Istituto Affari Internazionali

Tech Giants in Banking: The Implications of a New Market Power

by Nicola Bilotta and Simone Romano

ABSTRACT

The gradual penetration of Tech giants into banking and financial services is having a wide-ranging impact on the industry. Large technological and non-financial companies can take advantage of a privileged relationship with consumers, previously developed in the course of their commercial and industrial activities and exploit advanced technical solutions – such as data collection – in order to provide financial services. New competitors for established financial intermediaries should, in principle, be welcomed as they foster competition and innovation in a slow-moving industry. However, risks may arise from cross-sectoral consolidation between the tech and banking industries. Furthermore, the phenomenon of Tech giants in banking has implications that extend well beyond the banking system and that affect fiscal systems and the orderly functioning of markets. Regulators face the task of developing new frameworks to address this challenge.

Financial services | Digital governance

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Tech Giants in Banking: The Implications of a New Market Power

by Nicola Bilotta and Simone Romano*

Introduction

In recent years, digital technologies have been transforming the financial-services industry at an unprecedented rate. As financial technology (Fintech) lowers barriers to access financial services by reducing costs and facilitating the unbundling of products, Fintech firms and non-financial technological companies (Techfins)[1] are putting pressure on banks and other established financial institutions by fostering innovation in the traditionally slow-moving banking industry.[2]

The entry of Fintech firms into market niches is fraught with significant obstacles – such as the high cost of capital and uncertainty surrounding their ability, as newcomers to the industry, to run financial businesses. By contrast, Tech giants enjoy access to pre-existing customer networks and brand recognition, which, combined with a strong financial position and access to low-cost capital, could enable them to reach scale in some banking activities very rapidly. In addition, these players can leverage the greater degree of information that they hold on consumer's preferences and behaviour due to their data accumulation and advanced-technology capabilities.

While it is feared that the entry of Tech giants could have a major impact on competition in some segments of the banking supply chain – in fact, this is

[1] Fintech firms usually refers to new banking intermediaries that implement innovative digital technologies in order to deliver financial services. Techfin, meanwhile, refers to high-tech firms offering banking products as a part of their digital "ecosystems".

[2] The IAI, in partnership with Intesa Sanpaolo, has carried out a research project aimed at studying the economic and political implications of Tech giants entering the banking industry. The results of this analysis – carried out with the active participation of many institutions and experts – are presented in the book edited by Nicola Bilotta and Simone Romano: *The Rise of Tech Giants. A Game Changer in Global Finance and Politics*, Bern, Peter Lang, 2019 (forthcoming).

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already happening. In Asian markets,[3] for example, the Chinese e-commerce conglomerate Alibaba and the Japanese giant Rakuten are competitive actors in the financial-services landscape. In China, Alipay (renamed Ant Financial in 2014) has provided the backbone of China's e-commerce payments – accounting for almost 54 per cent of the mobile-payment market in 2017. Ant Financial also owns a fully licensed bank – MYbank – and Yu'e Bao, the largest money-market fund in the world. Rakuten has launched a fully licensed bank in Japan, which is now the country's lead card issuer in terms of purchasing volume. It also opened a subsidiary bank in Luxembourg in 2017, in an attempt to replicate the success of its Japanese banking platform.

Even though this phenomenon is not yet as far-reaching in the US and Europe, due to tighter regulations and a tougher competition landscape, Tech giants – such as Google, Amazon, Apple and Facebook – are entering the banking market at various speeds and to varying degrees. It is not just a matter of offering their own-branded banking services and products – such as mobile-payment apps – but also of increasingly partnering with established firms to develop banking ventures as well as becoming the main providers of essential technology-driven services. Their business relationships are far more complicated than it may superficially appear, being tied in with the changes produced by the digital economy and its market dynamics.

1. Digital banking and Tech giants

Tech giants' diverse business models explain why their impact on the financial market may be greater than is often assumed.[4] These firms do not compete on such features as output quality, price or productivity in a traditional manner. Instead, they focus on building an ecosystem capable of generating and exploiting indirect network effects and data accumulation.[5]

The empowerment of ecosystems in the digital economy is the result of two main market dynamics.

First, platforms – such as Alibaba, Amazon, Google and Facebook – leverage network effects to their advantage. Traditionally, network effects occur when the value of a product or service increases as the number of its users grows. Digital platforms enjoy "direct" network effects, as the higher the number of customers

[3] Readers should be aware that China's and Japan's banking markets have different features and market structures.

[4] Facebook, for example, leverages ads in its social-media platforms whereas Apple is a hardware-technology company. However, they all operate in the internet and mobile markets – gathering data and exploiting network effects and knowledge-based economy features.

[5] Karim Lakhani, "The Era of the Hub Economy", in *Cutter Business Technology Journal*, Vol. 31, No. 1 (February 2018), https://www.cutter.com/article/era-hub-economy-498446.

