Financial Conduct Authority Call for Input: the potential competition impacts of Big Tech entry and expansion in retail financial services

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Consultation response from the

Centre for Competition Policy

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This consultation response has been drafted by named academic members of the Centre, who retain responsibility for its content.

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The Centre for Competition Policy welcomes the opportunity to respond to this call for input. This response is structured as follows:

- Replies to paragraphs 1.3 and 1.6;
- Responses to questions 1-3, 7, 8 and 10.

Paragraph 1.3

In paragraph 1.3, the FCA writes: *"This data asymmetry arises because financial services firms are unable to access Big Tech firms' datasets which currently sit outside of data sharing initiatives, whereas financial services data could be accessed by Big Tech firms. The feedback provided to DP 22/5 highlighted these issues but **did not provide sufficient evidence on their drivers or severity**."* [bold/ italics/underline added]

Reply to paragraph 1.3:

We do not have evidence on the drivers of data asymmetry as a consequence of big tech firms' proprietary data sources within financial services. However, there does exist evidence on the consequences of access to asymmetric data sources in another data-driven market: search engines. Klein et al. (2022) report on an experiment with a small search engine (Cliqz) and show that this search engine's algorithm is good enough to produce similar quality levels than Google and Bing for popular search queries (measured by various quality metrics).[1] For "rare" queries, they show that more user-generated data improves search-engine quality − but rare queries generate 74% of that search engine's traffic! Hence, in order to attract users, a search engine must be able to provide high quality on rare queries, which is impossible without access to the incumbent's user-generated data. Importantly, this shows that even in the search engine market, it is not Google's superior algorithm that explains its super-dominant position in nearly all markets globally. Instead, it is its exclusive access to significantly more user-generated data, which originated from having a higher market share for the past 20 years.

As in all four retail financial services covered by the FCA Discussion Paper (deposits, consumer credit, insurance, and payments), digital services and tools can also easily collect a significant amount of user-generated data, which can be used to improve the products of those providers that have access to the data, there is no reason to assume that the role of data is different here than in the search engine market studied by Klein et al. (2022).

Paragraph 1.6

In paragraph 1.6, the FCA writes: *"the significant expansion of Big Tech firms in financial services and their potential interconnectedness with financial services firms could also give rise to systemic risks that might have financial stability implications."* [italics added]

Reply to paragraph 1.6:

This is correct. The case after Big Tech firm's entry is even more severe than traditional systemic risk considerations because of two parallel characteristics:

1. Financial retail markets are most likely "data-driven markets" (see box below), which will "tip" in the long run almost surely. Therefore, after big tech's entry the likelihood is high that one

[1] Klein, T. J., M. Kurmangaliyeva, J. Prüfer and P. Prüfer (2022) "How important are user-generated data for search result quality? Experimental evidence"; CCP Working Paper No. 22-07.

big tech firm would also dominate each of the submarkets (where the identity of the dominant firm could notably differ across the submarkets deposits, consumer credit, insurance, and payments). This would lump many risks together.

2. Traditional systemic risk refers to factors beyond the control of one party. Systemic risk materializes because of a badly understood conglomerate of many background developments. If financial services are data-driven and one big tech firm dominates the market, however, that one firm will be the party holding the trigger to the materialization of the "systemic risk". Therefore, the entire UK was much more in the hands of one (foreign) firm and prone to be blackmailed, lobbied, manipulated, etc.

The consequences outlined by 2. are exacerbated by the size of Big Tech firms, which operate in multiple jurisdictions – potentially affected by weaker macroprudential requirements, due to their conglomerate nature and the fact that they are not considered systemic financial services companies, yet. Their still relatively small market share in traditional financial services, which are supplied by commercial (and cooperative) banks and insurance companies, may substantially increase over time: according to Cornelli et al. (2020)[2], Big Tech firms' credit, which also includes SME micro loans (to be added in the analysis to the segments mentioned above), should have overcome $1 trillion in 2023. This trend may erode the traditional banking sector's profits, which could pose systemic risk per se. Considering also that Big Tech firms have become key players in the payments sector, operational risk, arising, for example, from data security risk or clearing/settlement of payment transactions, should not be overlooked neither.

