



The Cloud Services Markets' Competitive Landscape: A contribution to the Competition and Markets Authority

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I. Introduction: the rapidly evolving cloud services market

With the growing digitization of the economy, companies have been increasing its spending on information technology (IT) to better serve consumers.² While companies rely more in digital services, cloud services prevail as companies migrate from privately-owned IT infrastructure to cloud computing. This shift is driven by an incredibly powerful value proposition: cloud services enable companies to have infrastructure available immediately and customised to the scale needed by their business, driving efficiencies in operations. Furthermore, such services also cultivate innovation as companies' resources are freed up to focus on new products and growth. Hence, cloud services support the ability to test and try out new products and business models.³ In addition to (i) lower costs and (ii) higher innovation, cloud services benefit firms by enabling (iii) scalability, (iv) flexibility, (v) high processing speed, (vi) data security and by (vii) assisting customers with maintenance (which is handled by third parties without the customers having the burden to deal with it).⁴

Despite the undeniable benefits that cloud services generate to the economy, firms (especially small and medium-sized firms – SMEs) occasionally face challenges in further implementing cloud computing. Cloud management (which requires proactivity, planning and monitoring), lack of expertise, security (lack of trust in shared resources – e.g., public clouds), compliance (clear rules are required with respect to shifting data from internal storage to clouds) and cloud migration (complexity of the data migration

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² Statista, “Information Technology (IT) Worldwide Spending from 2005 to 2024”, (April 2024), <https://www.statista.com/statistics/203935/overall-it-spending-worldwide/>.

³ Andreessen Horowitz, “The Cost of Cloud, a Trillion Dollar Paradox”, (May 27, 2021), <https://a16z.com/the-cost-of-cloud-a-trillion-dollar-paradox/>.

⁴ See Corporate Finance Institute, “Cloud Services”, (accessed on June 3, 2024), <https://corporatefinanceinstitute.com/resources/data-science/cloud-services/>; and Statista, “Public Cloud: Market Data & Analysis”, (November 2023), <https://www.statista.com/study/85676/public-cloud-report/>.



process) are among the practical issues firms can struggle with.⁵ Anyhow, the market for cloud services finds itself in great expansion. A study estimated that about 94% of enterprise workloads would be cloud-based by 2021 and “the possibility of a 100% shift to the cloud [was] also high as organizations want a flexible and scalable data storage and processing solution.”⁶ In the United Kingdom, a survey by Statista indicates that companies used cloud services in 2023 mostly for the purposes of: (i) online storage of files and pictures; (ii) online application to create office documents (e.g., Google Docs; Microsoft Office Online); and (iii) online backup for computers or smartphones.⁷

Against this backdrop, from a competition policy standpoint, regulators and enforcers should act whenever (and only) markets have presented (or will likely present) failures that prevent it from functioning properly and/or whenever markets prove themselves not to be contestable. Under these circumstances, intervention (either *ex ante* or *ex post*) is called for to allow companies (including both incumbent and entrants) to compete against each other on the merits to best serve consumers’ interests. Yet, there is no indicia that the market for cloud services in the United Kingdom has not worked well for consumers until this moment, neither evidence that it will stop from working well in the future.

With the purpose of contributing to the Competition and Markets Authority’s (CMA) market investigation⁸, I provide hereby considerations about the cloud services markets’ competitive landscape

⁵ A study by Yazn Alshamaila *et al* (2013) on SMEs in England elaborated on the main difficulties for companies of such size to start hiring or to hire additional cloud computing services. The authors found that the vagueness surrounding this type of technology was an important factor, while no evidence was found that competitive pressure was a significant determinant of cloud computing adoption. See Yazn Alshamaila *et al*, “Cloud Computing Adoption by SMEs in the North East of England”, *Journal of Enterprise Information Management*, Vol. 26, Ed.3, (2013),

<https://www.proquest.com/docview/1355413778/fulltextPDF/F6C0530E39C44BCCPQ/1?accountid=11243&sourcetype=Scholarly%20Journals>.