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they have in their networks the easier it is to attract additional customers. They also enjoy "indirect" network effects because two or more economic groups are attracted to participate in the network.[6] In a data-driven economy, characterised by the interconnectivity of devices and technologies, the generation, accumulation and exploitation of data on users' experience maximise the value of network effects in term of competitive edge.[7]

Second, multi-sided economy theory suggests that a platform needs to reach considerable scale in order to achieve its economic objectives.[8] As a platform's function is to facilitate matching and interaction between two or more different economic groups, it needs to achieve large economies of scale.[9] In order to rapidly reach scale, platforms tend to offer free or low-priced services and products, funding them with the revenues from other sources in their ecosystem. In contrast to traditional multi-sided economy business models such as TV channels, digital platforms capture an additional source of earning: data on consumer behaviour.

Building on their infrastructure and expertise in data processing, Tech giants can obtain extremely detailed individual and cluster profiles that are then monetised in a variety of ways – the main one being tailored advertisement. In practice, the core business of a Tech giant is data – not the profitability of a platform *per se*. When using Facebook, for instance, users are actually producing data that advertisement companies pay to exploit; when shopping online on Amazon.com, customers also provide precious data on their preferences and behaviours.[10] Effectively, users become unaware assets.

If collecting data and improving ecosystems are the main goals of Tech giants, then their entering a new industry takes on an entirely different meaning to that traditionally associated with such an activity. In fact, not only can their new nodes generate profits from a product or service, as already occurs for traditional businesses, but, most importantly, they also encourage customers to navigate the entire ecosystem and thus produce data. In practice, nodes link themselves with their core hub[11] – thereby exponentially increasing the number of interactions

[6] Feng Zhu and Marco Iansiti, "Why Some Platforms Thrive and Others Don't", in *Harvard Business Review*, Vol. 97, No. 1 (January-February 2019), p. 118-125, https://hbr.org/2019/01/why-some-platforms-thrive-and-others-dont.

[7] Michael Schrage, "Rethinking Networks: Exploring Strategies for Making Users More Valuable", in *MIT IDE Research Briefs*, Vol. 2016, No. 1 (January 2016), http://ide.mit.edu/node/1581.

[8] Bertin Martens, "An Economic Policy Perspective on Online Platforms", in *Institute for Prospective Technological Studies Digital Economy Working Papers*, No. 2016/05 (May 2016), https://ec.europa.eu/jrc/en/node/174347.

[9] Copenhagen Economics, *Digital Platforms' Market Power*, eMAG submission to the European Commission Directorate General for Competition, 30 September 2018, http://ec.europa.eu/competition/information/digitisation_2018/contributions/emag.pdf.

[10] Jean-Charles Rochet and Jean Tirole, "Platform Competition in Two-Sided Markets", in *Journal of the European Economic Association*, Vol. 1, No. 4 (June 2003), p. 990-1029, https://www.rchss.sinica.edu.tw/cibs/pdf/RochetTirole3.pdf.

[11] Karim Lakhani, "The Era of the Hub Economy", cit.

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and data produced by the overall ecosystem. Tech giants become comprehensive platforms enjoying large returns of scale and network externalities.[12]

Among the numerous sectors of the economy into which Tech giants have room to move, the financial sector is particularly attractive due to the peculiar nature of its data. Indeed, banks possess the most extensive datasets available on savers' spending and saving behaviour and history. Since Tech companies cannot access a consumer's bank account – or, at least, cannot easily do so[13] – their non-financial big-data profiling provides a clear picture of customers' desires and online shopping but not their actual financial status. Such profiles, however detailed, may produce a distorted image that needs to be completed by financial data.

2. New banks and new ways of banking

So far, Techfin firms have mainly focused on entering the payment segment of the financial industry, reducing friction and making mobile payment easier. This trend is enabled by the ease of obtaining a payment or e-money licence, which does not entail tight legal requirements, and because payment activities are likely to represent a relatively congenial integration with their core business. China is the leading market in mobile payment, with a total value of around 43 trillion US dollars in 2017.[14] Europe is far behind, although it is moving forward. According to Forrester, mobile payments in the seven biggest EU countries will almost triple by 2021, from 52 billion US dollars in 2015 to 148 billion.[15]

Amazon launched Amazon Pay, which is a payment network and a digital wallet for online and brick-and-mortar consumers and merchants. It manages transactions between buyers and sellers and simplifies customer check-out processes and merchants' access to buyers' credit-card information. Independent shops can link up with Amazon Pay so that clients can use their stored credit-card information in different shops without having to set up new payment accounts. When using the service, merchants agree to pay a fixed authorisation fee of 0.30 US dollars and an additional processing fee (2.9 per cent domestically, and 3.9 per cent for cross-border transactions), which are divided between Amazon, card issuers

[12] Tech giants can extract data from a much larger section of the population. Google processes 3.5 billion searches per day, recording 91 per cent of total online searches; the Android operating system has 2 billion users; Apple has sold more than 1.3 billion iPhones since 2007; Amazon records 310 million users and has sold more than 353 million products. Facebook recorded more than 2 billion registered users in July 2018, while WhatsApp and Instagram had 1.5 billion and 1 billion users respectively.

[13] For example, Alphabet paid millions of dollars to access Mastercard's customer-banking data. See: Mark Bergen and Jennifer Surane, "Google and Mastercard Cut a Secret Ad Deal to Track Retail Sales", in *Bloomberg*, 30 August 2018, https://www.bloomberg.com/news/articles/2018-08-30/google-and-mastercard-cut-a-secret-ad-deal-to-track-retail-sales.

