

The antitrust FinTech challenge

Xavier Vives¹

IESE Business School

Abstract

The application of information technology (IT) in finance has bright and dark sides from the point of view of competition policy. I present the complexity of the impact of IT on competition with an analysis of the loan market, of trading platforms, and of the transformed oligopolistic structure in financial services. I conclude discussing the role of antitrust within a policy framework where consumer protection and privacy issues are prominent.

1. Introduction

Information technology is disrupting the world of finance both in markets and intermediation. The disruption extends from new payments systems and decentralized finance to the application of machine learning techniques to big data in credit assessment. It disrupts the offer of banking services, asset management and trading. The accumulation and processing of data is at the core of the revolution. In particular the ability to transform soft into hard codifiable information.

A central question is whether progress in digital technology makes finance more contestable, in the sense of lowering barriers to entry and exit. There is no doubt that digital technology allows efficiency gains, for example in making fast and cheaper payments, loan screening and processing, and in the speed of trading, and that it has allowed new entrants to offer new services. It has also extended the market by fostering financial inclusion offering financial services to unbanked segments of the population, particularly so in less developed financial systems. At the same time, it has allowed more targeted discrimination of customers which can be used not only to supply more personalized services but also to price discriminate to a very fine degree. The enhanced price transparency brought by digital technology may have ambiguous dynamic pricing effects since, for example, algorithmic pricing may be a facilitating practice for collusion. Last but not least, information technology (IT) raises monopolization possibilities due to the combination of network effects and the exploitation of dynamic economies of scale due to data accumulation and efficient processing by BigTech platforms.

Against this background there is the increasing perception that antitrust has not coped with technological progress, in particular in dealing with the expansion of platforms that have gained dominance.

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In this article I highlight the complexity of the impact of IT on competition in the provision of financial services and the challenge that antitrust faces. I deal first with two cases where improvements in IT may lead to excessive competition or excessive entry (in relation to a social welfare standard) in the loan market and in trading exchanges, respectively. I present afterwards a projected oligopolistic market structure for the supply of financial services due to IT developments and consolidation of the platform delivery of financial services. I conclude with the antitrust challenges within a general policy framework.

2. Information technology progress and the intensity of competition

Consider two instances where the development of IT may yield excessive competition from a social welfare perspective. The first is in the loan market for credit to entrepreneurs and the second is in the proliferation of trading exchanges.

2.1 The impact of IT on competition in the loan market

Banks feel increasing pressure from the threat of digital entrants in traditional banking businesses such as lending.² Pressured by fintech entrants, the banking sector is adopting information technology (IT) using unconventional data like "digital footprints" to assess the quality of borrowers³, offer personalized services and price discriminate. The COVID-19 pandemic accelerates the digitalization process and fosters remote loan operations.

Recent work considers a context where financial intermediaries (banks for short) are specialized and can discriminate loan applicants.⁴ In this context banks compete to supply entrepreneurs in each sector of activity and since they can price discriminate this results in localized Bertrand competition. IT technology improves the capacity of financial intermediaries to screen and/or monitor loans. Entrepreneurs in a sector are located at a certain "distance" from the specialization of each bank and they benefit from its screening services since, due to the analysis of their digital footprint, the bank may know more about the success of the entrepreneur's project than the very entrepreneur.

This work finds that the impact of the development of IT technology depends on the type of technology. Namely, technology that reduces the general cost of monitoring/screening projects in a sector or industry (e.g., by improving the processing of hard information) does not typically change the competitive advantage of a financial intermediary, and therefore does not impact the intensity of competition. However, if the technology weakens the influence of bank-borrower distance on monitoring/screening costs then it intensifies competition by reducing the relevance of expertise or bank specialization. This type of technological progress may harden soft information or improve a bank's organizational structure.⁵ The issue is that banks may have excessive incentives to adopt the technology of the second type even if

² In emerging and developing markets mostly BigTech platforms make inroads in lending to SMEs (e.g., MY Bank in China, Mercado Libre in Argentina). In developed economies mostly FinTech lenders have a relevant penetration (e.g., Quicken Loans and LendingClub in the US).