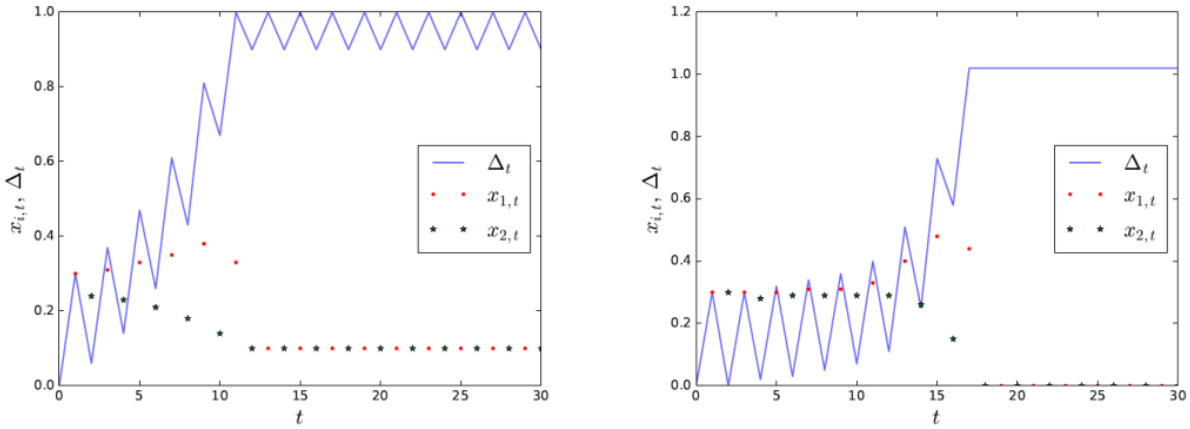
Knowledge box: The theory of data-driven markets[3]

The theory studies a market with two (main) service providers. If on this market (i) the interaction between users and a provider works via computers, which enables a provider to save many characteristics (e.g. IP address) and decisions of users (e.g. where to click) in *log* files and (ii) if these *user information* about users' preferences and characteristics are a valuable input into the provider's innovation process (e.g. because they know what extra product features users really want), then we call such a market "data-driven." In economic terms: the marginal cost of innovation must be decreasing in the amount of user-generated data (which is a function of demand).

If a market is data-driven, this has tremendous consequences. Look at the *left panel* of the following figure, which is taken from Prüfer/Schottmüller (2021). It displays a numerical simulation of (equilibrium) investment decisions of both firms over time (red dots for firm 1 and black stars for firm 2) and the resulting market shares (blue curve: the vertical value 0.0 means 50% market share of each firm, 1.0 means firm 1 has 100% market share and firm 2 has 0%).

[2] See Cornelli, G., J. Frost, L. Gambacorta, P. Raghavendra Rau, R. Wardrop, and T. Ziegler. "Fintech and big tech credit: a new database." (2020).

[3] See Argenton, C. and J. Prüfer (2012), "Search Engine Competition with Network Externalities", *Journal of Competition Law & Economics*, 8(1), 73-105, and Prüfer, J. and C. Schottmüller (2021), "Competing with Big Data," *Journal of Industrial Economics*, 69: 967-1008.



At the start of the simulation, it is assumed that each firm has 50% market share. Firm 1 only has one advantage because it can invest in innovation first, which increases its product's quality and, consequently, increases its market share. Only in period 2, firm 2 can innovate itself (and so forth, i.e. firm 1 invests in odd periods, firm 2 in even periods; this alternating order has game-theoretic reasons. For details, see the paper).