[14] Research and Markets, *Global and China Mobile Payment Industry Report, 2017-2021*, January 2018, https://www.researchandmarkets.com/research/q2gr6q/global_and_china?w=12.

[15] Jacob Morgan et al., *European Mobile Payments Will Almost Triple by 2021*, Forrester, 11 May 2017.

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and payment networks. More recently, the Seattle-based company has launched Amazon coins, an e-money currency with which consumers can secure discounts when buying on Amazon.com.

Both Apple and Google have also developed mobile-payment apps, available on contactless devices. As these apps are linked to their respective operative systems, both Apple and Google take advantage of the interconnectivity between devices and operative systems to steer customers towards their payment solutions. Apple Pay has 270 million users globally.[16] In Europe, according to PYMNTS, 3 per cent of all smartphone users made a purchase using Apple Pay in 2017 as against 1.9 per cent in 2014.[17] Considering that there were around 258 million smartphone users that year, this means that approximately 7.7 million people used Apple Pay.[18] The percentage of all smartphone users making a purchase using Google Pay in 2017 was 0.9 per cent (about 2.3 million people), which represented an increase of around 200 per cent from March 2016.[19]

Facebook offers a peer-to-peer solution: Payment in Messenger. This service allows Facebook users to link their debit card to Messenger and send mobile payments to friends through a conversation. In the US, in July 2017, 6 per cent of Facebook users said they used Payment in Messenger several times a day while 3 per cent used it once a day.[20] Since Facebook has around 214 million users in the US, this means that approximately 19.2 million people used Facebook as a means of payment for at least one transaction per day – a figure that increases to 25.6 million people if considering at least one transaction per week.

Given their access to a large and loyal customer base, it is little wonder that Tech giants have an increasingly active presence in the payments' industry. With their own payment services, Tech giants gain a deeper interaction between their platforms and customers, reducing the transaction costs of electronic payments. But the key advantage for the suppliers of these services is the gathering of data on customer spending patterns and financial conditions.[21] Although payments initiated by Techfins' mobile-payment services use credit or debit cards for

[16] Loup Ventures, *Annual Apple Pay Review: Adoption Jumps, but Still a Long Way to Go*, 23 February 2018, https://loupventures.com/annual-apple-pay-review-adoption-jumps-but-still-a-long-way-to-go.

[17] PYMNTS website: *Apple Pay Adoption: Where Are We Now?*, https://www.pymnts.com/apple-pay-adoption.

[18] Statista website: *Number of smartphone users in Western Europe from 2014 to 2019 (in millions)*, https://www.statista.com/statistics/494554.

[19] PYMNTS website: *Apple Pay Adoption: Where Are We Now?*, cit.

[20] Statista website: *Frequency of using Facebook Messenger Payments for money transfers and payments according to online adults in the United States as of July 2017*, https://www.statista.com/statistics/781802.

[21] Standard & Poor's, "The Future of Banking: How Much of a Threat are Tech Titans to Global Banks?", in *Capital IQ*, 15 January 2018, https://www.capitaliq.com/CIQDotNet/CreditResearch/RenderArticle.aspx?articleId=1980706&SctArtId=446588&from=CM&nsl_code=LIME&sourceObjectId=10396026.

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finalising the transactions, acquiring data on external purchases represents a significant value added for them.

More recently, Tech giants have started to operate loans. In 2011, Amazon launched a lending service to micro, small and medium businesses operating on its online shop. In the first four years, Amazon Lending provided 3 billion US dollars to 20,000 sellers, with 1 billion worth of sales in 2016 alone.[22] Google has partnered with five of the biggest Indian banks to deliver instant loans through Google Pay; in the US it has launched Google Store Financing, which allows customers to purchase selected items from Google Store with a monthly payment option.[23]

Whereas in Western markets this is still a marginal phenomenon, in Asia Tech giants have become important players in the banking industry. Successfully exploiting a looser legal framework, Alibaba, the world's biggest e-commerce market, launched Alipay – the first Chinese online-payment intermediary and electronic third-party payment system – in 2004.[24] Alipay reached 175 million transactions per day in 2016, with currently 870 million[25] active users worldwide. Establishing an effective consumer redress system is a universal issue, but it is particularly risky in China due to legal inefficiency and higher moral hazards. When buying online, rational consumers need to trust that, in case of non-delivery or faulty goods, there is a reliable intermediary that will protect their rights. Alipay has become the backbone of Chinese online transactions because it has been able to earn a reputation as a trustworthy provider among market participants.

In 2015, Ant Financial, of which Alibaba owns a 33 per cent stake, developed MYbank to provide inclusive and innovative financial instruments for individuals and small and medium-sized enterprises (SMEs). MYbank delivered 34.71 billion yuan (5.07 billion US dollars)[26] at the end of its first year of full operationality in 2016. Ant Financial has also launched Ant Fortune, a wealth-management app through which consumers can purchase 900 different financial products from 80 financial institutions. The app recorded more than 25 million users, 81 per cent of them aged below 36 years old. In addition, Ant Financial ecosystem includes Yu'e Bao – a money-market fund that has around 120 million users and 210 billion US dollars under management, making it the largest such fund in the world.