³ See T. Berg, V. Burg, A. Gombovic and M. Puri, On the Rise of Fintechs: Credit Scoring Using Digital Footprints, *The Review of Financial Studies*, 33(2020), 2845.

⁴ X. Vives and Z. Ye, Information Technology and Bank Competition, *CEPR Discussion Paper* No. DP16258 (2021).

⁵ See J.M. Liberti and M. A. Petersen, Information: Hard and Soft, *The Review of Corporate Finance Studies*, 8, Issue 1(2019), 1; H. Degryse, S. Ongena and G. Tümer-Alkan, Lending Technology, Bank Organization and Competition, *Journal of Financial Transformation*, 26(2009), 24.

they end up fostering rivalry because they get trapped in prisoner's dilemma situation whenever the IT technology is cheap enough. In this case there is excessive competition since the level of screening or monitoring of projects (which moves positively with the loan rates than banks can charge) is too low and the total surplus generated in the banking industry decreases.

A regulator would like banks to charge higher loan rates to induce a higher level of monitoring or screening of projects, the more so if there are costs associated to bank failure. However, if IT progress implies that the market is extended, that is that entrepreneurs who were at unserved locations obtain loans due to the lowering of monitoring or screening costs of banks, then social welfare always increases with whatever type of IT progress.

2.2 Technological progress and exchange competition

Governments and regulators have moved to foster competition among trading venues by changing their ownership structure to publicly listed companies and allowing them to compete. This has induced market fragmentation, contributing to a drastic reduction in the cost of trading and has led exchanges to increase their reliance on the provision of services such as the sale of market data, co-location space, and fast connections to matching engines. US regulators have voiced their concern both about potential excessive proliferation of venues and over the pricing of such technological services with the Securities and Exchange Commission (SEC) alleging that exchanges exercise too much market power in their provision.⁶

Recent work models liquidity provision as a vertical market where upstream exchanges with market power supply technological services (connectivity) to competitive downstream liquidity providers (market makers), who use them to satisfy liquidity traders' demand for immediacy.⁷ Technology allows to increase the proportion of market makers that are continuously present in the market, that is, to improve the connectivity services that an exchange offers to market makers. Exchanges face a set up cost and a variable cost of offering the connective service.

It is found that the entry of exchanges may be excessive or insufficient with respect to what a regulator with social welfare in mind would have. An exchange when entering does not account for two external effects. The first is that its decision depresses the profits of other exchanges, the second is that its entry augments connectivity capacity, market maker presence and market liquidity. Depending on what effect prevails we will have excessive or insufficient entry from a social welfare perspective. The interesting thing is that when the set-up cost is small, the number of platforms (and the associated total capacity) is high and the profitability depression effect dominates making entry is excessive (also note that under these conditions, further entry would have a limited impact on liquidity since the presence of market makers is already substantial).

Technological improvements have lowered the set-up cost of an exchange⁸, this means that the advancement of technology has made the likelihood of an excessive number of exchanges more likely. Note that currently in the US, 13 cash equity exchanges compete with over 30 Alternative Trading Systems (ATS). It must be noted, however, that 12 of the lit exchanges, which account for about two-thirds of daily trading, are controlled by three major players: Intercontinental Exchange, Nasdaq, and CBOE. Indeed,

⁶ See Unfair Exchange: The State of America's Stock Markets, SEC Commissioner Robert J. Jackson Jr., September 2018.

⁷ G. Cespa and X. Vives, Exchange Competition, Entry, and Welfare, *The Review of Financial Studies*, forthcoming.