What the figure shows is that, for several periods, both firms invest heavily in innovation: they compete *for* the market. However, due to the steadily decreasing market share of firm 2 (the blue curve on average goes up), its marginal innovation cost increases. Consequently, it invests less and less in innovation (the black stars decrease). By contrast, firm 1 benefits from its first-mover advantage and, due to more data and lower marginal cost of innovation than its competitor, can innovate heavily (red dots increase). Crucially, this process of intense innovation of firm 1 stops when it has reached a very high market share (blue curve is approaching 1.0). Then, firm 2 has given up (red stars remain at low level). Firm 1 is dominating the market, constantly renewing its stream of user-generated data, and enjoying monopoly profits. Gladly (only for firm 1), it does not even need to spend large sums on innovation, anymore (also red dots sink and then remain at low level).

The *right panel* of the figure captures a similar situation but where profits in the future are even more important. Here, firm 1 is incentivized to innovate until firm 2 is literally kicked out of the market (has 0% market share) and does not innovate at all. As a best response, firm 1 also does not innovate at all (red dots and black stars remain at zero). Both figures show that, after the initial phase of competing for the market, firm 1 virtually monopolizes the market: economists say that *the market has tipped.*

Key intuition

It is crucial to understand *why* firm 2 does not innovate once the market has tipped. Assume firm 2 has a great idea for a better product or surprisingly gets access to large funding. Its problem is its very low market share, which implies that its algorithm has access to relatively little user information. Consequently, its marginal cost of innovation is high. If it does roll out its great idea, for which it will need deep financial pockets, it can convince some users and gain a bit of market share (see the left panel after market tipping/period t=12, where the blue curve decreases a bit for one period). Firm 2's problem is that firm 1 also learns about the great idea and will try to copy it (=invest in innovation) — however at much lower cost of innovation because it has such an advantage in valuable user-generated data. Consequently, after a brief fight firm 2 will be back at its very low market share — but have still to pay back the capital cost for the attempted innovation leap. Therefore, in equilibrium (i.e., in a stable situation) firm 2 (or any other firm considering market entry) is deterred from attempting to innovate heavily. This explains low degrees of innovation in a tipped data-driven market — for a very long time. This is the theory of harm that justifies a specific kind of market regulation: mandatory data sharing.[4]

Why mandatory data sharing does not diminish innovation incentives of dominant firms on data-driven markets

Importantly, if a dominant firm in a data-driven market is forced to share its user-generated data with competitors, some people think that it would have *less* incentives to invest in the collection of data and, hence, in innovation. This notion is wrong as explained above. The reason is that user-generated data comes as a (virtually) free by-product of doing business/interacting with users. E.g., to give advice about mortgages or an insurance product via an algorithm, the robo-advisor[5] needs some explicit information from the client and, via the logging of the client's choices on the website, the provider learns a lot of additional information without investing specifically in it. Therefore, if the provider/adviser is forced to share data, there are no "incentives to invest in data" that can be diminished.[6]

[4] For one detailed suggestion how mandatory data sharing can be implemented on data-driven markets, see Graef, I. and J. Prüfer (2021), "Governance of Data Sharing: a Law & Economics Proposal," *Research Policy*, 50: 104330. For a related, practically existing way, see the EU's *Digital Markets Act, Art. 6(10,11).*

[5] Robo-advisor is definited as a virtual investment management service that provides automated investment advice, using user's input, combined to other data sources with the use of algorithms.'

[6] This situation is different on markets where there is no stand-alone service that the provider offers to the user but where the provider only tracks users and collects their information, e.g., via web scraping. Then, mandatory data sharing would indeed diminish incentives for data collection. But those markets are not "data driven" in the way defined in the knowledge box – and they do not reflect well the situation on retail finance markets.

Questions 1a and 1b: What are the competition or data-based competition issues arising in wholesale markets? Are these similar or different to the issues that we are considering in retail markets?