[22] Rohit Arora, "Another Industry Amazon Plans to Crush is Small-Business Lending: Op-Ed", in *CNBC*, 16 June 2017, https://cnb.cx/2JVnTJk.

[23] Google Support website: *Pay for your Google Store purchase over time*, https://support.google.com/store/answer/7166839?hl=en.

[24] Tyler Aveni and Joep Roest, "China's Alipay and WeChat Pay: Reaching Rural Users", in *CGAP Briefs*, December 2017, p. 3, https://www.cgap.org/research/publication/chinas-alipay-and-wechat-pay-reaching-rural-users.

[25] Louise Lucas, "Alibaba Revenues Rise but Ant Financial Makes a Net Loss", in *Financial Times*, 4 May 2018, https://www.ft.com/content/6d756d0e-4f9f-11e8-9471-a083af05aea7.

[26] Amounts are converted to US dollars using International Monetary Funds' representative exchange rates at 31 August 2018: https://www.imf.org/external/np/fin/data/rms_mth.aspx?SelectDate=2018-08-31&reportType=REP.

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The Japanese e-commerce giant Rakuten also launched its own bank in 2009, after having acquired eBank Corporation, an online internet bank for payments. In 2017, the consolidated revenue of the group was 944 billion yen (8.51 billion US dollars), of which 332 billion yen (2.99 billion US dollars) came from its Fintech segment.[27] Within this, 48 per cent comes from card activities, 22 per cent from banking activities, 15 per cent from securities and 10 per cent from life-insurance products. A concrete example of how Rakuten's ecosystem works is the "Rakuten Card with Rakuten Point Card Functions", launched in 2015: an integrated credit card equipped with the services Rakuten Edy and Rakuten Point Card. The latter allows clients to use Rakuten loyalty points (Rakuten Super Points), gained by purchasing items in Rakuten's online malls, to pay in actual stores in Japan. Additionally, holders of the Rakuten Card receive Rakuten loyalty points with each purchase that they make using the card. Today, Rakuten Cards is the second largest issuers of credit cards in the country and the largest by shopping-transaction value.

Credibility, data infrastructure and customer base combined with a strong financial position and ease in collecting capital,[28] which make expansion into new sectors of the economy potentially rapid and effective, represent potential competitive advantages for the Tech giants. By contrast, established concerns are struggling to embrace digitalisation and innovation within their supply chains, slowed down by heavy legacy infrastructures and systems.

3. Risks and issues

Regulation and supervision have traditionally played a pivotal role in developing the banking industry, seeking to protect consumers, systemic stability and solvency. National and international regulators are currently facing an additional challenge, trying to find the right balance between fostering innovation and mitigating the risks inherent in digitalisation. Regulatory requirements have always been an almost insurmountable barrier to new players in the industry, discouraging them with high compliance costs and expensive bureaucratic procedures.

But financial technology is developing rapidly, and it is changing the market structure in financial services; enhancing new business models; and, therefore, creating new opportunities and new risks. In this competitive landscape, new entrants – such as Fintech firms and Techfins – are pressuring policymakers to assess the adequacy of their regulatory frameworks and establish a level playing

[27] Rakuten, *FY2018 Fourth Quarter and Full Year Consolidated Financial Results*, 13 February 2018, p. 22, 24, https://global.rakuten.com/corp/investors/assets/doc/documents/17Q4PPT_E.pdf.

[28] Financial Stability Board (FSB), *FinTech and Market Structure in Financial Services: Market Developments and Potential Financial Stability Implications*, 14 February 2019, https://www.fsb.org/?p=17536.

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field in the industry.[29] Nevertheless, a shift in regulation towards freer competition, fostered by technological innovations and consumer preferences, might produce potential risks.[30]

The emergence of Techfins poses several challenges for regulators that differ from the ones created by Fintech firms. First, size does matter. Fintech firms are usually problem-driven and start small, making it easier to legally frame their activities as they gradually grow and providing regulators with time to adjust. In the case of a Fintech startup's collapse due to external shocks or liquidity crises, the financial system would be able to easily absorb the failure. By contrast, Techfins already enjoy a large customer network and brand recognition, potentially achieving scale very quickly.[31] Second, Techfins are data-aggregator companies that gather, collect and analyse data obtained by their non-financial activities, dramatically increasing their capability to exploit big-data analytics in banking.[32]

These features represent key challenges for policymakers. As data forms the core of Tech companies' business models, giving them the edge over their competitors, the opportunity to aggregate financial and non-financial datasets exposes the banking industry to non-typical issues. With the digitalisation of financial services, the amount of customer data at risk dramatically increases.[33]

On the one hand, it may help to mitigate information asymmetry, providing personal data previously unavailable and thus fostering financial inclusion. For example, the startup Lenddo leverages the non-traditional data – such as social-media data – of financially excluded consumers in order to provide credit scoring and verification for established financial institutions. In Colombia, it has partnered with Banco Colpatria – a subsidiary of Scotiabank – developing a creditworthiness process based on applicants' activities on social media like Facebook or LinkedIn and on their social-media connections.[34]

These features allow Techfins to minimise the need for interpersonal relations when providing banking services, reducing the costs of traditional banking relationships and potentially helping to foster a more inclusive system.[35] For instance, Alibaba can have a much better view on the actual credit score and credit risk of a customer

[29] FSB, *Financial Stability Implications from Fintech. Supervisory and Regulatory Issues that Merit Authorities' Attention*, 27 June 2017, http://www.fsb.org/?p=12911.