⁸ See C. M. Jones, Understanding the Market for U.S. Equity Market Data, *Working Paper* (2018).

incumbent exchanges, such as the NYSE, reacted to increased competition by upgrading technology (e.g., with NYSE Arca), and merging with other exchanges (e.g., the NYSE merger with Archipelago in 2005 and with Euronext in 2007).⁹ It may well be that those exchanges exercise too much market power in setting their technological fees for data and connectivity. This poses the question of whether regulatory intervention is needed. It is possible, with sufficient information on the structure of the market, to ascertain whether it is better to regulate the fees of exchanges (since September 2020, the SEC holds ex-ante control over exchanges' fee setting process for "core" data, which require public comment and approval from the SEC)¹⁰ or use a structural measure to influence the number of players (e.g., merger policy).¹¹

The upshot of the analysis of the two examples is that IT progress has a subtle influence on the intensity of competition and may potentially exacerbate an excessive competition problem in banking and an excessive proliferation of trading venues. In both cases regulatory or antitrust intervention to improve on the market outcome would need to have enough information on the basic market parameters to be effective.

3. Monopoly tendencies, BigTech and market structure

Bigtechs have been able to create ecosystems which exploit economies of scope across products and services and make heavy use of big data analytics. These ecosystems are protected by high exogenous and endogenous switching costs that make the platform a gatekeeper that monopolizes the interface with an important segment of customers. Indeed, the source of market power of BigTech platforms is a feedback loop generating huge amounts of customer data with the activity of the platform, process the data with machine learning techniques, exploit network externalities, and produce in turn more activity and more data (with dynamic economies of scale since more data leads to better algorithms and prediction capacity). Financial services may complement and reinforce the platform business model with payment services as a first step, and credit provision may follow. BigTech may enter into financial services because of the complementarities of those services with the customer data they possess and the products they offer as they have done in China where BigTech has penetrated more deeply than in Western economies. For example, mobile payments in China are controlled by the duopoly of Alipay and Tenpay.

Contrary to small fintechs, BigTech platforms enjoy scale and scope economies, large installed customer bases, established reputation and brands, deep pockets from retained earnings and ample access to talent and capital markets. They can therefore compete head-to-head with incumbent banks as multi-sided platforms (marketplaces) and also offer their own products focusing on the most profitable banking activities.

Platform delivery of financial products may well become the dominant distribution model. Consumers served by a specific platform, for example Android or iOS, are likely to use a platform for many of their financial service's needs. This means that the platform will be the gatekeeper of a fraction of customers

⁹ See T. Foucault, M. Pagano and A. Röell (2013). Market Liquidity. Oxford University Press. Chapter 1.

¹⁰ See B. Bain, Stock Exchanges Hit by SEC Curb on Power to Raise Some Fees, *Bloomberg*, 20 August 2020.

¹¹ The optimal policy revolves around whether the wedge between the first best connectivity capacity that a regulator would set and the capacity a monopoly would set is large or small. If it is large structural (entry) regulation is inferior to fee regulation and conversely if the wedge is small.

and that banks will have to be present in the different competing platforms/ecosystems. In this world, through technology and their extended customer bases bigtechs could monopolize the interface with customers controlling loan origination and the distribution business with the incumbents taking deposits and investing in products distributed by bigtechs.¹² Some banks have perceived this threat and offer open platforms that incorporate products from other financial providers and/or have formed partnerships with bigtechs and fintechs. Indeed, savvy incumbent banks will not stay put and they will evolve into the platform mode, keeping their balance sheet strength and funding advantage, resulting in a new oligopolistic market structure for financial service provision. Note that incumbents have other strengths that they can leverage, such as customer trust to keep their data secure, and knowledge on how to deal with complex and intrusive regulation.