⁶ Corporate Finance Institute, “Cloud Services”, (accessed on June 3, 2024), <https://corporatefinanceinstitute.com/resources/data-science/cloud-services/>;

⁷ Statista, “Cloud Computing in the UK”, (accessed on June 4, 2024), <https://www-statista-com.us1.proxy.openathens.net/study/36399/cloud-computing-in-the-united-kingdom-uk-statista-dossier/>.

⁸ See Competition and Markets Authority, “Cloud Services Market Investigation”, (opened on October 5, 2023), <https://www.gov.uk/cma-cases/cloud-services-market-investigation>.



working paper (“Working Paper”)⁹.¹⁰ In particular, this paper demonstrates that such markets are characterised by a more intense competition than the Working Paper implies, considering the rise of a number of players that have been able to offer competitive constraints to incumbents. In addition, this submission provides strong evidence that the markets for cloud services are global, entitling, thus, a wider geographic market definition than the Working Paper suggests. Anyhow, fierce competition is observed both in a narrow (e.g., United Kingdom; Europe) and in a broader (e.g., global) geographic market definition.

Corroborating the view that the market for cloud services is highly competitive, the analysis of the prices for cloud services indicates that consumers have been having access to more innovative products with increasing quality at lower prices, mitigating antitrust concerns. In this regard, this essay also discusses the risks of regulators directly interfering in prices and gives insights on how to better tackle potential concerns that may arise in the market for cloud services, without stifling innovation and without harming businesses and consumers in the United Kingdom. Finally, I submit considerations with respect to the theories of harm identified by the CMA’s Issues Statement and to the potential remedies that the United Kingdom’s competition authority discusses in its market investigation.

II. The fierce and global competition in the market for cloud services

One topic that the Working Paper deserves further consideration consists of the geographic dimension of market definition. According to the Working Paper, the CMA’s emerging view is that the relevant markets for cloud services – Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS) – are more likely to be Europe-wide (region encompassing the United Kingdom and the European Economic Area – EEA). Such document suggests that markets for cloud services are wider than the United Kingdom, but not as wide as global.

⁹ Competition and Markets Authority, “Cloud Services Market Investigation: Competitive Landscape Working Paper”, (May 23, 2024),

https://assets.publishing.service.gov.uk/media/664f1917bd01f5ed3279411c/240520_Competitive_Landscape_WP_2_.pdf.

¹⁰ The purpose of this document is to provide comments to the Working Paper on competitive landscape. Nevertheless, the considerations herein provided could also relate to issues brought by the other two working papers issued by the CMA in its current market investigation, namely, the working papers on (i) egress fees; and (ii) committed spend agreements.



However, a number of studies indicate that the market is in fact global, or at least wider than the region combining United Kingdom with Europe. In fact, several of such studies have been conducted by competition authorities worldwide, such as the *Autoriteit Consument & Markt* (ACM, the Dutch Competition Authority) and the *Autorité de la Concurrence* (the French Competition Authority). In its market study on cloud services, the ACM posited that “the market for cloud services is international, not least due to the players that provide cloud services”.¹¹ The *Autorité de la Concurrence*, by its turn, pondered that the geographic dimension of markets for cloud services depend on a number of variables, including (i) data sovereignty; (ii) data use; (iii) data latency; (iv) customers’ technical constraints; and (v) network requirements. Therefore, the *Autorité de la Concurrence* concluded that the different product markets for cloud services do not have the same geographical dimensions, and some could have a global dimension (e.g., a workload that is not subject to local certification requirements).¹²

Taking into consideration a global market for public cloud services in general (without segmentation into IaaS, PaaS or SaaS), the market accounted for US\$ 421 billion in revenues in 2022.¹³¹⁴ As the graph below illustrates, the market structure is very dispersed. The Amazon Web Services (AWS) had a [REDACTED]% market share in such year, followed by Microsoft ([REDACTED]%), Google ([REDACTED]%), Salesforce ([REDACTED]%), IBM ([REDACTED]%), Alibaba ([REDACTED]%), SAP ([REDACTED]%), Adobe ([REDACTED]%), Oracle ([REDACTED]%) and ServiceNow ([REDACTED]%). The players outside the top10 encompassed [REDACTED]% of the market.

