followed.[66]

Issues for regulators

ESMA takes a balanced approach to innovation, working to safeguard against the risks associated with innovations without impeding the benefits they may bring. While BigTechs may offer a range of financial services in different ways, and the market continues to evolve, it is possible to identify several benefits and risks and the broad implications these can have for ESMA's balanced approach to innovation. The analysis below is presented with ESMA's remit in mind, but also includes issues relevant elsewhere in the financial sector and beyond.

Benefits

Positive aspects to the growth in BigTech firms providing financial services can include **reduced costs** and greater efficiency in certain sectors. Lower costs are driven by increased competition from these new market entrants, which enjoy considerable economies of scale, network effects with other business lines, and complementarities with proprietary data and technological expertise. Furthermore, BigTechs can use data to screen and monitor loan applications, reducing inefficiencies arising from asymmetric information (BIS, 2019).

Another key benefit is that BigTech firms may be expected to improve **financial inclusion**, especially in regions where a significant proportion of the adult population is underbanked or unbanked. However, this is tempered by the risk of financial exclusion of individuals who are unable to use BigTech platforms, are unfamiliar with them or decide not to use them. Certain demographic groups such as the elderly are disproportionately likely to be affected by this risk. Education levels may also be a factor (RA.16).[67]

The entry of BigTechs into financial services offers the opportunity for **greater diversification** of household investments, to the extent that BigTech provision of investments or asset management may encourage participation by households in capital markets. In leveraging advanced technology, BigTechs may be able to offer products with better functionality and quality as well as innovative financial services, providing a better fit to the individual needs of many households (De la Mano and Padilla, 2018).

BigTech in finance may promote **greater transparency** in the provision of financial services, through the increased use of online and data-driven business models. For example, online and data-driven business models offer the possibility to audit decision-making in detail,

[65] Directive 2015/2366/EU of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC.

[66] For example, the Australian Treasury has recently consulted on open banking (FinTech Australia, 2017).

[67] Another related risk is that, even if individuals start to use financial services, such as investment management, for the first time in a digital environment, they may not be in a position to make well-informed decisions. According to an experimental study by Agnew and Szykman (2005), investment choices made by individuals are sensitive to how information is displayed, the number of choices offered and the similarity of those choices. The authors find that financial literacy helps mitigate the risk of information overload.

which may not be possible with traditional services such as credit provision or investment advice.

In addition, the entry of BigTechs into financial services may serve to hasten the pace at which incumbent institutions improve their own digital business models – seeking greater efficiencies and providing personalised services – so as to remain competitive. However, as discussed below, there is a risk that immediate competitive pressures may give way to greater market concentration in the longer term.

Risks

The entry of BigTech into financial services may pose risks to financial stability and investor protection. One source of risk is the fact that BigTechs are often **outside the existing regulatory sphere**, although they may fall under existing regimes for specific activities. They may come to the market without facing capital requirements or needing to meet certain other regulatory conditions, and without maintaining the compliance infrastructure that regulated incumbent institutions need to have (Pollari and Raisbeck, 2017). This, in turn, may pose risks to the objectives of ESMA and other regulators.

While the current level of financial activities of BigTechs does not in itself prompt immediate concern from the perspective of financial stability, a structural issue is the **interconnection** between financial markets and many different services that BigTechs provide, including cloud services, data analytics and credit provision to other non-financial firms to manage their liquidity. Such interconnectedness may amplify financial stability risks associated with the entry of BigTech into financial markets.

A potential future source of risk is that the scale of BigTechs means their entry into financial services may affect **market structure** (FSB, 2019b). Risks to financial stability may arise if BigTechs use their resources, data and technology infrastructure to achieve dominant market shares in certain financial services.[68] Relatedly, one view is that greater pressure on incumbents' profitability may encourage them to take greater risks (FSB, 2019a). Additionally, the concentration of financial services among firms with a large cross-sectoral presence may mean that cybersecurity incidents arising in other economic sectors may have a direct impact on financial services.[69]

From an investor protection perspective, while costs may be lower in the short run as the result of increased competition from low-cost entrants, the entry of BigTechs could in fact lead to **greater market concentration** in the longer term, eventually imposing greater costs on consumers.[70] Short-run costs may also be lower because of predatory pricing, whereby entrants aim to achieve a dominant position in the longer term. In addition to these possibilities, higher prices could be sustained if a few BigTechs occupy a gatekeeping role of providing consumers with a single interface through which they can access financial services alongside other services such as social media.[71] This business model could entail high economic costs of switching for consumers (Gaunt, 2019). The potential for market concentration combined with high switching costs means that BigTech activities may be monitored by competition authorities in the coming years. The gatekeeping function may also add to the risk of **financial exclusion** among segments of the population.