[30] FSB, *FinTech and Market Structure in Financial Services*, cit.

[31] Ibid.

[32] Dirk Zetzsche et al., "From FinTech to TechFin: The Regulatory Challenges of Data-Driven Finance", in *EBI Working Paper Series*, No. 6 (April 2017), https://dx.doi.org/10.2139/ssrn.2959925.

[33] World Economic Forum and Oliver Wyman, "Innovation-Driven Cyber-Risk to Customer Data in Financial Services", in *WEF White Papers*, 6 March 2018, https://www.weforum.org/whitepapers/innovation-driven-cyber-risk-to-customer-data-in-financial-services.

[34] "Lenddo Delves Into Credit Card Applicants' Social Media Data", in *Finextra*, 28 April 2014, https://www.finextra.com/newsarticle/26004.

[35] Dirk Zetzsche et al., "From FinTech to TechFin", cit.

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than a traditional bank has, as long as it can leverage the relevant data and perform the right analysis. Any time that an SME applies for a loan, the application process takes three minutes and involves no human intervention. When a consumer applies online or by mobile for a loan, MYbank's architecture will process 100,000 indicators exploiting big data, 100 predictive models and 3,000 loans strategies.[36]

A loan application process has two steps. The first step sets exclusion criteria based on five factors:

1. Sales stability: a time series model is applied to predict the volatility of any credit candidate.
2. Sales authenticity and illegal sales: a check is run to discover whether merchants have violated intellectual property laws or sold fake products (these activities rendering them ineligible for loans), just like firms that have recorded self-trading or that trade only with a single counterpart.
3. Logistics service quality: this is intended to verify whether firms have low standards in their time or quality of delivery that would exclude them from credit.
4. Customer ratings, as merchants need to demonstrate a minimum level of client satisfaction to obtain a loan.
5. Business network: Ant Financial accesses commercial relationships of firms in order to assess their creditworthiness. Once a merchant has passed this first screen-checking, a second, more comprehensive analysis of historical data on sales and financial information gained from Alibaba's e-commerce platforms is performed.[37]

MYbank is grounded on the reduced information asymmetry between Alibaba's platforms and its sellers, as it analyses their selling history in order to determine how a merchant is likely to perform in the coming months. As these types of merchant mainly rely on Alibaba e-commerce marketplace revenues, MYbank can also enforce an efficient counter-moral-hazard strategy, freezing the merchants' accounts in the case of them failing to repay their loans. Despite the high-risk profile of its borrowers, MYbank's non-performing loans (NPL) ratio is around 1 per cent thanks to its risk-assessment model being based on big data.[38]

On the other hand, this combination of datasets generates potential risks around the merging of sensitive characteristics – such as race, religion or gender – in

[36] Lerong Lu, "How a Little Ant Challenges Giant Banks? The Rise of Ant Financial (Alipay)'s Fintech Empire and Relevant Regulatory Concerns", in *International Company and Commercial Law Review*, No. 1 (2018), p. 22.

[37] Harald Hau et al., *Techfin in China: Credit Market Completion and its Growth Effect*, paper presented at the ABFER 6th Annual Conference, 2017, p. 10-12, http://abfer.org/media/abfer-events-2018/annual-conference/international-macroeconomics/AC18P1014_Ant_Financial_and_Growth_Effect_Paper_first_draft.pdf.

[38] Shu Zhang and Ryan Woo, "Alibaba-backed Online Lender MYbank Owes Cost-Savings to Home-Made Tech', in *Reuters*, 1 February 2018, https://reut.rs/2nvUqr2.

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automatised procedures for credit scoring, credit provision or insurance.[39] Even when this information is not included in the dataset, artificial intelligence (AI) and machine-learning algorithms could obtain it from geographical or other factors, which raises questions about AI ethics and algorithm accountability at a systemic level.[40] If Techfins are going to exploit big data in banking, partially replacing human judgement, regulators need to enforce new rules to prevent and protect consumers from any potential discriminatory behaviour generated by machines.[41]

Data sharing between Tech giants and established banks raises further concerns about potential unauthorised commercial uses of bank customers' personal data.[42] Saule Omarova reports that in the US, banks and Tech giants operate under different regulatory frameworks. Whereas the former are strictly supervised on how they use personal information, the latter are private entities governed by "the basic principle of 'caveat emptor' ('buyer, beware')",[43] potentially creating a system in which there is no privacy on data outside regulated banks.[44]

A similar issue was also stressed by the Joint Committee of the European Supervisory Authorities after the implementation of the Revised Payment Services Directive (PSD2) in the European Union.[45] The PSD2 enables consumers to use third-party service providers to manage their finances, increasing competition in the financial industry. As a result, clients might be able to manage their money through different applications. For instance, consumers might use Facebook or Google to monitor spending or transfer funds, while still safely keeping their money in their banking accounts. Furthermore, consumers might use third-party applications to manage their accounts held in different banks.[46]

As stressed in a recent document by the Joint Committee of the European Supervisory Authorities, these changes have left established firms worrying that technological companies might capture some profitable activities hitherto

[39] Yanbo Ge et al., "Racial and Gender Discrimination in Transportation Network Companies", in *NBER Working Papers*, No. 22776 (October 2016), https://www.nber.org/papers/w22776.