Worldwide market structure in 2022: Public cloud services in general

[REDACTED]

Source: Statista.¹⁵

¹¹ *Autoriteit Consument & Markt*, “Market Study Cloud Services”, (September 5, 2024), <https://www.acm.nl/system/files/documents/market-study-def-public.pdf>.

¹² *Autorité de la Concurrence*, “Opinion 23-A-08, on Competition in the Cloud Sector”, (June 29, 2023), https://www.autoritedelaconcurrence.fr/sites/default/files/attachments/2023-09/23a08_EN.pdf.

¹³ Statista, “Market Insights: Public Cloud – Worldwide”, (accessed on June 4, 2024), <https://www.statista.com/outlook/tmo/public-cloud/worldwide#key-players>.

¹⁴ Unless stated otherwise, the market shares mentioned in this document are calculated in terms of revenue.

¹⁵ Id.

The IaaS market accounted for US\$ 115 billion in 2022. The top6 cloud providers in this segment were AWS ([REDACTED]%), Microsoft ([REDACTED]%), Google ([REDACTED]%), Alibaba ([REDACTED]%), Huawei ([REDACTED]%) and IBM ([REDACTED]%). They comprised [REDACTED]% of the market.

Worldwide market structure in 2022: IaaS

[REDACTED]

Source: Statista.¹⁶

PaaS consisted of the smallest market out of the three segments in 2022, totalling US\$ 86 billion. The top6 players comprised [REDACTED]% of the market. AWS ([REDACTED]%), Microsoft ([REDACTED]%), Google ([REDACTED]%), Alibaba ([REDACTED]%), IBM ([REDACTED]%) and Akamai ([REDACTED]%) were the providers with the largest revenues.

Worldwide market structure in 2022: PaaS

[REDACTED]

Source: Statista.¹⁷

The SaaS markets was the largest segment in terms of revenue, having accounted US\$ 220 billion worldwide in 2022. It is also the most fragmented market. The top10 players worldwide comprised [REDACTED]% of the market. The leader was Microsoft ([REDACTED]%), followed by Salesforce ([REDACTED]%), SAP ([REDACTED]%), Adobe ([REDACTED]%), AWS ([REDACTED]%), IBM ([REDACTED]%), Oracle ([REDACTED]%), ServiceNow ([REDACTED]%), Workday ([REDACTED]%) and Google ([REDACTED]%).

Worldwide market structure in 2022: SaaS

[REDACTED]

¹⁶ Id.

¹⁷ Id.



Source: Statista.¹⁸

As the data shows, there are currently numerous cloud providers globally, including Microsoft Azure, Alibaba Cloud, AWS, Google Cloud Platform, Huawei, IBM Cloud and Oracle Cloud. In addition to AWS, Google, and Microsoft – the three companies which the Working Paper dedicates a larger part of its assessment –, other firms such as Oracle, IBM, OVH Cloud, and Alibaba are also making noteworthy contributions to the cloud ecosystem, as indicated by their recent growth stated in their separate quarterly earnings. Oracle reported quarterly cloud revenue of US\$5.1 billion, with a growth rate above 25%.¹⁹ IBM generated US\$3.1 billion in quarterly cloud computing infrastructure revenue.²⁰ OVH Cloud achieved nearly €500 million in revenues for cloud services in the first half of its fiscal year that ended on February 29, 2024, and is seeing a growth rate of over 10%.²¹ Alibaba is recognized for its multibillion-dollar operations. Moreover, the market has recently seen the emergence of other players, including DigitalOcean, Baidu and Tencent.²²

Therefore, one cannot disregard the possibility of the markets for cloud services being wider than a region encompassing only the United Kingdom and Europe. As the Working Paper acknowledges, the differences between markets shares in terms of revenue and in terms of capacity “suggests that cloud providers serve UK customers using overseas datacentres”.²³ The interplay between cloud providers and consumers in the international arena shows that most cloud providers are active globally and supply their services across the globe. Due to the dynamic and globally competitive nature of the cloud market, conducting national-level studies runs the danger of yielding incorrect conclusions.