Financial decisions made in an automated digital environment are faster and easier than those made in many other contexts. However, there is a risk that these features may worsen the quality of investor decision-making.[72]

Finally, BigTechs possess vast quantities of data representing the online and digital footprint of individuals across different economic and social activities. Although BigTechs typically devote

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[68] BigTechs share some characteristics with firms characterised as 'too big to fail' during the 2008 financial crisis. Such characteristics include significant market power, competitive advantages and large economies of scale (Moosa, 2010).

[69] As well as cross-sectoral competition issues, the entry of BigTechs into finance may raise cross-border security questions. See Petralia et al. (2019).

[70] An example of BigTechs already reaching a dominant market share in other sectors, and the consequent pricing power they achieve, is a large platform hosting third-party online retail sales. The provider is able to generate revenue by levying fees of 6%-50% of the sale price of the retail goods (Loten and Janofsky, 2015).

[71] The gatekeeping strategy relates to the business model characteristics discussed above, in that it may involve entering a market with a single offering, before expanding into many lines of business and product offerings integrated into a single platform.

[72] This risk may be mitigated by attentive design of automated tools, including high-quality decision trees, feedback loops and control questions.

huge resources in the form of advanced technology and specialist expertise to **cybersecurity**, this feature could make them an attractive target for cyberattacks, and increase the detriment to individuals (for instance as regards their privacy) in the event of a data breach. The treatment of **sensitive customer information** has met with much recent criticism (Stucke, 2018).

Regulatory implications

The growth of digital technology across economic sectors may raise policy and regulatory questions on topics such as standards for privacy, data protection, management and competition. Furthermore, technology firms may be regarded as representing a sector of strategic national and international importance.

The reach, resources, data availability and generally non-regulated nature of BigTechs has major implications for regulators, putting a premium on consistent supervision and standards across borders and sectors. In addition to immediate consequences, there may be longer-term implications.

For securities regulators, a relevant area of focus may be investor education initiatives aimed at making investors aware of the risks around the speed of decision-making that is possible in an online environment. Investor education may also be used to address the risk of financial exclusion among groups who find using online platforms difficult.

The diverse business lines of BigTech firms, coupled with potentially complex interlinkages with traditional financial institutions, may make it difficult to determine a clear regulatory boundary. There may be a greater need to complement an entity-based approach to regulation with an activity-based approach to ensure appropriate and internationally consistent coverage of activities that have implications for financial stability. This is especially important given the cross-sector and cross-border nature of BigTechs' engagement.

The regulatory response may need to be nuanced and to keep evolving. Regulators such as ESMA need to appreciate the pace of technological change that BigTechs introduce, as well as the potential benefits to the economy and society in terms of costs and efficiencies.

Regulators and supervisors are well positioned to gain insights about business propositions from initiatives such as innovation facilitators (including regulatory sandboxes). Development of innovative SupTech tools may provide further information about market developments, helping authorities to mitigate potential risks and set appropriate supervisory expectations. To this end, ESMA continues to facilitate and coordinate sharing of information on financial innovation among its NCAs. Innovation facilitators across the financial sector are a valuable source of market intelligence. The importance of sharing such information among authorities at EU level is reflected in the recent establishment of the European Forum for Innovation Facilitators (EFIF) by the European Commission and the ESAs.[73]

More generally, there may be value in continuing to deepen cooperation at national, European and international levels among financial sector regulators and supervisors and other authorities, such as those responsible for data protection. In this way, authorities may be better equipped to keep pace with fast-evolving technological changes and the increasingly cross-border and cross-sector business model demonstrated by the entry of BigTechs into finance.

Conclusion

BigTech firms have grown rapidly in recent years and are now entering the financial sector. BigTechs have scope to compete with financial sector incumbents because of their vast size, global customer networks, brand recognition and ability to leverage their proprietary data to offer personalised services. Many also have strong financial positions. Although the use of BigTech-provided financial services is currently more prevalent in jurisdictions such as China for reasons of economic and regulatory development, demographics and culture, BigTechs have the potential to gain significant market share in developed regions, including the EU, in the near future.

The data-driven business model of BigTechs represents a significant development in the provision of financial services globally. While

[73] For more information, see the EFIF webpage.

benefits may include greater efficiency and cheaper product offerings for consumers, the potential scale of the phenomenon means that regulators should pay close attention to ensuing risks around financial stability and consumer protection. Risks to consumers arise in several respects, including risks to privacy and data rights, higher costs if competition suffers in the longer term and the risk of financial exclusion, which may disproportionately affect certain demographic groups. To mitigate these risks, many regulators are already undertaking proactive monitoring of developments and cooperating across economic sectors at national, European and international levels.