[40] Agustín Carstens, *Big Tech in Finance and New Challenges for Public Policy*, Keynote address at the FT Banking Summit, London, 4 December 2018, https://www.bis.org/speeches/sp181205.htm.

[41] Karen Petrou, *The Crisis Next Time: The Risk of New-Age Fintech and Last-Crisis Financial Regulation*, Federal Financial Analytics, 6 September 2018, http://www.fedfin.com/blog/2763.

[42] Joint Committee of the European Supervisory Authorities, *Joint Committee Discussion Paper on the Use of Big Data by Financial Institutions* (JC 2016/86), 2016, https://www.esma.europa.eu/node/82487.

[43] Saule T. Omarova, *FinTech: Examining Digitization, Data and Technology, Written Testimony before the United States Senate Committee on Banking, Housing, and Urban Affairs*, 18 September 2018, https://www.banking.senate.gov/download/omarova-testimony-and-appendix-91818.

[44] Karen Petrou, *The Crisis Next Time*, cit., p. 3.

[45] For a detailed analysis on how the current regulatory reforms will affect the banking industry, see: Martina Scopsi, "The Expansion of Big Data Companies in the Financial Services Industry, and EU Regulation", in *IAI Papers*, No. 19|06 (March 2019), https://www.iai.it/en/node/10163.

[46] Dan Barnes, "Bigtech and Fintech Define their Boundaries in Banking Markets", in *Global Risk Regulator*, 8 February 2019, https://www.globalriskregulator.com/Subjects/Reporting-and-Governance/Bigtech-and-fintech-define-their-boundaries-in-banking-markets.

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belonging to the banking supply chain.[47] Ralph Hamers, Dutch banking and financial services corporation ING's Chief Executive Officer (CEO), has declared that the new regulations "have opened the door to Big Tech entering the market".[48] Francisco Gonzàlez, executive chairman of Spanish banking group BBVA, has claimed that the uneven regulations under which banks and Tech companies operate are advantageous to the latter.[49]

The potential advantages enjoyed by Techfins fall mainly into two categories. First, according to the PSD2 – and in line with PSD1 as well – once having acquired an e-money and payment licence from any European country, third-services providers can operate in the whole EU – whereas banks need to obtain a licence from every single EU country into which they want to expand their activities.[50] Second, bankers believe that there is an asymmetry in data-sharing rules between banks and Tech giants.[51] The Joint Committee of the European Supervisory Authorities reported that it is important to bear in mind that enterprises from other sectors are among those using big data in a more intensive way – like the "Big Four" GAFA companies – and therefore regulations like PSD2 will favour them, helping them to strengthen their role in the financial services field.[52]

Furthermore, bankers complain that if Tech giants were to become involved in the payments system, it would be hard not to see a deposit-taking activity. They finally lament that, despite "playing the same game", banks and Techfin abide by different rules.

Another challenge involves the issue of whether Techfins do in fact improve competition and efficiency in the banking market, leveraging on better products or services, or whether they actually create concentration powers, using their data superiority and networks effects to create new barriers within the industry. The reach and scale of Tech giants exceed those of any other commercial organisations in the current global economy – representing, as they do, five of the top ten companies by market capitalisation. Furthermore, technological intermediaries such as Microsoft, Apple and Google enjoy a strategic position thanks to their operating systems, rendering their role systemic and indispensable as they own

[47] Joint Committee of the European Supervisory Authorities, *Joint Committee Discussion Paper on the Use of Big Data by Financial Institutions*, cit., p. 3.

[48] Martin Arnold, "Finance Chiefs Warn on Big Tech's Shift to Banking", in *Financial Times*, 4 February 2018, https://www.ft.com/content/d9b3d79e-0995-11e8-8eb7-42f857ea9f09.

[49] Ibid.

[50] Thomas Hafstad et al., *PSD2 – Strategic Opportunities Beyond Compliance*, Evry White Paper, 2016, https://www.evry.com/globalassets/bransjer/financial-services/bank2020/wp_psd2/psd2_whitepaper.pdf.

[51] To access banking data, Tech giants need to procure at least an e-money or/and payment-services licence. In the European market, for example, Facebook obtained both in the Republic of Ireland while Google procured an e-money licence in Lithuania.

[52] Joint Committee of the European Supervisory Authorities, *Joint Committee Discussion Paper on the Use of Big Data by Financial Institutions*, cit.

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and manage the infrastructure on which the networks of the economy rely.