¹⁸ Id.

¹⁹ Oracle, “Press Release: Oracle Announces Fiscal 2024 Third Quarter Financial Results”, (March 11, 2024), <https://www.oracle.com/news/announcement/q3fy24-earnings-release-2024-03-11/>.

²⁰ IBM, “IBM Releases First-Quarter Results”, (April 24, 2024), <https://newsroom.ibm.com/2024-04-24-IBM-RELEASES-FIRST-QUARTER-RESULTS>.

²¹ Market Watch, “OVH Cloud Shares Slide After Company Lowers Guidance”, (April 23, 2024), <https://www.marketwatch.com/story/ovhcloud-shares-slide-after-company-lowers-guidance-da47f54b>.

²² See Cloud Zero, “11 Top Cloud Service Providers Globally In 2024”, (December 15, 2023), <https://www.cloudzero.com/blog/cloud-service-providers/>; Technology Magazine, “Top 10 biggest cloud providers in the world in 2023”, (February 15, 2023), <https://technologymagazine.com/top10/top-10-biggest-cloud-providers-in-the-world-in-2023>; and RCR Wireless News, “Baidu to Increase Investment in AI and Cloud, Plans for 5 Million Servers”, (June 22, 2020), <https://www.rcrwireless.com/20200622/business/baidu-ai-cloud-plans-5-million-servers>.

²³ Competition and Markets Authority, “Cloud Services Market Investigation: Competitive Landscape Working Paper”, (May 23, 2024), p. 109, https://assets.publishing.service.gov.uk/media/664f1917bd01f5ed3279411c/240520_Competitive_Landscape_WP_2_.pdf.

Although some jurisdictions impose data localization restrictions, this does not forbid entirely foreign players from competing in local markets, as the market share data of Chinese companies indicated above. Anyhow, such regulatory restrictions do impose additional constraints on trade that have an adverse effect on competition by restricting the number of available suppliers to consumers. Reviewing such restrictions or adopting common regulatory frameworks across jurisdictions, including in international fora (e.g., World Trade Organisation) would be welcoming initiatives to foster competition in the markets for cloud services even further. Otherwise, there will be a risk that each jurisdiction creates its own cloud, which would be a very costly and ineffective outcome. As the Information Technology and Innovation Foundation (ITIF) illustrates, the Microsoft Cloud Deutschland is an example of a frustrated attempt to create such “national cloud” that did not work out despite having taken place at the world fourth-largest economy.²⁴ Considering that many businesses in today’s economy operate globally, rigid data localisation rules are likely to impose a large cost on economic growth. Cloud computing comprises in essence services designed to have a long-distance, international reach, and even SMEs can gather substantial sums of investments in global infrastructure.²⁵ Other measures could be adopted to mitigate concerns related to security while respecting data sovereignty, including creating bilateral or plurilateral data access agreements, securing that cloud providers adopt periodic data disclosures to regulators, among others.

In conclusion, properly acknowledging the existence of a global competition for cloud services entails the understanding that the market is much more competitive and much less deconcentrated than the Working Paper implies. More importantly, acknowledging such international arena of competition is a more trustworthy diagnosis of the market’s dynamics.

III. Due considerations about market shares in the markets for cloud services

Even if one undermines the global competition that currently exists in the markets for cloud services and considers any of such markets (e.g., IaaS; PaaS; SaaS) as having a narrower geographic dimension, there are still elements that point toward the existence of fierce competition, mitigating antitrust

²⁴ ITIF, “Secrets from Cloud Computing’s First Stage: An Action Agenda for Government and Industry”, (June 1, 2021), <https://itif.org/publications/2021/06/01/secrets-cloud-computings-first-stage-action-agenda-government-and-industry/>.