Banking could move then from the traditional oligopoly to a new oligopolistic form with a few dominant platforms, including both bigtechs and platform-transformed incumbents, controlling the access to a fragmented customer base. The long run degree of competition intensity will depend then on the extent of interoperability and data ownership and portability for individuals between platforms. Technology may determine exogenous switching costs between platforms, and the actions of the platforms will determine the endogenous switching costs. The degree of competition will depend on the level of these frictions and on the influence of regulation.¹³

As long as efficiency advantages are the main drivers of the FinTech entrants (bigtechs in particular), the financial sector can become more efficient and feature higher financial inclusion. Such efficiencies range from superior information and processing capabilities, screening technologies, and better response to customer needs to leaner operation technologies. The impact will be greater if as a response to the new entrants incumbents become more efficient by restructuring and adopting more advanced technologies. For this outcome to be realized it is necessary however that vigorous competition is maintained, otherwise the darker forces of abuse of dominance built on bandwagon effects of networks for exclusionary purposes and the exploitation of regulatory loopholes may prevail.

4. Policy and antitrust

Traditionally antitrust action has been perceived to lag market developments. In financial services, regulation has been bypassed systematically by innovation, and antitrust intervention has been subject to limitations due to the tradeoff between competition and financial stability.¹⁴ It must be pointed out that to maintain vigorous competition is only an intermediate objective in so far it fosters social welfare. This is why there is a tradeoff between competition and stability.

¹² Another possibility is that an e-money provider monopolizes digital payments by preventing or making difficult the interoperability with other e-money providers. This is one of the reasons by Central Bank Digital Currency is being discussed. See T. Adrian and T. Mancini-Griffoli, The Rise of Digital Money, *International Monetary Fund FinTech Notes* No. 2019/001 (2019).

¹³ See X. Vives, Digital Disruption in Banking, *The Annual Review of Financial Economics*, 11 (2019), 243 ('Vives, 'Digital Disruption in Banking'').

¹⁴ See X. Vives (2016), *Competition and Stability in Banking: The Role of Competition Policy and Regulation*, NJ: Princeton Univ. Press

Now the development of information technology has accentuated the challenge. We have seen how progress in IT may exacerbate situations where competition is excessive from the social point of view, be it in the form of too low loan rates or in the form of an excessive proliferation of trading venues. Furthermore, new tradeoffs have emerged as privacy issues have come to the forefront. To the competition-stability tradeoff we must add two more: the tension between efficiency/competition and privacy (since more disclosure of private data will increase competition but may impair privacy), and the tension between financial stability and privacy (since more disclosure of private data to the regulator may be good for stability but again at the cost of revealing private data).¹⁵ The latter tensions put consumer protection concerns at the forefront. Regulators must, for example, establish who owns and controls the data (here the EU is ahead with GDPR) and ensure secure transactions in platforms. Among the tasks regulators must consider that digital technology allows enhanced price discrimination and exploitation of possible behavioral biases of consumers and investors.

Open banking initiatives aim to foster competition by allowing (and making compulsory under customer request) data sharing among incumbent banks and entrants (third party providers). The pioneer experience in the UK indicates that open banking has increased switching in retail banking.¹⁶ An important question is whether and if so to what extent should the playing field be tilted in favor of entrants to promote contestability. In the EU there is some asymmetric treatment of incumbents and entrants since the former must abide by the Payment Services Directive (PSD2), mandating that customers be able to share their data with entrants if they so wish, while the latter must abide by the General Data Protection Regulation (GDPR) and facilitate data portability only in cases where it is technically feasible. However, the proposed Digital Markets Act (DMA) may balance the asymmetry by requiring dominant platforms (gatekeepers) to share information under interoperability rules. Regulation by activity may aim to level the playing field between incumbents and entrants, but financial stability depends on the soundness of entities and therefore there are limits on leveling the field. That is, because of prudential concerns, not all the intermediaries may be on an equal footing in their supply of services. Again, the aim of fostering competition must come to terms with financial stability concerns.