The banking market is already highly concentrated: large banking holding companies control over 80 per cent of all banking assets in the US.[53] Similarly, the Tech industry, despite being a very diversified sector, boasts a few giant companies that make up the core of the market. Apple and Google provide the operating system of 97 per cent of smartphones worldwide.[54] Synergy Research Group claims that Amazon Web Services (AWS) holds 45 per cent of the global cloud infrastructure market while IBM, Microsoft and Google have together around 20 per cent of the global share.[55]

If Tech giants were to avoid obtaining full-banking licences, with their tight regulatory frameworks, preferring instead to acquire equity stakes in Fintech ventures alongside banks or to partner up with banks to provide banking services or products, the market could experience an unprecedented cross-sectoral consolidation.[56] (According to a 2017 KPMG report, 26 per cent of financial institutions are already partnering with one or more Tech giants and a further 27 per cent are planning to do so in the next twelve months.)[57]

This is the case with the Amazon Rechargeable service in Mexico, backed up by Mastercard and Grupo Financiero Banorte. The advantage for Amazon comes from attracting more customers in order to boost e-commerce shopping growth through an alternative to credit and debit cards: the hybrid solution of a debit card loadable with cash better suits consumer habits in a market in which fewer than half of the adults have a credit card and in which there is a strong preference for cash-based payments. On the other hand, Grupo Financiero Banorte's gains come from the engagement of new customers through Amazon's brand, expanding its customer base.[58] Amazon has successfully developed partnerships with banks in the US as well. The Amazon Prime Rewards Credit Card – which is issued by VISA and J.P. Morgan – offers a 5 per cent refund at Amazon.com and Whole Foods purchases and 2 per cent back at selected stores; additionally, it offers zero foreign-transaction fees and some travel insurance by default. The credit card does not technically have annual fees, but it is offered exclusively to Prime members, who pay 119 US dollars per year for their Prime subscription. Amazon and Wells

[53] National Association of Federally-Insured Credit Unions (NAFCU), *Modernizing Financial Services: The Glass-Steagall Act Revisited*, August 2018, p. 14, http://stilltoobigtofail.org.

[54] See StatCounter website: *Mobile Operating System Market Share Worldwide*, http://gs.statcounter.com/os-market-share/mobile/worldwide.

[55] Ari Levy and Deirdre Bosa, "How Amazon Web Services is Luring Banks to the Cloud", in *CNBC*, 30 November 2016, https://cnb.cx/2Uk5cTr.

[56] Saule T. Omarova, *FinTech: Examining Digitization, Data and Technology*, cit., p. 13.

[57] KPMG, "Forging the Future. How Financial Institutions are Embracing Fintech to Evolve and Grow", in *KPMG Insights*, October 2017, p. 25, https://home.kpmg/it/it/home/insights/2017/10/forging-the-future-with-fintech.html.

[58] Daina Beth Solomon, "Amazon Launches First Debit Card in Mexico E-commerce Push", in *Reuters*, 14 March 2018, https://reut.rs/2pbzsi4.

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Fargo launched a 0.50 per cent interest-rate discount on private student loans for borrowers who have an Amazon Student Prime membership. The discount is also available to borrowers who want to refinance their student loans. Whereas Amazon is interested in increasing the number of student Prime members, Wells Fargo aims at advertising its student loans.[59]

Apple Pay and Google Pay are also products of a partnership between financial institutions and Tech giants, as banks need to allow the association of their issued cards with Apple Pay and Google Pay. In the Republic of Ireland, Google and KBC Bank have launched an app that allows clients to open a bank account in five minutes. KBC provides the account, while Google backed up the development of the app with its Android Pay API (application programme interface).[60] In March 2018, Facebook launched a service that allows Citibank's clients in Singapore to check their balance account, credit-card rewards and recent transactions through a Facebook Messenger chatbot.[61]

This trend can be observed in the growing technological dependency of traditional firms on technology-driven services provided by Tech giants. As established banks try to automate procedures in order to reduce operating costs, they might either develop in-house-technology solutions or purchase services from third-party providers.[62] Cloud computing, which is currently the most transformative digital solution in the banking industry, might highlight the emergence of non-typical vulnerabilities in banking. When cloud-outsourcing, banks rely on third-party providers – mainly a small cluster of Tech giants that dominate the cloud-computing market – thereby increasing the risk of data breach as information belonging to different financial institutions is concentrated in a few systems and run under different regulatory frameworks.[63]

In both industries (finance and Tech), size is a key to boost profitability and, therefore, success. However, regulators should consider possible opportunities for new patterns of conflicts of interest and anti-trust practices in the case of deep cross-sectoral consolidation between Tech giants and large banks.

Competition is a multidimensional issue, and the emergence of giant digital players poses significant challenges for anti-trust analysis. First, anti-trust laws are meant to prevent the increase of market prices in the short term and the decrease of innovation or quality in the long term. Therefore, as a matter of theoretical

[59] Kaitlin Mulhere, "Amazon and Wells Fargo Team Up to Offer Cheaper Student Loans", in *Time*, 21 July 2016.

[60] KBC, *KBC Launch New App to Revolutionise Account Openings*, 7 September 2017, https://shar.es/amkuzN.

[61] Drew Harwell, "Your Banking Data Was Once Off-Limits to Tech Companies. Now They're Racing to Get It", in *The Washington Post*, 7 August 2018, https://wapo.st/2B0LRi3.

[62] Karen Petrou, *The Crisis Next Time*, cit.

[63] Basel Committee on Banking Supervision, *Sound Practices. Implications of Fintech Developments for Banks and Bank Supervisors*, February 2018, https://www.bis.org/bcbs/publ/d431.htm.