²⁵ Id.



concerns. In contrast, the Working Paper misrepresents the true competitive landscape of these markets, which are rapidly evolving.

In attention to what the Working Paper suggests, it is worth to note the market share information that considers a region comprising the United Kingdom and Europe altogether as the geographic market for cloud services.²⁶ In the public cloud services in Europe in 2022 the top players (in terms of revenue) were Microsoft ([REDACTED]%), followed by AWS ([REDACTED]%), Google ([REDACTED]%), SAP ([REDACTED]%), Salesforce ([REDACTED]%), IBM ([REDACTED]%), Oracle ([REDACTED]%) and Shopify ([REDACTED]%). The data shows that the market is very deconcentrated. Moreover, it is possible to observe the presence of many players that are barely mentioned in the Working Paper, let alone that were considered in the assessment of the industry (for market shares, market outcomes and barriers to entry and expansion purposes – i.e., Sections 5 to 7 of the Working Paper).

European market structure in 2022: Public cloud services in general

[REDACTED]

Source: Statista.²⁷

Considering only IaaS, the data indicates AWS ([REDACTED]%) as the top supplier in 2022, followed by Microsoft ([REDACTED]%), Google ([REDACTED]%), Huawei ([REDACTED]%), Alibaba ([REDACTED]%), IBM ([REDACTED]%), Oracle ([REDACTED]%) and Shopify ([REDACTED]%). Again, among the top suppliers are players that were not given much attention in the assessment contemplated in the Working Paper, such as Huawei and Alibaba.

European market structure in 2022: IaaS

[REDACTED]

²⁶ The data on this section, extracted from Statista, comprises the following countries: Albania, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova, Montenegro, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and the United Kingdom. For ease of identification, this papers refers henceforth to “Europe” as the region comprising the referred countries. Differently from the “UK+EEA” definition adopted in the Working Paper, the data from Statista does not encompass data from Liechtenstein (EEA), but it incorporates data from Switzerland (non-EEA).

²⁷ Statista, “Market Insights: Public Cloud – Europe”, (accessed on June 4, 2024), <https://www.statista.com/outlook/tmo/public-cloud/europe#key-players>.



Source: Statista.²⁸

Considering only PaaS, we can see another player among the top cloud services provider (i.e., Akamai) that was not mentioned in the Working Paper. Alibaba is also active in the European market for PaaS, having ranked as the fourth largest provider in 2022. This information demonstrates that Chinese companies have been able to offer services in Europe, despite the existence of regulatory restrictions.

European market structure in 2022: PaaS

[REDACTED]

Source: Statista.²⁹

With respect to SaaS, Microsoft ([REDACTED]%) was the leader in 2022, followed by SAP ([REDACTED]%). It should be noted that, despite playing a significant role in the SaaS market in Europe, there are no records of SAP being considered in the competitive assessment described in the Working Paper.

European market structure in 2022: SaaS

[REDACTED]

Source: Statista.³⁰

Although the cloud services should not be seen as only UK-wide as regard the geographic market definition, the analysis of the market structure for cloud services in the United Kingdom also signal the presence of many cloud providers in such jurisdiction. Considering public cloud services in general, market shares are highly dispersed, as illustrated in the graph below:

UK market structure in 2022: Public cloud services in general

[REDACTED]

Source: Statista.³¹

²⁸ Id.

²⁹ Id.

³⁰ Id.

³¹ Statista, “Market Insights: Public Cloud – United Kingdom”, (accessed on June 4, 2024), <https://www.statista.com/outlook/tmo/public-cloud/united-kingdom#revenue>.