The theory of data-driven markets applies directly to *retail* markets because here the provision of services is accompanied by the automatic collection of new information about users' preferences and characteristics. This suggests focusing on retail markets, less on wholesale markets, which are much less driven by "data-driven indirect network effects" (see Prüfer/Schottmüller, 2021).

Question 1c: Should we be expanding our scope to include wholesale markets?

Unless technology allows individual end users to act directly on wholesale markets, those markets are not data driven and, hence, subject to traditional competition law concerns. However, in contrast to retail markets no special regulation is needed.
While at this stage we do not envisage substantial issues in the wholesale market, it is advisable to monitor the developments brought by Artificial Intelligence (AI) (including generative-AI) and robo-advisors, which may disrupt competition. In fact, market players such as credit rating agencies and data providers (e.g., Bloomberg, Market Intelligence, Refinitiv) may face additional competition, especially if these new services manage to acquire "enough trust" from users/clients (we will come back to the relevance of "trust" later in this response). While this may seem a healthy wave of competition, it is worth considering the (systemic) impact of potentially correlated investment recommendations that the algorithms underlying these systems may generate on securities and markets' volatilities, which would have a clear knock-on effect on the valuation of all financial institutions' marked-to-market assets.

Questions 2a and 2b: To what extent does this data asymmetry hold between Big Tech firms and financial services firms in retail financial services markets? Please provide evidence and information. What are the nature and drivers of any data asymmetry that exists?

In paragraph 3.8, the FCA writes: *"we received feedback regarding Big Tech firms' datasets, which they are not mandated to share when they enter financial services. In contrast, mechanisms exist for Big Tech firms to access financial services data."*

This notion of a double asymmetry is correct:

1. Today, due to 'Open Banking' regulation, **banks and other financial intermediaries in the UK are obliged to share certain information** about their customers. Big tech firms are not subject to such information in their core businesses (which are social media, search engines, e-commerce, maps/route planners, online platforms for all kinds of services, app stores, etc.)

2. The relevant data to transform the various retail finance submarkets into data-driven markets, which is currently ongoing, depends on the amount of data on users' preferences and characteristics. **Big Tech firms already have significant amounts of such user information**, both from within the UK and from other countries (from which machine-learning algorithms can easily draw inferences about the situation in very fine-grained UK submarkets).

Question 2c: Do you expect that data asymmetry to become more significant over time? If so, how?

We are convinced that if current policy does not change, this data asymmetry can only increase and become more significant over time. The development of AI (including generative-AI)-based services will favour those companies that have already developed high-powered AI systems, mostly Big Tech firms. The more powerful AI-related models become, the more precise the predictions on customers' risk profile will be. This would lead to better screening of borrowers, and an improved estimation of default and recovery rates[7], ultimately allowing for an increase in "loanable borrowers" (i.e., an increase in financial inclusion[8]). However, more tailored, probably more value-extracting (first-degree price discrimination) services may be to the detriment of traditional banking and finance corporations' profit generation. This may ultimately lead to more concentrated financial markets and increased concentration of risks. So, the overall impact on consumers is ex ante ambiguous.

Questions 3a and 3b: Are there regulatory (or other) constraints that mitigate or prevent: the asymmetry of data between Big Tech firms and other firms in financial services, or the adverse impact of this data asymmetry on competition?

Absent mergers and acquisitions, the answer to both questions is No. The policy implication from Q2. is simple: we propose to establish mandatory data sharing, as suggested in the knowledge box and the cited papers, and as implemented in the EU's Digital Markets Act, Art. 6(10). This regulatory intervention is not a silver bullet but has the potential to mitigate or delay market tipping. If it is implemented early enough, it may even prevent market tipping.

Question 7: Can you provide information, including examples and analysis conducted, that would show whether the competition benefits and harms that we have identified are emerging or are likely to emerge in the future, as well as any other competition impacts?