Finally, there is the issue of the control of emerging monopolization tendencies inherent when network effects and the dynamic economies of scale of data accumulation are present. This latter aspect is attracting most attention of antitrust authorities and regulators. The European Commission (EC) has pioneered cases against some of the platforms and now there is a BigTech backlash in all jurisdictions with proposals to restrict their activities (and even threatening with break ups) with the US, UK, EU and China as leading examples. What is more, the perception seeming to be that current antitrust law may not be the right tool to control the market power of platforms and that ex ante regulation should play a major role. A major issue is that the business model of platforms involves typically not charging one side (say consumers which implicitly pay for services with personal data) and therefore it is difficult to claim output reduction or price increases that hurt customers.

¹⁵ See E. Carletti, S. Claessens, A. Fatás and X. Vives, The Bank Business Model in the post Covid-19 World, *CEPR* (2020).

¹⁶ From 4% switching business current account in 2016 for small businesses in the UK (pre-open banking) to about 10% by the end of 2020. See <https://www.openbanking.org.uk/wp-content/uploads/OBIE-SME-Research-Infographic.pdf>

Mobile payments are an active antitrust area as the Apple Pay cases in the EU and the US show. The EC opened a formal antitrust probe into Apple Pay in June 2020 (and competition regulators in the Netherlands launched their own investigation in December). The aim is “to assess whether Apple's conduct in connection with Apple Pay violates EU competition rules. The investigation concerns Apple's terms, conditions and other measures for integrating Apple Pay in merchant apps and websites on iPhones and iPads, Apple's limitation of access to the Near Field Communication (NFC) functionality (“tap and go”) on iPhones for payments in stores, and alleged refusals of access to Apple Pay”.¹⁷ An issue is that the Wallet app comes pre-installed and cannot be deleted and Apple encourages its use by default. Such behavior could be challenged under the proposed digital regulations in the EU due to affect gatekeeper online platforms, which state that gatekeepers should not promote their services above those of their rivals on the platforms they operate.¹⁸

In the US Epic Games, the maker of Fortnite, introduced changes to the game to bypass Apple's App Store payment system. Apple responded blocking the game and Epic filed a lawsuit in August 2020. A US federal judge ordered Apple early September 2021 not to interfere with apps that wished to take payments outside of its store (Epic has already appealed the decision). Until then Apple had forbidden apps from including links so that customers of the App Store could buy digital items elsewhere. The judge stated that “anti-steering” provisions of this sort “hide critical information from consumers and illegally stifle consumer choice”. The judge said that this conduct was anticompetitive, but that it had not been demonstrated that Apple was a monopolist violating antitrust laws.¹⁹ The judge did not concede to Epic Games allowing customers to bypass the App Store and download the games directly on the mobile devices. Furthermore, the judge did not find Apple's commissions in breach of antitrust law (in fact, the judge required Epic to pay the commission on payments that had avoided the Apple system). Apple has been levying 15% to 30% commission on processed payments. In late August 2021, Apple had already made a concession to apps such Netflix and Spotify (but not to the revenue generating gaming apps) to let them include links to their own websites to bypass the fees of the App Store.²⁰ In early September, Apple had also settled with the Fair Trade Commission of Japan to let apps providing digital content to

¹⁷ Antitrust: Commission opens investigation into Apple practices regarding Apple Pay, European Commission (2020): https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1075

¹⁸ The EC issued on April 2021 a related Statement of Objections to Apple on App Store rules for music streaming providers (https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_21_2093) following a complaint by Spotify. Competition Commissioner Vestager stated that “Our preliminary finding is that Apple is a gatekeeper to users of iPhones and iPads via the App Store. With Apple Music, Apple also competes with music streaming providers. By setting strict rules on the App store that disadvantage competing music streaming services, Apple deprives users of cheaper music streaming choices and distorts competition. This is done by charging high commission fees on each transaction in the App store for rivals and by forbidding them from informing their customers of alternative subscription options”. The Commission points to the combination of two rules that Apple imposes in its agreements with music streaming app developers: (i) “The mandatory use of Apple's proprietary in-app purchase system (“IAP”) for the distribution of paid digital content. Apple charges app developers a 30% commission fee on all subscriptions bought through the mandatory IAP. The Commission's investigation showed that most streaming providers passed this fee on to end users by raising prices” and (ii) “«Anti-steering provisions» which limit the ability of app developers to inform users of alternative purchasing possibilities outside of apps”. Available at https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2061.