Considering IaaS, according to Statista, the top cloud providers in 2022 were AWS ([REDACTED]%), Microsoft ([REDACTED]%), Google ([REDACTED]%), Huawei ([REDACTED]%), IBM ([REDACTED]%) and Alibaba ([REDACTED]%).

UK market structure in 2022: IaaS

[REDACTED]

Source: Statista.³²

With respect to PaaS, players located in the fringe (players outside the top6) amounted [REDACTED]% of the market. The market share data shows also that Alibaba and Akamai were among the top6 players of this segment.

UK market structure in 2022: PaaS

[REDACTED]

Source: Statista.³³

Lastly, as regard SaaS, the market structure is even more dispersed in comparison to the other segments. Salesforce ranked as the second largest SaaS provider in the United Kingdom in 2022. Other players also managed to capture a considerable share of the market, such as Adobe and SAP.

UK market structure in 2022: SaaS

[REDACTED]

Source: Statista.³⁴

Therefore, one should note that the Working Paper ignores the existence or does not investigate further the competitive constraints offered by relevant players in Europe and/or in the United Kingdom, including Alibaba, Huawei, SAP, Salesforce, Akamai, Shopify and ServiceNow. Some of these players were among the top2 or top3 providers, depending on the market segmentation. Some of them were more relevant in terms of sales than other cloud providers to which the CMA dedicated a larger share of its assessment (i.e., Oracle and IBM). Moreover, as stated previously, other cloud providers have been investing substantially in the market and may take a larger share of the European market soon, such as

³² Id.

³³ Id.

³⁴ Id.



OVH Cloud³⁵, DigitalOcean, Baidu and Tencent. Including other players into all aspects of the investigation (e.g., market shares in terms of revenues, capacity and flows of new business; price and profitability analysis; entry and expansion barriers) conducted by CMA is encouraged, otherwise the markets for cloud services will be portrayed differently than they are.

IV. Prices in the market for cloud services indicate competition is fierce

Another topic that deserves careful consideration relates to the prices charged in the markets for cloud services. Cloud computing's prices continues to be deflationary despite economic inflation, highlighting the fierce competition among highly advanced companies, as highlighted above. In fact, evidence indicates that the market for cloud services has been seeing “price wars” between providers for many years.³⁶ This intense dispute between rivals has already translated into incumbents losing businesses to new or latecomers.³⁷ Corroborating this statement, the Report on Trade Practices in Cloud Services Sector conducted by the Japan Fair Trade Commission (the Japanese Competition Authority) noted that the prices of cloud services are declining, especially with respect to IaaS – which supposedly is the less deconcentrated market, according to the market shares presented earlier.³⁸

The markets' distinguished characteristics enable such fierce price competition. First, cloud services consist of a highly dynamic market, which is rapidly evolving and that will face great expansion in the future. Second, consumers have at disposal a broad set of alternatives when it comes to purchasing cloud computing products. Most cloud providers are solid, multinational companies that have access to funding and that can deploy an increasing amount in investments to create more innovative solutions. Third, as the Working Paper identified, few customers represent great part of cloud providers' revenues, including in the United Kingdom. For instance, in such jurisdiction, the top1%

³⁵ Data from OVH Cloud was examined for the profitability analysis mentioned in the Working Paper. The inclusion of this company, in addition to other cloud providers, is encouraged, as argued herein.

³⁶ See, for instance, Data Center Knowledge, “Alibaba Spurs Price War in Cloud Computing with Steep Cuts”, (March 1, 2024), <https://www.datacenterknowledge.com/cloud/alibaba-spurs-price-war-in-cloud-computing-with-steep-cuts>; Information Week, “Who Wins in Cloud Price Wars?”, August 27, 2014, <https://www.informationweek.com/it-infrastructure/who-wins-in-cloud-price-wars->

³⁷ Forbes, “Oracle Takes Aim at Amazon in New Cloud Price War Sparked by Covid-19”, (May 29, 2020), <https://www.forbes.com/sites/davidjeans/2020/05/18/oracle-takes-aim-at-amazon-in-new-cloud-price-war-covid-19/?sh=25adc16e2880>.