There are already some visible trends, which will most likely intensify with the development of artificial intelligence-related services. In this sense, robo-advisory has the potential to shake the whole financial advisory sector. For instance, private banking and wealth management will probably experience fierce competition from robo-advisory entrants, whose marginal costs will become nearly zero over time. Services will be more tailored to better profiled consumers, leading to market concentration but also to correlated investment recommendations. This could exacerbate shocks to securities' market prices with the possibility of increasing market volatility. In particular, reduction in variance of investment strategies may be correlated with higher risks of sudden market moves in one direction or another. Thus, broad adoption of rob-advisors with a common structure and objectives may have the effect of increasing likelihood of crashes. Having said this, there would be a possibility for contrarian investors to develop strategies that would profit from such crashes (and thus potentially reduce their effects)..

[7] See page 13 of Doerr, S., Frost, J., Gambacorta, L., & Shreeti, V. (2023). *Big techs in finance*. BIS Working Paper 1129, October 2023.

[8] See, for example, an extensive literature review research work, provided by Berg et al. (2022). Berg, T., Fuster, A., & Puri, M. (2022). Fintech lending. *Annual Review of Financial Economics*, *14*, 187-207.

Question 8: Do you have views on ways regulation can enable competition benefits to materialise while mitigating potential harms?

If regulation on AI-based services, such as robo-advisory, is well designed and ensures consumers' trust in the system, it could provide significant benefits to citizens that are financially but not digitally illiterate, e.g., many young people. Furthermore, if regulation of AI-based advisory services does ensure consumer trust it could provide a method for bridging the well-recognised 'advice gap' in financial services (FCA, 2023)[9]. This is particularly relevant as there is some evidence which could suggest this gap is increasing[10]. In effect AI could facilitate access to affordable, yet reliable financial advice, particularly for consumers which may have not considered financial advice without the simplicity-- what high-powered AI-services offer (just recall how ChatGPT has revolutionized many services since its public deployment in November 2022). Therefore, robo-advice could expand the reach of financial advice markets, which, in turn, could eventually have positive competition implications for these markets. Nevertheless, given the importance of trust in financial advice markets and the low level of adoption of robo-advice currently, robo-advice does not appear to be at the stage where it could completely replace (or even really compete with) human advice and it still appears to be rather nascent. Another important competition angle to consider is that if the regulation of robo-advice is designed and implemented correctly it could provide a means to counterbalance the issue of potentially correlated investment recommendations.

Question 10: We welcome information on how partnerships between Big Tech firms and financial services firms have evolved, the potential benefits they bring, and any potential competition concerns.

Without targeted and effective regulation, Big Tech firms have no incentives to share data with traditional financial service providers. On the contrary, Big Tech firms will attempt to extract critical assets/know-how from financial services firms (just as in all other sectors they have entered such as automobile production or internet connectivity). In the long run, Big Tech firms will become even bigger conglomerates, which will lead to much weaker competition in the financial services sector, amongst many others. Policymakers need to be bold in dealing with such prospects, as financial stability and systemic risk will be negatively affected by this change of market structure. Waiting too long before intervening is not an option in data-driven markets as it is close to impossible to re-do market tipping and its negative effects for innovation, welfare, balance of powers, and systemic risk there.

[9] See: FCA, *'DP23/5: Advice Guidance Boundary Review.'* FCA Policy Paper 2023. for a further discussion of the advice gap. For readers not familiar with the advice gap, this typically refers to the issue that consumers may find it difficult to identify that they need financal advice, and when they do identify this they often cannot access high quality advice. This paper also highlights that AI does not currently make up a significant proportion of the financial advice market. Available at dp23-5.pdf (fca.org.uk)

[10] Particularly on the supply side as a study by Schroders (2023) found that only 25% of Independent Financial Advisors were willing to work with new clients with under £50,000 to invest, a drop from 53% willing to do so in 2019. See Schroders, 'UK finanical adviser annual survey: advisor report' Schroders 2023 for more details. Available at 610338_Schroders-Annual-Adviser-Survey-2023_Report_DIGITAL.pdf