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principle, newcomers are a positive influence for the orderly functioning of markets, potentially benefiting competition and consumers.

This scenario may also be applied to the entry of Tech giants into banking. So far, consumers have benefited from Tech giants' zero or low-priced and customer-driven banking services. In addition, these companies have fostered innovation in the banking supply chain – enabling, to cite just one example, new payment solutions. Therefore, the pressure of Tech giants on incumbents' profit margins is pro-competitive because the former is exploiting their competitiveness by filling market gaps.

Nevertheless, this traditional anti-trust paradigm may be inadequate to frame specific features of Tech giants' business models. Diane Coyle notes that in the digital economy, anti-competitive behaviours display divergent features in modern capitalism.[64] Multi-sided markets economies network effects, data superiority and intangible assets – all structural characteristics of Tech giants – could result in "winner-take-all" markets, raising new barriers to entry. Furthermore, this kind of market offers substantial incentives for existing dominant players to purchase competitors. Amazon, Apple, Facebook, Alphabet and Microsoft had collectively made 617 purchases as of 2016, spending around 128.5 billion US dollars – half of which was expended in the period 2013–16.[65] In many cases in Tech giants' ecosystems, one side would subsidise another, failing to assess whether a given increase in product prices would be profitable for a monopolist in the candidate market.[66]

Another critical factor is the use of consumer data, which offers an "edge" over competitors in cross-industries. Consumers love free or cheap services and products. However, users reward Tech giants with valuable data – transforming data itself into an essential asset. If these Tech giants' business models, based on the monetisation of consumers' information, constitute a form of extractive capitalism to keep "mining" profits from other industries, then they need to increase the quantity of personal data that they are able to gather.[67] Big data can produce value through knowledge,[68] thereby creating a precious intangible asset. One could note that even though Tech giants enjoy a great asymmetry of data

[64] Diane Coyle, "Digital Platforms Force a Rethink in Competition Theory", in *Financial Times*, 17 August 2017, https://www.ft.com/content/9dc80408-81e1-11e7-94e2-c5b903247afd.

[65] Simon Whittick, "We Visualized Acquisitions by the Big Five Tech Companies Since 1985, Here's What We Learned", in *Geckoboard Blog*, 25 October 2016, https://www.geckoboard.com/blog/acquisitions-mergers-big-five-tech-companies.

[66] Øystein Daljord, Lars Sørgard and Øyvind Thomassen, "The SSNIP Test and Market Definition with the Aggregate Diversion Ratio: A Reply to Katz and Shapiro", in *Journal of Competition Law & Economics*, Vol. 4, No. 2 (June 2008), p. 263-270.

[67] Douglas Rushkoff, *Throwing Rocks at the Google Bus. How Growth Became the Enemy of Prosperity*, New York, Portfolio/Penguin, 2016.

[68] Augusto Preta and Mariateresa Maggiolino, *Data Driven Economy. Markets Trends and Policy Perspectives. Executive Summary*, ITMedia Consulting, January 2018, http://www.itmedia-consulting.com/en/highlights/1203.

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assets, unfairly establishing a far-from-"level" playing field, their advantage is produced by consumers' preferences. Therefore, from an anti-trust perspective, their possession of exclusive data does not represent an advantage *per se*.

The entry of Tech giants into banking is a recent and, as yet, little-studied phenomenon, thereby giving rise to doubts about how to properly assess their market behaviours and potential unfair competition.[69]

Conclusion

Analysis of the expansion of Tech giants into banking sheds light on how they develop cross-consolidation activities in their ecosystems. Following a network-driven, rather than a product-driven, expansionary strategy,[70] they can use network-based and data-driven assets already developed in one industry to enter another sector, rapidly reaching a critical scale in new markets. This poses questions about how these dynamics could transform markets, further concentrating information, value and power. The opportunity to cross-subsidise products allows them to operate in some segments with lower profits margins, thereby increasing their competitiveness.

From a systemic perspective, they could improve the efficiency of the banking industry, offering consumers convenient and lower-cost services and products than are currently available while reducing friction between customers and providers. At the same time, their business models could lead to potential systemic instability due to their existing interaction with the broader financial system, and could increase market concentration – thereby damaging consumers in the long run.[71] It then becomes crucial to understand how rules should be set to properly frame these developments in order to avoid negative externalities in the system.

Thus far, Tech giants do not seem willing to acquire full banking licences, thus avoiding falling under the tight and expensive framework that regulates financial institutions. A likelier scenario is the increasing cross-consolidation of technological and banking markets, whereby Tech giants offer specific banking activities and provide established firms with new technologies. Yet this would also raise concerns over potential market concentration and a further shifting of power towards the Tech giants themselves.

Updated 3 June 2018

[69] Justus Haucup and Ulrich Heimeshoff, "Google, Facebook, Amazon, eBay: Is the Internet Driving Competition or Market Monopolization?", in *International Economics and Economic Policy*, Vol. 11, Nos. 1-2 (February 2014), p. 49-61.

[70] Karim Lakhani, "The Era of the Hub Economy", cit.

[71] Agustín Carstens, *Big Tech in Finance and New Challenges for Public Policy*, cit.

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