³⁸ Japan Fair Trade Commission, “Report on Trade Practices in Cloud Services Sector”, (June 2022), <https://www.jftc.go.jp/en/pressreleases/yearly-2022/June/221102EN.pdf>.

customers in terms of spending correspond to half of the total revenues for cloud services.³⁹ These large customers also manage to tailor their contracts with cloud providers, differently from less representative customers. This shows that such large customers have considerable bargaining (buyer) power, which can offset potential concerns that may arise with respect to cloud providers having significant market power. In fact, further exploring the relevance of big customers for cloud services and their countervailing power is likely an issue that deserves further assessment within the CMA's investigation.

As regard profitability, as the CMA itself posits, “findings that price-cost margins are wide or profitability is high in a market do not on their own provide conclusive evidence that the market could be more competitive; such findings are not in themselves causes of competitive harm”.⁴⁰ Indeed, economic theory does not say that competitive markets necessarily involve low profits. Even in perfect competition, only the marginal firm's return will equal to the cost of capital (others will receive positive economic profit). Before the markets reaches equilibrium, firms can earn profits. In fact, dynamic, innovative (e.g., digital) markets hardly reach an equilibrium. Generally, firms do not have identical costs so more efficient firms will have economic profit. Higher profitability can derive from past innovation (Schumpeterian rents) or superior efficiency (Ricardian rents). These two forms are pro-competitive and should not be of concern to competition authorities. They do not involve raising prices above (or reducing output or quality below) the competitive level. Schumpeter rents relate to creating newer products, enlarging output. Investments have risks so investors expect to earn more than the cost of capital (otherwise investments would not be made). Ricardian rents refer to offer same quality, lower priced (or higher quality, same price) products than competitors. Because of that, the use

³⁹ Competition and Markets Authority, “Cloud Services Market Investigation: Competitive Landscape Working Paper”, (May 23, 2024), p. 10, https://assets.publishing.service.gov.uk/media/664f1917bd01f5ed3279411c/240520_Competitive_Landscape_WP_2_.pdf.

⁴⁰ Competition and Markets Authority, “Cloud Services Market Investigation: Competitive Landscape Working Paper”, (May 23, 2024), p. 116, https://assets.publishing.service.gov.uk/media/664f1917bd01f5ed3279411c/240520_Competitive_Landscape_WP_2_.pdf.

of profitability for assessing market power is controversial in the antitrust community (it is mainly disregarded in the United States⁴¹, European Union⁴² and other jurisdictions⁴³).

Furthermore, the calculation of profitability in the market investigation undertaken by the CMA are based in the global profitability due to “the global nature of the cloud services they provide”, among other factors. In addition to showing that the market for cloud services should be considered as global with respect to its geographic dimension, by calculating a global profit, the use of profitability for assessing the competitive landscape in the United Kingdom and the European scenarios of market definition (as the CMA intended) seems even more troublesome.⁴⁴

Estimating the degree of market power involves assessing not only profitability, but all competitive constraints (e.g., buyer power; barriers to entry and expansion). Moreover, in line with arguments that this paper brought earlier, assessing the profitability of other players is also key. The fact that AWS and Microsoft have been posting considerable profits does not mean that there is a competition policy concern. Profitability is not a good measure of anticompetitive behaviour, let alone it must be a zero-sum game, where only certain players are profitable and others are not. The fact that an increasing number of firms are entering the cloud services markets could indicate that it is a highly profitable business which makes entry attractive.

⁴¹ Judge Richard Posner stated in the US Court of Appeals’ ruling on *Blue Cross v. Marshfield Clinic* (1995) that “there is not even a good economic theory that associates monopoly power with a high rate of return”. See *Blue Cross Blue Shield v. Marshfield Clinic*, 65 F.3d 1406 (7th Cir. 1995).