¹⁹ It is argued also that the relevant market is not the App Store but “digital mobile gaming transactions” where there is competition with the Android operating system.

²⁰ See P. McGee, Apple's grip on App Store loosened by US judge, and Judge opens Apple's App Store to competition, Financial Times, 10 September 2021.

redirect users to payment methods outside the Apple system and Apple will have to comply with a new law in South Korea opening up payment methods outside platforms' ecosystem.

Those cases indicate that international enforcement may lead the way to set standards for BigTech whenever compliance in one jurisdiction (be it Japan, South Korea or the EU) only does not make sense. We see also that the tendency is to impose obligations and restrictions on dominant platforms so that they do not abuse their position but, so far, the established idea that size is not an offense has not been overturned.

There are also calls to toughen merger control to avoid so-called killer acquisitions. The failed acquisition of Paid by Visa, abandoned in January 2021 provides a good example of the new state of alert and assertiveness by antitrust authorities. The DoJ alleged that the acquisition was designed to eliminate a competitive threat to Visa's monopoly in online debit payments.²¹ Interestingly, the valuation of Plaid had tripled by April 2021 with respect to the price Visa had agreed to pay for the company.²²

Antitrust tries to be more forward looking but this is obviously difficult and makes projections tentative. The proposed Digital Markets Act in the EU intends to ensure a higher degree of competition in the European Digital Markets, by preventing the abuse of market power by large platforms and by fostering the entry of new players. However, the situations it envisions are backward looking and refer implicitly to past competition problems. The recent UK approach proposes to look at the business model of the dominant platforms and may be more promising.

The consideration of innovation prospects is crucial for antitrust authorities, but the task has never been easy. Dominant players may have no incentive to implement disruptive innovations since they would cannibalize their established business, and this is an argument for antitrust authorities to avoid those acquisitions of potential competitors that would threaten the business. However, the tendency to impose regulatory obligations on the platforms may also stifle innovation. It is very difficult for a regulator to anticipate where technological advancements will happen. However, we do know that insufficient competition will impair innovation and there is a tool to increase competition among the ecosystems of different platforms: fostering interoperability and data portability with appropriate assignment of control rights on data.²³ This lowers the switching costs among platforms, and it will be pro-competitive. It is worth noticing that IT progress may make easier such interoperability and data portability without hampering privacy, alleviating one potential trade off.

The antitrust FinTech challenge is formidable. This is so because of the pace technological change and the fact that innovation is what delivers value to consumers. Furthermore, the impact of IT technology on competition is subtle and requires a case-by-case analysis. Attention to the specific business model at play will be necessary. There are instances where IT progress will exacerbate competition beyond the social optimum, and the antitrust authority will have to coordinate with prudential or financial market authorities. There are instances where the business model will lead to monopolization tendencies that will have to be checked. On most occasions antitrust and regulatory authorities will have to see whether the competition concerns are aligned or not with privacy concerns, and consider potential interactions

²¹ Plaid provides an API, that fintechs (e.g. Venmo) use to link to customer bank accounts.

²² See M. Kruppa, Plaid valued at \$13.4bn following collapse of sale to Visa, Financial Times, 7 April 2021.

²³ However, the efficient assignment of control rights with a Coasian approach is not easy because of the presence of market power and information externalities (see Vives, 'Digital Disruption in Banking').

with behavioral biases together with consumer protection authorities. Indeed, the antitrust authority will need to coordinate with financial and consumer protection regulators as well as the nascent data regulators. However, most likely the main task of the antitrust authority in dealing with FinTech is to push for better regulation and provide the conditions for competition to be effective, otherwise innovation may be the victim.