References

Adrian, A. and Mancini-Griffoli, T. (2019), 'Fintech NB: the rise of digital money', Note/19/01, IMF.

Agnew, J. R. and Szykman, L. R. (2005), 'Asset allocation and information overload: the influence of information display, asset choice and investor experience', Journal of Behavioral Finance, Vol. 6, No 2, pp. 57-70.

BIS (2019), Annual Economic Report, 2019.

Beattie, A. (2019), 'Technology: how the US, EU and China compete to set industry standards', Financial Times, 23 July.

Caliskan, H. (2015), 'Technological change and economic growth', Procedia – Social and Behavioral Sciences, Vol. 195, pp. 649-654.

Caratelli, M., Giannotti, C., Linciano, N. and Soccorso, P. (2019), 'Financial advice and robo advice in the investors' perception: evidence from a qualitative study', FinTech Working Paper No 6, Consob, December.

Cowell, F. (2019), 'Why the EU has no Google, Apple, Facebook or Amazon – or does it?', Europa United, 25 July.

Central Intelligence Agency (2019), 'World Factbook'.

De la Mano, M. and Padilla, J. (2018), 'Big Tech banking', Journal of Competition Law & Economics, Vol. 14, No 4, pp. 494-526.

Edelman (2010), '2010 Edelman Trust Barometer'.

European Commission (2018), Digital Economy and Society Index Report.

European Commission (2019), 'General Data Protection Regulation shows results, but work needs to continue', press release, 24 July.

ESMA, 'Trends, Risks and Vulnerabilities, No 2, 2019', p. 33.

Eurostat (2019), 'Median age over 43 years in the EU'.

FinTech Australia (2017), 'Submission to open banking inquiry'.

FSB (2019a), 'BigTech in finance: market developments and financial stability implications', 9 December.

FSB (2019b), 'FinTech and market structure in financial services: market developments and potential financial stability implications', 14 February.

Gaunt, J. (2019), 'BigTech in finance brings big risks and benefits', ING Think – Economic and Financial Analysis.

Gimpel, H. and Rau, D. (2018), 'Understanding FinTech start-ups – a taxonomy of consumer-oriented service offerings', Electronic Markets, Vol. 28, No 3, pp. 245-264.

de Guindos, L. (2019), 'Euro area banks: the profitability challenge', speech by ECB Vice-President at the ABI annual conference, Rome, 25 June.

King, M. (2019), 'The competitive threat from TechFins and BigTech in financial services' , in King, M. and Nesbitt, R. (eds.), The Technological Revolution in Financial Services, University of Toronto Press, Toronto, forthcoming.

Lener, R., N. Linciano e P. Soccorso, eds. (2019), 'La digitalizzazione della consulenza in materia di investimenti finanziari', Working Group Consob - Scuola Superiore Sant'Anna di Pisa - Università Bocconi - Università di Pavia - Università di Roma 'Tor Vergata' - Università di Verona, Quaderni FinTech n. 3.

Loten, A. and Janofsky, A. (2015) 'Sellers need Amazon, but at what cost?', Wall Street Journal.

Moosa, I. (2010), 'The myth of too big to fail', Journal of Banking Regulation, Vol. 11, No 4, pp. 319-333.

Osli, U. and Paulson, A. (2009), 'Banking crisis and investor confidence: an empirical investigation', Policy Discussion Paper 2009-9, Federal Reserve Bank of Chicago.

Pacheco, L. (2019), 'Big Tech in the financial sector: the regulatory perspective', BBVA.

Petralia, K., Philippon, T., Rice, T. and Veron, N. (2019), 'Banking, FinTech, Big Tech: emerging challenges for financial policymakers', Bruegel.

Pollari, I. and Raisbeck, M. (2017), Forging the Future: How financial institutions are embracing fintech to evolve and grow, KPMG.

PwC (2019), 'Technology trends 2019: the Importance of trust'.

Renda, A. (2019), 'Europe's big tech contradiction' , CEPS Europe.

Stucke, M. E. (2018), 'Should we be concerned about data-opolies?', Georgetown Law Technology Review, 275 (2018); University of Tennessee Legal Studies Research Paper No. 349.

Tanda, A. and Schena, C. (2019), FinTech, BigTech and Banks: Digitalisation and its impact on banking business models, Palgrave Macmillan, Switzerland.

Wildau, G. and Jia, Y. (2019), 'Ant Financial's money market fund shrinks to 2-year low', Financial Times, 28 January 2019.

World Bank (2017), 'World Bank Global Findex Database 2017'.

WPP (2019), 'BrandZ Top 100 Most Valuable Global Brands 2019'.