⁴² In its contribution to the Organisation for Economic Co-Operation and Development’s (OECD) roundtable on evidentiary issues in proving dominance, the European Commission stated that “an undertaking’s economic strength cannot be measured by its profitability at any specific point in time; even short-run losses are not incompatible with a dominant position”. See OECD, “Evidentiary Issues in Proving Dominance”, Series Roundtables on Competition Policy No. 82, (2006), <https://www.oecd.org/daf/competition/41651328.pdf>. See also *United Brands v. Commission*, 1978 ECR 207, paragraph 126, and *NV Nederlandsche Banden Industrie Michelin v Commission (Michelin I)*, 1983 ECR 3461, paragraph 59.

⁴³ For instance, the Brazilian antitrust authority (CADE)’s Horizontal Merger Guidelines list low profit margins just as one of several factors that may indicate intense competition. But it does not say that high profit margins are an indicator of market power.

⁴⁴ See Mike Walker and Robert Lind, “The (mis)use of profitability analysis in competition law cases”, CRA Competition Policy Discussion Papers, (2003), <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=f34b12a49ae81e33b6238bcd54aab8eac40aeedf>.



V. Conclusions and considerations on potential remedies

The fierce global competition that occurs in the markets for cloud services benefits consumers, who benefit from having access to products with more quality, more innovation, at lower prices. There are not indicia that the markets for cloud services are not functioning well in order to justify directly intervening in business' pricing strategies.

Due to these reasons, price regulations (including imposing price caps) seem extremely foolhardy in this moment. Instead of imposing pricing limitations, authorities should concern with allowing markets to remain contestable. In case of abuses, enforcers should intervene on a case-by-case basis. At the extent that discounts are based on reasonable terms and are not conditioned to the purchaser's lack of or limited spending on competing cloud services (similarly to the idea of "loyalty rebates", "market share rebates" or "share of need rebates", which can lead to exclusivity and market foreclosure⁴⁵), discounts should not be prohibited *ex ante*.

With respect to interoperability, multi-clouding and switching, increasing transparency and removing unreasonable barriers (whenever they are identified) for these three endeavours would enhance customers' choice and, thus, would be beneficial for consumer welfare. As regard software licensing, the adoption of fair, reasonable and non-discriminatory (FRAND) commitments, in addition to transparency, could mitigate concerns.

Imposing limitations on discounts whatsoever and strict technical standards could hinder innovation and economic efficiency, diminishing the United Kingdom's competitive advantage in the global dispute for attracting investments. Implementing measures such as prohibiting the granting of discounts to users of a firm's software operating on its cloud unless the company also extends same reductions to its competitors will likely result in higher prices for businesses in the United Kingdom. Regulatory initiatives of this nature could unintentionally compel businesses to move their digital

⁴⁵ See Danilo Samà, "The Antitrust Treatment of Loyalty Discounts and Rebates in the EU Competition Law: in Search of an Economic Approach and a Theory of Consumer Harm", (September 25, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2425100; and OCDE, "Fidelity Rebates: Background note by the Secretariat" (March 11, 2016), [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP\(2016\)5&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP(2016)5&docLanguage=En). The European Commission has already dealt with several cases regarding such conduct, including Case 85/76, *Hoffmann-La Roche v. Commission* [1979] ECR 461; *NV Nederlandsche Banden Industrie Michelin v Commission*, Case 322/81, 1983; *Irish Sugar v Commission*, Case T-228/97, 1999; and *Manufacture française des pneumatiques Michelin v Commission*, Case T-203/01, 2003.

operations to places with less regulation, which could result in the United Kingdom being cut off from progress in cloud and AI technologies.

I praise the CMA's initiative to open public consultations on such important markets for today's global economy. A close dialogue with the civil society is vital for better comprehending the markets for cloud services and evaluating the consequences of a potential governmental intervention not only to cloud providers, but also to users, consumers and to the United Kingdom's economy.

I thank the CMA for the opportunity of submitting this contribution and remain at disposal in case clarifications or additional information are required.